

Screening Architecture: Architecture, Media, and Conflict since the 1990s

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Urtzi Grau

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CERTIFICATE OF ORIGINAL AUTHORSHIP

I, *Endriana Audisho*, declare that this thesis is submitted in fulfilment of the requirements for the award of *Doctor of Philosophy*, in the *School of Architecture, Faculty of Design, Architecture and Building* at the University of Technology Sydney.

This thesis is wholly my own work unless otherwise referenced or acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

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PREFACE

‘Screening Architecture’ has stemmed from various directions – personal motivations, previous research projects, and more recent academic observations and explorations developed through my pedagogical practice, all related to and entangled by the relationship between architecture, media, and conflict.

Between War and Images

I was born in a war. My family immigrated to Australia when I was young. I've spent my entire life weaving through multiple languages and cultures, often questioning my identity and sense of belonging. My heritage is Assyrian, yet I cannot locate my homeland on a map (it was what is now modern northern Iraq, northwestern Iran, southeastern Turkey, and eastern Syria). Waves of genocide and religious persecution have led to the Assyrian diaspora, making us one of the most widely scattered indigenous peoples. During my upbringing, the TV and internet became my home – enabling communication with family members worldwide and providing an “up-close” view of images of my homeland from a distance. While the birth of the World Wide Web in the early 1990s, alongside other technological advancements such as the release of Apple’s first iMac in 1998, meant that the ability to view up close from afar became a phenomenon shared by many (albeit a privileged one), what set my case apart was the reliance on screens and journalistic accounts to stay updated on the ongoing conflict in Iraq, where many of my family members still reside.

I didn't fully grasp the significance of all this until I recently came across a quote by Lebanese theatre director Caroline Hatem. She states that she was also born in a war – a setting where everything is ephemeral: "you're here, then you're not."¹ Hatem describes this impermanence, and consequently, uncertainty, as a

¹ ICA London (@icalondon), “Caroline Hatem speaking in Fatamorgana about growing up in Lebanon during the civil war and its aftermath, the shrapnel it left in her psyche, society, city,” Instagram photo, September 24, 2021, <https://www.instagram.com/p/CULAvJqAJuV/?igshid=YmMyMTA2M2Y%3D>.

characteristic of war deeply inscribed into the cells of those affected by it. Therefore, due to being displaced by war and experiencing place, culture, and identity through constant mediation, I exist here, and I do not. In hindsight, growing up between war and images, mediated by several screens, has profoundly influenced my thinking about space and architecture, particularly concerning the role of media in constructing (biased) imaginaries of cities.

First-hand experience of the effects of dominant accounts of a place, culture, and identity, mainly through “Western” media, has motivated me to construct counter-hegemonic narratives of 'others' or the overlooked in my architectural research. It has also driven a critical inquiry into the apparatuses of media, such as the screen, both in perpetuating dominant accounts and, as observed more recently with the rise of citizen journalism, as sites that can facilitate the representation and construction of 'other' narratives in times of conflict. This brief personal account doesn't seek to legitimise my research but is an observation that my relationship with the screen has always been shaped by media and conflict. More importantly, it acknowledges how this experience has influenced my motivations as an architectural researcher and educator, impacting the types of questions I ask and the tools and methodologies I employ in my architectural investigations.

The Urbanism of Al Jazeera

The first investigation into the relationship between architecture, media, and conflict was undertaken in my Master of Research (Architecture) at the School of Architecture at the University of Technology (UTS Architecture). The project, titled 'The Indo-Pacific Atlas,' was completed in collaboration with three other research students under the supervision of Urtzi Grau. We constructed a large-scale architectural installation, exhibited as a part of the inaugural Chicago Architecture Biennial in 2015. The ten-meter-long collage, comprising over 4000 images, three-dimensional objects, and text-based media (see Fig 0.1), connected urban nodes along the Indo-Pacific region, challenging the Trans-Atlantic-centric construction of geopolitical narratives and territorial definitions founded on exchanges occurring

between Europe and the Americas (primarily colonial expansion and trade). The visual as narrative practice, whereby images (both historical and from popular media) were collected and carefully assembled, was used to trace the intersections of media, capital flow, gentrification, and post-traumatic conditions in the region, thereby formulating new understandings of the Indo-Pacific.



Fig 0.1 *The Indo-Pacific Atlas*, four case studies that constitute a new reading of the region. The projects are: *Immaterial Company Towns* by Gonzalo Valiente; *Cape Town: YouTube Gentrification* by Kane Pham; *The Urbanism of Al Jazeera* by Endriana Audisho; and *Medellin A Tale of Two Cities* by Christina Deluchi. Overseen by Urtzi Grau and photographed by Jack Dunbar. Used with permission.

My research and contribution to the installation, titled 'The Urbanism of Al Jazeera,' explored the effects of post-colonial media on the imaginary of cities in the Middle East (see Fig 0.2). Similar to the explosion of urbanisation in the Gulf, the rise of Al Jazeera – the first independent news channel in the Arab world – disrupted the consensual discourse on national identity by appropriating Western modes of representation outside their conventional symbolic orders. The model, viewed as a whole, traces the recalibration of the relationship between image and narrative relative to conflict as a consequence of the shift to a non-Western news outlet covering accounts of Middle Eastern cities.



Fig 0.2 *The Urbanism of Al Jazeera* by Endriana Audisho. Photograph by Jack Dunbar. Used with permission.

Resisting a grand narrative of the region, the model is divided into a series of image collections, each representing the coverage of an event case study primarily focused on conflict – spanning from CNN’s live coverage of the Gulf War to Al Jazeera’s establishment of a Creative Commons account during the Gaza War to the rise of citizen journalism in the Arab Spring. The event case studies serve as entry points into identified media shifts (see Fig 0.3) – from the pre-Al Jazeera context and the ensuing local void in media to the launch of Al Jazeera and its subsequent global expansion, which diversified its production and monopolised its distribution of images to the world, and finally, the informal alliance between social media and Al Jazeera as seen in the uprisings of the Arab Spring (see Fig 0.4). Reconstructing the spatiotemporal timeline of the region revealed that Al Jazeera’s editorial line seems ideologically flexible yet consistent in its defiance of Western neoliberal agendas. Its coverage conforms with an archipelago of local hegemonies, as presented through the event clusters in the model that re-shape the imaginary of cities in the Middle East.

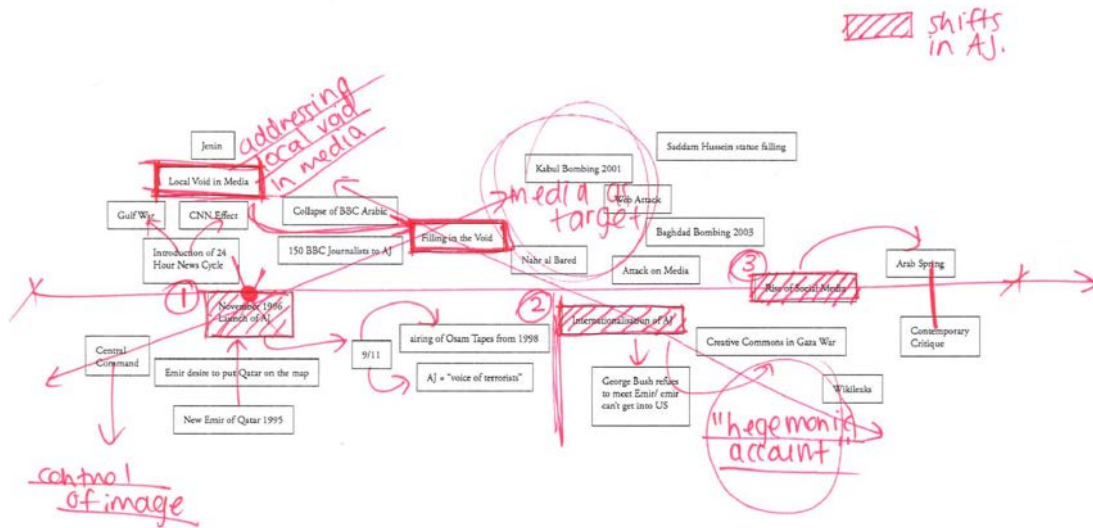


Fig 0.3 Diagram of *The Urbanism of Al Jazeera* narrative structure by Endriana Audisho. Used with permission.



Fig 0.4 Triptych showing model fragments of *The Urbanism of Al Jazeera* by Endriana Audisho. Photographs by Jack Dunbar. Used with permission.

'The Urbanism of Al Jazeera' served as an entry point into this thesis, providing me with a set of theoretical and methodological tools to further interrogate the space of media and its impact on our readings of architecture and the city, relative to conflict. It presented a methodology centred around the collection and assembly of evidence, particularly images, as a means to challenge silenced, hegemonic, or dominant narratives of architecture and the city. While the use of images to construct counter-narratives is not a new practice in the history of the avant-garde, where an oeuvre of historical and more contemporary precedents ranging from Aby Warburg's

‘Mnemosyne Atlas’ (1924-29) to Geoffrey Farmer’s ‘Leaves of Grass’ (2012) can be used to situate this practice, this method embraces the tension between the “official” record and the possibility of alternative pasts, presents, and futures.

Supporting the use of images as a valid form of architectural research recognises both the limits, mainly that need to be aware of how these “mute witnesses” are translated (or how they are circulated and presented to us through media), as margins for error are intrinsic to translation processes. Additionally, it recognises the potential inherent in working with images – they might be “mute” at a particular moment in history,² but they also hold future histories based on how they are recontextualised and refigured. Within this methodology is advocacy for operating in the plural, or, as cultural historian Peter Burke suggests, the need for images to be placed in “context,” or better yet, “in a series of contexts in the plural,” and/or studied within a series of images.³ Working in the plural, particularly across various media and perspectives, allows for comparison – highlighting affinities, exposing absences, or constructing new associations. Learning from the model, I have applied this methodology in the thesis – weaving through dominant sources to identify hegemonic accounts and then foregrounding overlooked sources as a means to decentre discourses that can often be traced back to a more extended history of privilege and power.

The ‘Indo-Pacific Atlas’ has also raised questions regarding the display of these non-hegemonic narratives. It highlighted the significant role that an exhibition practice can play in establishing an alternative paradigm of representation through which pressing issues can be publicly disseminated. Displaying installation works in exhibitions is a practice that this thesis places significant emphasis on due to its ability to facilitate other modes and scales of engagement, particularly in spatial terms, with displayed subject matter. The installation also underscored the power of using or working through the very same medium or material under investigation

² Peter Burke, *Eyewitnessing: The Use of Images as Historical Evidence* (London: Reaktion Books, 2014), 187.

³ Burke, *Eyewitnessing: The Use of Images as Historical Evidence*, 187.

(such as images in the case of ‘The Urbanism of Al Jazeera’) to translate and, consequently, gain a better understanding of the material or spatial effects under investigation. This medium specificity is also evident in the thesis, where the screen is under investigation, and consequently, all forms of analysis and inquiry are read through and in relation to the screen.

Cities Under Surveillance

Building on themes raised by ‘The Urbanism of Al Jazeera,’ my pedagogical practice has also served as a space to interrogate the politics of representation through the broader lens of surveillance. History has presented us with models of vision that have set up surveillance and panoptic machines. Visual culture theorist Nicholas Mirzoeff explains that visibility has contributed to this problematic history of control and is a central force in the legitimisation of Western hegemony.⁴ Techniques of classification, separation, and aestheticisation – what Mirzoeff calls ‘a complex of visibility’ – are deeply engrained with questions of ethics and politics. The very models, mediums, and architectures that have enabled space, people, and things to be ‘seen’ have also dictated what is ‘unseen,’ cropped from the frame, and out-of-sight.⁵ Aware of the history of visibility as a dominant tool for the command and control of space, people, and things, ‘Cities Under Surveillance,’ a Master of Architecture design studio that I have been running at UTS Architecture for the past five years (in part co-taught with Tova Lubinsky), set out to turn the practice of visibility into a problem for analysis and architectural inquiry.

My pedagogical practice has afforded several trajectories for this thesis. The first is that the theoretical terrain set up by the studio has allowed a better understanding of

⁴ For a comprehensive account of the history of visibility described here, see Nicholas Mirzoeff, *The Right to Look: A Counterhistory of Visibility* (Durham: Duke University Press, 2011).

⁵ There is a growing body of scholarship on the ethical and political questions posed by different forms of representation. See Stuart Hall, *Representation: Cultural Representations and Signifying Practices* (London: Sage, in association with The Open University, 1997); Ann Laura Stoler, *Along the Archival Grain Epistemic Anxieties and Colonial Common Sense* (Princeton, NJ: Princeton University Press, 2009); Tina Campt, *Listening to Images* (Durham: Duke University Press, 2017); and Nicholas Mirzoeff, *White Sight: Visual Politics and Practices of Whiteness* (Cambridge, Massachusetts: The MIT Press, 2023), among others.

the contemporary condition of conflict and its relationship to architecture. Drawing from recent visual culture studies and focusing on the interrogation of vision, surveillance, and broader control practices, the studio has identified the period since 9/11 as a contemporary site of architectural inquiry. The sheer quantity of images facilitated by the combination of new media, digital imaging, and the internet ushered a “pictorial turn”⁶ post 9/11 that witnessed a “war of images.”⁷ This paradigm shift was shaped by the field of screens above and on the ground that recorded the event and its aftermath. The proliferation of visual and media technologies not only, as Lisa Parks points out, “ruptured US vertical hegemony”⁸ but became the very technologies exercised by the US government to reassert global dominance through the control of “orbit, air, and airwaves using satellites, aircraft, and broadcasting.”⁹ As “the entire world became a place for possible conflict,”¹⁰ the preoccupation with fear and its management¹¹ led to the hyper-securitisation and surveillance of public space, exacerbated and legitimised by the declaration of a ‘War on Terror’ post-9/11. The 9/11 attacks forever transformed architecture, not only in the form of design responses to satisfy security concerns but through the recognition that the city was now a “place of possible conflict” and was being shaped (and controlled) by layers of mediation, in turn impacting both readings and representations of the city.

The second trajectory that my teaching has offered this thesis is the call for new ways to operate as an architect. The studio, once again, through the theoretical terrain set up, has observed that new aesthetic and geopolitical concerns since 9/11 have prompted greater architectural research into spatial politics and the politics of digital spatial technologies. Within this context, a forensic methodology – a cross between investigative journalism and documentary practice – has emerged and encouraged a mode of architectural practice that takes on a social and activist role in

⁶ William J.T. Mitchell, *Cloning terror: the war of images, 9/11 to the present* (Chicago: Chicago University Press, 2011), 23.

⁷ Ibid.

⁸ Lisa Parks, *Rethinking Media Coverage: Vertical Mediation and the War on Terror* (New York: Routledge, 2018), 2.

⁹ Ibid.

¹⁰ Nicholas Mirzoeff, *How to See the World* (London: Penguin, 2015), 117.

¹¹ See Paul Virilio, and Bertrand Richard, *The Administration of Fear* (Los Angeles, CA: Semiotext(e), 2012).

the pursuit of exposing spatial injustices.¹² Identifying this emerging mode of practice has been significant for the thesis as it has highlighted the agency of architectural expertise when navigating contemporary issues such as the relationship between architecture, media, and conflict. The thesis continues to explore this emerging field of practice, primarily through the case studies of the research agency 'Forensic Architecture' (FA) and the research centre 'Centre for Research Architecture' (CRA) at Goldsmiths University, among other critical-spatial pedagogies and practices.

Finally, 'Cities Under Surveillance' has also encouraged the expansion of the architect's toolkit to respond to the rise of new aesthetic and geopolitical concerns since 9/11. Unpacking the control practices implicit in a series of case study cities – including Sydney, Johannesburg, and Beirut – the studio has tested ways to decentre the hegemonic representations present in these cities. Firstly, the studio advocates for the assemblage of visual evidence, mainly overlooked material, to challenge dominant or state-led accounts of architecture and the city. More specifically, it encourages a mixed-media and spatiotemporal approach, subverting the traditional instructive role of architectural representation (as predominantly seen in construction drawing sets) to one of narrative – a method and representational language more capable of capturing the post-panoptic forces at play today. The architectural projects range from layered expanded drawings (see Fig 0.5) to video narratives (see Fig 0.6), each becoming a site of alternative architectural and urban accounts. These pedagogical experiments have allowed the thesis to build on them and continue investigating what forms of architectural production and representational techniques are required to critically engage with the geopolitical and aesthetic concerns raised by a culture increasingly driven by conflict and its mediation.

¹² This methodology has been deployed by contemporary spatial practitioners/practices, including Alison Killing, Lawrence Abu Hamdan, DAAR (Decolonizing Architecture Art Research), SITU Research, Cooking Sections, and Counterspace, among others. These practices combine architectural techniques with forensic methods to address urgent social, cultural or environmental issues of the present.



Fig 0.5 Expanded drawing of *The Egg* in Beirut by Julia Ramos and Jacqueline Tran, Cities Under Surveillance, UTS Master of Architecture design studio, Autumn Semester, 2020. Design studio led by Endriana Audisho (author). Used with permission.

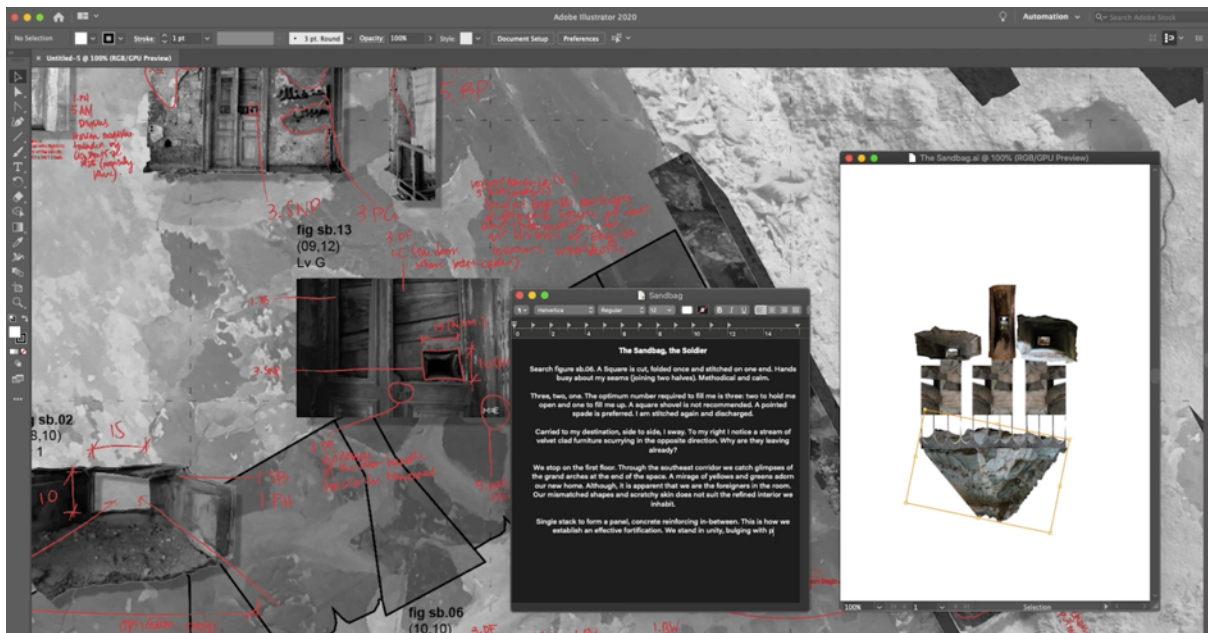


Fig 0.6 A video still from *The _____ Collection* produced by Amy Seo and Isabella Wells, Cities Under Surveillance, UTS Master of Architecture design studio, Autumn Semester, 2020. Design studio led by Endriana Audisho (author). Used with permission.

The Screen as Protagonist

This preamble has established the theoretical terrain from which the thesis has emerged and developed. Additionally, it has presented the broader contemporary concerns to which the thesis responds, including the paradigm shift post 9/11 and the subsequent need to redefine the role of the architect, along with the tools and methodologies that support contemporary architectural approaches to media and conflict. Core to this line of inquiry, as argued by the thesis, is the very apparatus that has prompted a discourse and practice around the relationship between architecture, media, and conflict to emerge – the screen, specifically the cathode-ray tube (CRT), a technology that underpinned both TV and computer screens during the 1990s. The coalescence of conflict beaming through CRT screens worldwide and the introduction of CRT screens in schools of architecture in the 1990s constructed a context in which the screen’s material presence and spatial and mediating effects became of architectural concern. By revisiting this context – where the screen is an identified protagonist in this narrative – the thesis re-situates architectural production and representation at the confluence of media and conflict.

‘Screening Architecture’ excavates a history of the CRT with the aim of gaining a better understanding of architecture’s contemporary relationship with media and conflict. Whilst the thesis draws on post-war TV media theory to form a pre-history of the screen and focuses on the post-modern media theory of Jean Baudrillard and Paul Virilio – predominant theorists during the period under investigation in this thesis, the 1990s – this method of ‘excavating’ a history of a single medium, in this case, the screen, aligns with German media theory, as exemplified in the work of Friedrich A. Kittler, and more contemporary media theory, specifically what new media theorists Jussi Parikka and Erkki Huhtamo have termed ‘media archaeology.’ Parikka defines media archaeology as an emerging field interested in investigating the culture of new media by studying past new media, primarily those that have been forgotten or have been considered “dead.”¹³ Despite the CRT being declared officially dead by Steve Jobs, the then-CEO of Apple, at a trade show in 2002 through the words, “The new iMac ushers in the age of flat-screen computing for everyone. The CRT is now officially dead,”¹⁴ it finds an afterlife in this thesis. Following a media archaeology practice, the thesis resurfaces this “dead” medium to contextualise and bring new readings to screens of the present, specifically in terms of how they organise relationships between aesthetic practices and geopolitical concerns today.

Huhtamo and Parikka emphasise that media archaeology is, in part, a response to many new media theories that disregard the past and consider new media as an "all-encompassing and "timeless" realm that can be explained from within."¹⁵ In contrast, media archaeology advocates for the study of media pasts to comprehend present cultural conditions – an approach inspired by Michel Foucault’s writing on archaeology,¹⁶ which encourages an examination of discursive traces in order to write a history of the present. Kittler further extends this idea, emphasising the importance of studying media technologies, specifically their technical and material

¹³ Jussi Parikka, *What Is Media Archaeology?* (Cambridge: Polity Press, 2012), 2.

¹⁴ “Apple Unveils the New iMac,” Apple, January 7, 2002, <https://www.apple.com/newsroom/2002/01/07Apple-Unveils-the-New-iMac/>.

¹⁵ Erkki Huhtamo and Jussi Parikka, *Media Archaeology: Approaches, Applications, and Implications* (Berkeley: University of California Press, 2011), 1.

¹⁶ See Michel Foucault, *The Archaeology of Knowledge* (London: Tavistock Publications, 1972).

properties, as a means to understand conditions of existence and culture.¹⁷

Bernhard Siegert's 'Cultural Techniques' articulates this shift, explaining that the emphasis on technicality and materiality has led German media theorists to "turn Foucault's concept of the 'historical apriori' into a 'technical apriori' by referring the Foucauldian 'archive' to media technologies."¹⁸ This approach is shared by other media-archaeological theorists, including Walter Benjamin, Anne Friedberg, and Jonathan Crary, who have traced how scientific and technological innovations influenced cultural shifts throughout modernity.¹⁹

Kittler's 'media materialism,' which has also been labelled as 'hardware theory,' insists on medium specificity and, in doing so, shifts focus from humans as the central source of social and cultural inquiry. Parikka underscores the significance of focusing on materiality or hardware, especially in a context driven by the "immateriality" of digital culture and the information society, presenting it as an important political task for media-archaeological research.²⁰ Aligning with these perspectives and approaches, this thesis references media archaeology, focusing on a single medium (the CRT screen), unearthing its material condition along with its spatial and mediating qualities, and uncovering its past to understand its role in cultural transformations within architecture.

The thesis is also influenced by media archaeology and its advocacy for constructing counter-histories – a practice that resonates with my own interests in constructing counter-hegemonic narratives of 'others' or the overlooked in my architectural research and pedagogy. Media archaeology's counter-historical approach is rooted in Foucault's writings on 'genealogy' as a critique of historical analysis whereby continuous or linear history or the return to history in search of an 'origin,' is challenged in favour of understanding the multiplicity of the past. This critique observes that continuous history, which often becomes the dominant account, is a

¹⁷ Parikka, *What Is Media Archaeology?*, 6.

¹⁸ Bernhard Siegert, "Cultural Techniques: Or the End of the Intellectual Postwar Era in German Media Theory," *Theory, culture & society* 30, no. 6 (2013): 50.

¹⁹ Parikka, *What Is Media Archaeology?*, 7.

²⁰ Parikka, *What Is Media Archaeology?*, 64.

product of power. Media archaeological research responds to this by uncovering ‘other’ genealogies, often rendered invisible by continuous history. In addition, the general discontent with “canonised” media culture narratives²¹ has prompted media archaeologists to construct “counter-histories to the mainstream media history, and [look] for an alternative way to understand how we came to the media cultural situations of our current digital world.”²² Similarly, this thesis navigates dominant accounts of the screen while concurrently foregrounding figures, theories, or discourses that offer alternative perspectives.

An Alternative Account of the Digital in Architecture

In the context of this thesis, established accounts of the CRT screen have originated from two domains: media theory and the history of computation. Media theory accounts of the CRT emerged from post-war theories on the TV, which either trace societal responses to the-then new technology or technical histories (mainly found in media manuals and technology handbooks).²³ While seminal works like Lynn Spigel’s ‘Make Room for TV’ (1992)²⁴ have contributed to cultural readings of the TV, most of these accounts frame TV as an entertainment medium. The thesis shifts away from seeing the CRT as merely an entertainment technology. Instead, it argues that the screen has material, spatial, and mediating effects that influence both representations and consumptions of space. The thesis analyses the event case study of CNN’s 24-hour live coverage of the Gulf War in 1991 to unpack these effects. This analysis includes exploring how the technological and material mystification of the “real-time” phosphor-green night-vision video clips and images of Baghdad unfolding on CRT screens worldwide – which became iconic (and hegemonic) representations of the Gulf War – contributed to a simulated

²¹ Huhtamo and Parikka, *Media Archaeology: Approaches, Applications, and Implications*, 2-3.

²² Parikka, *What Is Media Archaeology?*, 6.

²³ See, for instance: Amit Dhir, *The Digital Consumer Technology Handbook: A Comprehensive Guide to Devices, Standards, Future Directions, and Programmable Logic Solutions* (Oxford: Elsevier Science, 2004); Robert L. Hartwig, *Display Interfaces Fundamentals and Standards* (Chichester: Wiley, 2002); Robert L. Hartwig, *Basic TV Technology: Digital and Analog* (Burlington, Mass: Focal Press, 2005).

²⁴ See Lynn Spigel, *Make Room for TV: Television and the Family Ideal in Postwar America* (Chicago: University of Chicago Press, 1992).

representation of a city in “conflict.” This analysis initiates the construction of an alternative account of the CRT, one which situates the screen, and by extension, the digital, at the core of a series of aesthetic and geopolitical concerns.

In addition to media theory, established accounts of the screen have also emerged from histories of computation, many of which have framed the screen through a techno-determinist or techno-solutionist narrative. This is largely in part due to the influence that Cold War military objectives had on technological developments. As detailed by Paul N. Edwards in ‘The Closed World’ (1996), the digital computer stands out as one of the most important legacies among the technologies developed for Cold War combat – “Its politics became embedded in the machines – even, at times, in their technical design – while the machine helped make possible its politics.”²⁵ Examining the military's role in computer research from the 1940s to the 1960s, Edwards highlights that the United States armed forces were the main drivers of digital computer development. Although the research took place in universities and commercial firms, military research organisations funded it.²⁶

This large-scale government-led military funding facilitated the physical construction of computers for real-time command-and-control systems on a global scale, thereby supporting the “closed-world” discourse of the Cold War. As a technology associated with closed-world discourse, where world politics and conflict were thought to be technologically managed, one could argue that the military fantasies of control have not only shaped the development of computing but also defined future research trajectories. Edwards emphasises that these military-led computer projects influenced research on cybernetics and artificial intelligence (AI). As theories of control – whether through the instrumentality of the computer at the systems thinking scale, as first introduced through Norbert Wiener’s 1948 cybernetics theory,²⁷ or as a tool that can aid or even “solve problems,” as first described by Marvin Minsky in

²⁵ Paul N. Edwards, *The Closed World: Computers and the Politics of Discourse in Cold War America* (Cambridge, Mass: MIT Press, 1996), ix.

²⁶ Edwards, *The Closed World: Computers and the Politics of Discourse in Cold War America*, 43.

²⁷ See Norbert Wiener, *Cybernetics, or, Control and Communication in the Animal and the Machine* (New York: Wiley & Sons, 1948).

1961 through his work on AI²⁸ – cybernetics and AI have set up the foundations of a techno-solutionist narrative, whereby the computer is seen as a solution to very complex real-world problems.

Post-war research and development in cybernetics and AI have profoundly influenced computing and its application to architecture. This trajectory is thoroughly explored in Molly Wright Steenson’s ‘Artificial Intelligence: How Designers and Architects Created the Digital Landscape’ (2017). The techno-utopianism of the 1960s led architects, as Steenson uncovers, to incorporate these theories into their architectural works – from Cedric Price’s interest in interactivity, prompted by cybernetics and best seen through ‘Fun Palace,’ to Nicholas Negroponte’s curiosity with the human-computer dialogue and consequent research projects, such as the program Urban5 (an early development of AI). The shortcomings of these projects, many of which remained unbuilt or unrealised, were influenced by various factors, including the decline in military research funding. Moreover, the rise of postmodernism in architecture during the 1980s, which “relegated most cyber-theories and artificial intelligence dreams of the 1960s to the dustbin of design history,”²⁹ stalled developments between architecture and computing, only to be revived by the so-called “computer revolution” of the 1990s. The emergence of smaller and more affordable computers (PCs) and the arrival of a new generation of software paved the way for what has been labelled as the ‘digital turn in architecture’ – or, at least, this is the story that has been repeatedly recounted.

The narrative of the digital in architecture, hinging on software innovations, has dominated existing scholarship and surveys of this period. For instance, in a recent article tracing the history of the digital turn in architecture, Mario Carpo argues that architecture’s post-war explorations with cybernetics and AI were “false starts.” Instead, he posits that the “real beginnings” of the digital revolution emerged with

²⁸ See Marvin Minsky, ‘Steps Toward Artificial Intelligence,’ *Proceedings of the IRE* 49, no. 1 (1961): 8–30.

²⁹ Mario Carpo, “A short but believable history of the digital turn in architecture,” *e-flux Architecture* (March 2023), <https://www.e-flux.com/architecture/chronograms/528659/a-short-but-believable-history-of-the-digital-turn-in-architecture/>.

innovations in CAD software around the turn of the century. This software facilitated the use of machines to make new kinds of architectural drawings – “drawings that would have been difficult or perhaps impossible to draw by hand.”³⁰ According to Carpo, these innovations were initially tested by a cohort of young individuals associated with or revolving around Columbia University’s Graduate School of Architecture’s (GSAPP) Paperless Studios.³¹ The arrival of new digital software, namely spline modelling, coincided with the rise of digital design theory influenced by interpretations of Gilles Deleuze’s notion of the ‘Fold,’ which saw an architectural formal language of “smoothness” become emblematic of ‘the digital’ in architecture. This ‘origin’ story, where software takes centre stage, has been reiterated over the past two decades, solidifying its status as the ‘master’ account of the digital in architecture.

This thesis begins to unravel this history. Embracing the Foucauldian critique of linear history, the thesis acknowledges that this established master account has been subject to the constructs of power. Firstly, it is imperative to note that architecture’s contemporary relationship to the screen is historically situated and has been contingent on the intricate link between military funding and institutional research in post-war computer projects, as has been briefly referenced through Edwards ‘The Closed World.’ The legacies of the military-born research areas – cybernetics and AI – have shaped contemporary work on computation, particularly the role ubiquitous computing plays today in the search for “smartness,” as adeptly foregrounded in Orit Halpern and Robert Mitchell’s recent work, ‘The Smartness Mandate’ (2022).³² Moreover, military-funded projects, including post-war developments in computer graphics at MIT (such as Ivan Sutherland’s ‘Sketchpad’) and the contributions of the Architecture Machine Group led by Negroponte, have shaped a lineage of research concerned with ways in which the computer could “aid”

³⁰ Ibid.

³¹ Ibid.

³² Halpern and Mitchell argue that the planet, with its growing crises, has been turned into a test-bed for computational technology with “smartness” as the governing rhetoric. Examining how artificial intelligence, machine learning, big data and ubiquitous computing have shaped a new type of geopolitics, one centred on computation, Halpern and Mitchell highlight that “smartness” is another mode of control – from human life to planetary governance. See Orit Halpern and Robert Mitchell, *The Smartness Mandate* (Cambridge, Massachusetts: The MIT Press, 2022).

an architect's design process. This concept has evolved into attempts to use the computer to optimise or control design processes, as seen through the architectural form-finding exercises of the 1990s and, more recently, algorithmic-driven parametric design. This trajectory underscores that the computer has, and continues to be, implicated in ideologies of control. Therefore, architecture's engagement with cybernetics and AI was not a series of, as Carpo suggests, "false starts;" on the contrary, its legacies have permeated deeply into the present.

In addition to these post-war engagements, the thesis recognises that the master account of the digital in architecture has also been shaped by several prominent figures and institutions that played a significant role in the theorisation of 'the digital' in architecture in the US during the 1990s. This mainly includes the application and architectural development of the Deleuzian fold by Peter Eisenman,³³ who was later joined by Greg Lynn (Eisenman's former student and assistant) and other figures like Jeffrey Kipnis and John Rajchman. Their theoretical writings, focusing on the search for a new architecture of the digital, circulated in prominent journals and magazines, including those coming out of architecture's cultural think-tank of the time, Anyone corporation (co-founded by Eisenman in 1990). The interpretations of the fold coincided with the technical development of spline modelling software in the mid-1990s, giving rise to an architectural formal language of smoothness and continuity. This language began infiltrating architecture schools through Lynn's involvement in GSAPP's Paperless Studio. These figures, documents, and institutions – an overwhelmingly patriarchal power structure in itself – have become the primary sources for readers and anthologies of the period. This influence, as observed with Carpo, has reinstated the master account of the digital in architecture, emphasising how the fold became digital and curvy, or in Lynn's terms, 'blobs.'

³³ Eisenman, having established the Institute for Architecture and Urban Studies in 1967 and its associated journal 'Oppositions,' a member of the New York Five, a key protagonist in the deconstructivist architecture movement in the 1980s, and a co-founder of the think tank 'The Anyone Corporation (ANY) in 1990,'³³ all whilst maintaining strong connections with European philosophers such as Jacques Derrida (a friend of Eisenman's), played a definitive cultural role in academic circles, especially in the East Coast of the US.

Folds, blobs, and topological geometries have dominated the narrative of the digital in architecture. However, the interface through which 'the digital' manifests and is engaged – the screen – has received little attention. The thesis aims to decentre the master account of the digital in architecture by shifting the focus away from software and argues that a focus on the materiality of the screen, following a media archaeology practice, presents an alternative account. By revisiting the context and the apparatuses that have enabled the master account, the thesis assembles diverse material around the question of the screen to thread a discourse between architecture, media, and conflict. In doing so, the thesis presents 'other' engagements with the screen, and by extension, the digital, in architectural practice and pedagogy. This includes exploring the installation works of small, critically engaged screen-based practices, namely Diller Scofidio, and delving into the heterogeneous lines of inquiry present in GSAPP's Paperless Studios through the pedagogies of figures such as Hani Rashid and Keller Easterling, among others. These observations were only made possible by closely examining the dominant account, the apparatuses, and the power structures that hindered the development of alternative stories.

The thesis also intentionally disrupts the (self-declared) digital 'avant-gardism' of the dominant account to continue to play out. It narrates its demise through its inability to engage with the new aesthetic and geopolitical concerns raised since 9/11. This inadequacy is exemplified by the depoliticised techno-formal aesthetic generated by the digital avant-garde collaborative 'United Architects' for their 2002 proposal to design a new World Trade Centre. Instead, the thesis reorients an inquiry, as steered by the screen as a protagonist, into the tools and methodologies required to support contemporary architectural approaches to media and conflict. This is investigated in the thesis by highlighting the work of figures who have contributed to this reorientation, such as Laura Kurgan, and thoroughly examining the role that the screen plays in the investigative methodology developed by the research agency 'Forensic Architecture' (FA) and the research centre 'Centre for Research Architecture' (CRA) at Goldsmiths University, alongside other critical-spatial pedagogies and practices.

This deviation from the dominant account destabilises the digital 'avant-gardism' that has emerged from techno-determinist or techno-solutionist narratives. Instead, it advocates for ways in which architecture can critically engage with the screen and its broader cultural entanglements today. Put more directly, we cannot continue to operate through the tools or methodologies that have been complicit in military concerns and the hegemonic systems of control, discourses, and ideologies they have come and continue to represent. Screening Architecture is an attempt to reorient these concerns, highlighting both the problems the screen has posed historically and how an alternative engagement with the digital in architecture, situated at the confluence of media and politics, can recognise the empowering, democratising, and decolonial role the screen can play today.

TABLE OF CONTENTS

CERTIFICATE OF ORIGINAL AUTHORSHIP	i
ACKNOWLEDGEMENT	ii
PREFACE	vi
Between War and Images	vi
The Urbanism of Al Jazeera	vii
Cities Under Surveillance	xii
The Screen as Protagonist	xvi
An Alternative Account of the Digital in Architecture	xix
LIST OF ILLUSTRATIONS	xxx
ABSTRACT	xliii
THESIS INTRODUCTION	1
SECTION 01:	
THE SCREEN IN CULTURE	22
<u>Chapter 01: The Electronic Environment: McLuhan's Theory of TV as a Cool Medium, 1964</u>	22
1.1 Introduction	22
1.2 Media as Environment	23
1.3 A Global Village of Simultaneous Happenings	28
1.4 Television as a 'Cool' Medium	31
1.5 Conclusion	37
<u>Chapter 02: Techniques of the TV Screen: Video Art and Architectural Projects of the 1960s and 1970s</u>	39

2.1 Introduction	39
2.2 The Screen Interface	40
2.3 Alternative Media: Video Collectives in the 1960-70s Counterculture of the US	47
2.4 TV as a Creative Medium: Video Art and Installations in Post-War Art and Architectural Production	57
2.5 Conclusion	76
 SECTION 02:	
THE SCREEN IN STUDIO	77
 <u>Chapter 03: Liveness, Mediation, and the Simulated:</u>	
<u>Jean Baudrillard and Paul Virilio</u>	77
3.1 Introduction	77
3.2 Baudrillard and Virilio: Two Conscientious Objectors	77
3.3 Screen Simulation versus Screen Substitution	80
3.4 Screens Near and Far	83
3.5 Screen Spaces: Real-Time over Real-Space	84
3.6 Liveness: Spectacle Over the Real	87
3.7 Conclusion	91
 <u>Chapter 04: Screen Conflict: CNN at the Al-Rashid Hotel, Baghdad, 1991</u>	92
4.1 Introduction	92
4.2 Operation Desert Storm: Journalism History from the Al-Rashid Hotel	93
4.3 “Something is Happening Outside:” Liveness as an Unfiltered, Unscripted, and Speculative Journalistic Format	98
4.4 CNN’s Speculative Coverage Is Both the Medium and the Message	106
4.5 Screen Distance: “We’re Going to Baghdad Now Because We Can”	110

4.6 Real-Time Over Real-Space: “Now You See It, Now You Don’t”	113
4.7 Spectacle Over the Real: “How Is It That a Real War Did Not Generate Real Images?”	115
4.8 Conclusion	118
<u>Chapter 05: Screen Theory and Practice: The Emergence of Screen-Based Architecture in the Late 1980s and 1990s</u>	120
5.1 Introduction	120
5.2 The State of Affairs in Architectural Discourse at the Turn of the 1990s	121
5.3 Towards a So-Called ‘New Architecture’ of the Digital	127
5.4 Towards an Alternative Account of the Digital in Architecture	137
5.5 Conclusion	165
<u>Chapter 06: Screen Pedagogy: The Paperless Studio, 1994</u>	167
6.1 Introduction	167
6.2 The Computer in the US Academic Context	168
6.3 Generating a New Language for GSAPP	180
6.4 GSAPP’s Curriculum Re-Structure and Digital Technology Capital Grant	186
6.5 Hardware and Software: A Proposal for a Digital Design Studio	189
6.6 Going Paperless: The Introduction of the Computer in Architectural Design Studio	191
6.7 Paperless Pedagogical Model: Educators Teaching Without a Plan	198
6.8 Testing with a Plan: From Form to Mediascapes and Everything in Between	202
6.9 Conclusion	217
<u>Chapter 07: An Avant-Garde Collapse: World Trade Centre Competition, 2002</u>	219
7.1 Introduction	219

7.2 Paperless but Not Objectless	220
7.3 Things in the Making: The Shift from Paperless to Pragmatism in the Early 2000s	226
7.4 Building on Ground-Zero: A Post-Critical Screen-Based Architecture After 9/11	231
7.5 Conclusion	248
SECTION 03:	
THE SCREEN IN THE FIELD	251
<u>Chapter 08: The Centre for Research Architecture and Forensic Architecture: Critical Counter-Pedagogy and Counter-Practice</u>	251
8.1 Introduction	251
8.2 Multi-Screens: Above-Ground and On-The-Ground Spatial Technologies	252
8.3 Critical Counter-Pedagogies: The Centre for Research Architecture, 2005	254
8.4 Investigating the Politics of Digital Spatial Technologies	259
8.5 Critical Counter-Practice: Forensic Architecture, 2010	267
8.6 The Screen in the Gallery: Forensic Architecture's Exhibition-Based Practice	272
8.7 The Operative Digital Model in Forensic Architecture	284
8.8 Conclusion	296
THESIS CONCLUSION	298
Toolkit of the Present	299
Close Up at a Distance	304
Making Things Public	306
The End of the Beginning	308
BIBLIOGRAPHY	309

LIST OF ILLUSTRATIONS

Fig 0.1 *The Indo-Pacific Atlas*, four case studies that constitute a new reading of the region. The projects are: *Immaterial Company Towns* by Gonzalo Valiente; *Cape Town: YouTube Gentrification* by Kane Pham; *The Urbanism of Al Jazeera* by Endriana Audisho; and *Medellin A Tale of Two Cities* by Christina Deluchi. Overseen by Urtzi Grau and photographed by Jack Dunbar. Used with permission.

Fig 0.2 *The Urbanism of Al Jazeera* by Endriana Audisho. Photograph by Jack Dunbar. Used with permission.

Fig 0.3 Diagram of *The Urbanism of Al Jazeera* narrative structure by Endriana Audisho. Used with permission.

Fig 0.4 Triptych showing model fragments of *The Urbanism of Al Jazeera* by Endriana Audisho. Photographs by Jack Dunbar. Used with permission.

Fig 0.5 Expanded drawing of *The Egg* in Beirut by Julia Ramos and Jacqueline Tran, Cities Under Surveillance, UTS Master of Architecture design studio, Autumn Semester, 2020. Design studio led by Endriana Audisho (author). Used with permission.

Fig 0.6 A video still from *The _____ Collection* produced by Amy Seo and Isabella Wells, Cities Under Surveillance, UTS Master of Architecture design studio, Autumn Semester, 2020. Design studio led by Endriana Audisho (author). Used with permission.

Fig 2.1 Etienne Grandjean's diagram of the 'man-machine system.' Source: Etienne Grandjean, *Fitting the Task to the Man: An Ergonomic Approach* (London: Taylor & Francis, 1980), 113, fig.84.

Fig 2.2 A video still from the *Media Burn* performance by Ant Farm, 1975. Source: Ant Farm, *Media Burn*, 1975, single-channel video, San Francisco Museum of Modern Art, <https://www.sfmoma.org/artwork/91.210/>.

Fig 2.3 Drawing of *Video Media Van* by Ant Farm, 1970. Source: Ant Farm, *Video Media Van*, 1970, visual graphic, Chip Lord, <https://chiplord.net/airspace-1>.

Fig 2.4 Drawing of *Fobile Muck Truck* by Dean and Dudley Evenson as featured in Radical Software video journal. Source: Dean and Dudley Evenson, "Fobile Muck

Truck,” *Radical Software* 1, no.3 (1970): 4,
https://www.radicalsoftware.org/e/volume1nr3_pics.html.

Fig 2.5 Information feedback diagrams of *Media Bus* by Videofreex as featured in Radical Software video journal. Source: Videofreex, “Media Bus,” *Radical Software* 1, no.3 (1970): 4, https://www.radicalsoftware.org/e/volume1nr3_pics.html.

Fig 2.6 Front cover (left) and excerpt (right) from the *Whole Earth Catalog*, Fall 1968 issue. Source: Steward Brand, ed., *Whole Earth Catalog* (Menlo Park, CA: Portola Institute, 1969-1998), front cover and 4,
https://monoskop.org/images/0/09/Brand_Stewart_Whole_Earth_Catalog_Fall_1968.pdf.

Fig 2.7 Covers of *Radical Software* video journal, spanning 11 issues from 1970 to 1974. Source: “Home,” Radical Software, accessed September 19, 2022,
<https://www.radicalsoftware.org/e/index.html>.

Fig 2.8 CRT installations: *Suspension* and *Thrust* by Earl Reiback, exhibited in *TV as a Creative Medium* in 1969. Source (left): Earl Reiback, *Suspension*, 1969, modified television set, Whitney Museum of American Art,
<https://whitney.org/collection/works/9238>. Source (right): Earl Reiback, *Thrust*, 1969, modified television set, Whitney Museum of American Art,
<https://whitney.org/collection/works/9239>.

Fig 2.9 CRT display of sound translated into light in Nam June Paik’s *Participation TV*, exhibited in *TV as a Creative Medium* in 1969. Source: Nam June Paik, *Participation TV*, 1969, philco color lite TV set and two microphone N.Y. amplifiers, David Bermant Foundation, <https://davidbermantfoundation.org/project/participation-tv/>.

Fig 2.10 Two three-inch cathode-ray tubes, encased in vinyl straps, constitute Nam June Paik’s *TV Bra for a Living Sculpture*, exhibited in *TV as a Creative Medium* in 1969. Source: Nam June Paik, *TV Bra for Living Sculpture*, 1969, performance and video, T. B. Walker Acquisition Fund, 1991,
<https://walkerart.org/collections/artworks/tv-bra-for-living-sculpture>.

Fig 2.11 In the 1969 exhibition *TV as a Creative Medium*, cellist Charlotte Moorman wore Nam June Paik’s *TV Bra for Living Sculpture*, with her cello’s sound processed to generate live television images during the performance. Source: Nam June Paik,

TV Bra for Living Sculpture, 1969, performance and video, Paik Studios, <https://www.paikstudios.com/>.

Fig 2.12 Frank Gillette and Ira Schneider's video installation, *Wipe Cycle*, first exhibited in *TV as a Creative Medium*, 1969, consisted of a grid of nine monitors displaying synchronised cycles of live and delayed feedback, broadcast TV, and taped programming. Source: Frank Gillette and Ira Schneider, *Wipe Cycle*, 1969, video installation, Frank Gillette, <https://www.frankgillette.com/wipe-cycle>.

Fig 2.13 Feedback diagram for Frank Gillette and Ira Schneider's video installation, *Wipe Cycle*. Source: Frank Gillette and Ira Schneider, *Wipe Cycle*, 1969, video installation, Frank Gillette, <https://www.frankgillette.com/wipe-cycle>.

Fig 2.14 Installation view of the film *Glimpses of the U.S.A.* by Charles and Ray Eames as part of the 1959 American exhibition in Moscow. Source: Charles and Ray Eames, *Glimpses of the U.S.A.*, 1959, multi-screen film installation, Eames Office, <https://www.eamesoffice.com/the-work/glimpses-of-the-u-s-a-film/>.

Fig 2.15 A sectional architectural drawing (left) and installation view (right) of the multi-screen installation, *Think!*, by Charles and Ray Eames exhibited in the Ovoid Theater at the 1964 New York World's Fair. Source (left): Charles and Ray Eames, *IBM World's Fair pavilion, Ovoid Theater. Section of auditorium*, 1964, drawing, Library of Congress, <https://www.loc.gov/item/2015646235/>. Source (right): Charles and Ray Eames, *Think!*, 1964, multi-screen film installation, Eames Office, <https://www.eamesoffice.com/the-work/think-film/>.

Fig 2.16 View of the entrance (left) and a close-up of stacked monitors (right) in Bruce Nauman's video installation, *Live Taped Video Corridor*. Source (left): Bruce Nauman, *Live Taped Video Corridor*, 1970, video installation, Medien Kunst Netz, <http://www.medienkunstnetz.de/works/live-taped-video-corridor/images/1/#reiter>. Source (right): Bruce Nauman, *Live Taped Video Corridor*, 1970, video installation, Linnea West, <https://linneawest.com/re-experiencing-bruce-naumans-live-taped-video-corridor-1970/>.

Fig 2.17 Drawing by Dan Graham of his 1974 video installation, *Present, Continuous Past(s)*. Source: Dan Graham, *Present, Continuous Past(s)*, 1974, video installation, Medien Kunst Netz, <http://www.medienkunstnetz.de/works/present-continuous-pasts/>.

Fig 2.18 Drawing by Dan Graham of his 1974 video installation, *Time Delay Room*.

Source: Dan Graham, *Time Delay Room*, 1974, video installation, Medien Kunst Netz, <http://www.medienkunstnetz.de/works/time-delay-room/?desc=full>.

Fig 2.19 Drawing by Dan Graham of his 1974 video installation, *Picture Window*

Piece. Source: Dan Graham, *Picture Window Piece*, 1974, video installation, Medien Kunst Netz, <http://www.medienkunstnetz.de/works/picture-window-piece/images/2/>.

Fig 4.1 Situating Al-Rashid Hotel relative to CNN's area of coverage in Baghdad with specific attention drawn to the directionality and orientation of journalist John

Holliman's speculative observation of smoke in the distance. Source: Drawing by Endriana Audisho (author) with assistance from Shuang Wu. Used with permission.

Fig 4.2 Visualising the physical (Al-Rashid Hotel room, and respective window) and technical (control room, satellite, and CRT) instruments of reporting to uncover the

spatiality and layers of mediation behind CNN's coverage. Source: Drawing by Endriana Audisho (author) with assistance from Shuang Wu. Used with permission.

Fig 4.3 A hybrid drawing superimposing CNN correspondents' commentary relative to their reporting locations from Level 9 of the Al-Rashid Hotel. This aims to translate and make visible the constrained spatial operation involved in reporting from the hotel and from a distance. Source: Drawing by Endriana Audisho (author) with assistance from Shuang Wu. Used with permission.

Fig 4.4 Visualising the global network of screens, corresponding locations, and audience to showcase the large-scale communication infrastructure supporting CNN's 24-hour live coverage of the Gulf War. Source: Drawing by Endriana Audisho (author) with assistance from Shuang Wu. Used with permission.

Fig 4.5 Phosphor-green night-vision image of Baghdad in CNN's live coverage of the Gulf War, 1991. Source: CNN, "Shock & Awe," still from YouTube video, 3:50, July 17, 2006, <https://www.youtube.com/watch?v=R30cbnkMG3s>.

Fig 5.1 Competition panel from Foreign Office Architects' 1994 proposal for the Yokohama Port Terminal. Source: Presentation material for Yokohama International Ferry Port Terminal, Yokohama, Japan, ca.1996, ARCH269714, Foreign Office Architects fonds, Canadian Centre for Architecture, Montreal.

Fig 5.2 List of prospective invitees to *Anywhere* conference. Source: Annotated list of prospective invitees to "Anywhere," ARCH273345, Anyone Corporation Fonds, 1990-2001, Canadian Centre for Architecture, Montreal.

Fig 5.3 Cover of *D: Columbia Documents of Architecture and Theory* (volume 2) published by Columbia Books of Architecture, 1993. Source: Bernard Tschumi, ed., *Columbia Documents of Architecture and Theory: D 2*, (1993).

Fig 5.4 Excerpts from Jean Baudrillard's article in *D: Columbia Documents of Architecture and Theory* (volume 2), 1993. Source: Jean Baudrillard, "The Timisoara Syndrome: The Telecratie and the Revolution," *Columbia documents of architecture and theory: D 2* (1993): 61 (left page), 68 and 69 (right spread).

Fig 5.5 Excerpts from Bernard Tschumi's article *Six Concepts* in *D: Columbia Documents of Architecture and Theory* (volume 2), 1993. Source: Bernard Tschumi, "Six Concepts," *Columbia documents of architecture and theory: D 2* (1993): 81 and 87.

Fig 5.6 Interior view of Bernard Tschumi Architects' *Glass Video Gallery*, a structure enveloped in glass and containing six 'screening' stations. Source: Bernard Tschumi Architects, *Glass Video Gallery*, 1990, architectural pavilion, Bernard Tschumi Architects, <https://www.tschumi.com/projects/17>.

Fig 5.7 Night view of Bernard Tschumi Architects' *Glass Video Gallery*. Source: Bernard Tschumi Architects, *Glass Video Gallery*, 1990, architectural pavilion, Bernard Tschumi Architects, <https://www.tschumi.com/projects/17>.

Fig 5.8 Cover of *Semiotext(e) Architecture*. Source: Hraztan Zeitlian, ed., *Semiotext(e)/architecture* (Brooklyn, NY: Semiotext(e), 1992).

Fig 5.9 Diller Scofidio's *Tourisms: Suitcase Studies* featured in *Semiotext(e) Architecture*. Source: Diller Scofidio, "suitCase Studies," in *Semiotext(e)/architecture*, ed. Hraztan Zeitlian (Brooklyn, NY: Semiotext(e), 1992), 9.

Fig 5.10 Hraztan Zeitlian's introduction to *Semiotext(e) Architecture*. Source: Hraztan Zeitlian, ed., *Semiotext(e)/architecture* (Brooklyn, NY: Semiotext(e), 1992), 1.

Fig 5.11 James Der Derian's *War/Game as Video* featured in *Semiotext(e) Architecture*. Source: James Der Derian, "War/Game as Video," in

Semiotext(e)/architecture, ed. Hraztan Zeitlian (Brooklyn, NY: Semiotext(e), 1992), 146.

Fig 5.12 Bob Somol and Linda Pollari's *Vertical Hold* featured in *Semiotext(e) Architecture*. Source: Bob Somol and Linda Pollari, "Vertical Hold," in *Semiotext(e)/architecture*, ed. Hraztan Zeitlian (Brooklyn, NY: Semiotext(e), 1992), 69.

Fig 5.13 Timestamps from Asymptote's *FluxSpace 1.0* installation at the CCAC Institute in San Francisco, 2000. Source: Hani Rashid and Lise Anne Couture, eds., *Asymptote: Flux*, (London: Phaidon Press, 2002), 6-7.

Fig 5.14 Asymptote's *FluxSpace 2.0* pavilion at the Venice Architecture Biennale, 2000. Source: Asymptote, *FluxSpace 2.0*, 2000, multi-media installation, Bohem Foundation, <https://bohen.org/project/asymptote-architecture-fluxspace-2.0>.

Fig 5.15 Webcam captures from Asymptote's *FluxSpace 2.0* pavilion at the Venice Architecture Biennale, 2000. Source: Hani Rashid and Lise Anne Couture, eds., *Asymptote: Flux*, (London: Phaidon Press, 2002), 20-21.

Fig 5.16 Asymptote's *TimeSpace* installation, 2000. Source: Hani Rashid and Lise Anne Couture, eds., *Asymptote: Flux*, (London: Phaidon Press, 2002), 224.

Fig 5.17 Diller Scofidio's *Slow House* featured on the cover of *Progressive Architecture*, January 1991. Source: John Morris Dixon, ed., *Progressive Architecture*, January, 1991, <https://usmodernist.org/index-pa.htm>.

Fig 5.18 Front (left) and side (right) view of Diller Scofidio's installation *Disemboweled Television*, 1988. Source: Diller Scofidio, *Disemboweled Television*, 1988, installation, Diller Scofidio + Renfro, <https://dsrny.com/project/disemboweled-television?section=projects>.

Fig 5.19 Installation view (left) of Diller Scofidio's *Para-site*, where live footage from surveillance cameras (right) positioned above the Museum of Modern Art's entranceways and escalators are displayed on the CRTs. Source: Diller Scofidio, *Para-site*, 1989, multi-media site-specific installation, Diller Scofidio + Renfro, <https://dsrny.com/project/para-site>.

Fig 5.20 View (left) and sectional drawing (right) of Diller Scofidio's installation *Jump Cuts*, where live footage from cameras placed above the escalators of United Artists Cineplex Theatre is projected on the twelve liquid crystal panels lining the façade of

the theatre. Source: Diller Scofidio, *Jump Cuts*, 1995, multi-media site-specific installation, Diller Scofidio + Renfro, <https://dsrny.com/project/jump-cuts>.

Fig 5.21 Still from Diller Scofidio's video narrative *Overexposed*. Source: Diller Scofidio, *Overexposed*, 1995, video, Diller Scofidio + Renfro, <https://dsrny.com/project/overexposed>.

Fig 6.1 Bernard Tschumi explaining the 'computer logic' embedded in the drawings of *Parc de la Villette* in an interview by author, New York City, 2019. Photograph by Endriana Audisho (author). Used with permission.

Fig 6.2 Isometric view of Avery Hall, Columbia University, identifying the allocated space for the *Paperless Studio* on the seventh-floor mezzanine. The exploded ghosted drawing provides insight into the spatial configuration of the centralised shared computer zone and the 33 dedicated workstations that line the studio, constructing the digital 'paperless' workplace. Source: Drawing by Endriana Audisho (author) with assistance from Shuang Wu. Used with permission.

Fig 6.3 Cover of GSAPP's faculty newsletter *Newsline*, Summer/Sept/Oct, 1994. Source: Columbia Architecture Planning and Preservation, *Newsline*, (Summer/Sept/Oct, 1994): 1.

Fig 6.4 The floorplan (left) and the oblique plan (right) of the *Paperless Studio*, occupying the attic of Avery Hall, work in dialogue to showcase the spatial separation between the internalised, air-conditioned, 'digital' computer zone and the adjacent 'exterior' balconies that serve as communal workshop areas for the use of traditional media. Source: Drawing by Endriana Audisho (author) with assistance from Shuang Wu. Used with permission.

Fig 6.5 Interior of *Paperless Studios*, 700 Avery Hall, captured from the 1994-1995 issue of *Abstract*. Source: GSAPP Columbia University, "Paperless Studios," *Abstract*, (1994-1995): 64.

Fig 6.6 Spread from faculty newsletter *Newsline* (Summer/Sept/Oct, 1994) showcasing Bernard Tschumi's announcement of the school's new computing facilities. Source: Bernard Tschumi, "1,2,3, Jump!," *Newsline* (Summer/Sept/Oct, 1994): 8-9.

Fig 6.7 Spread from faculty newsletter *Newsline* (Jan/Feb, 1995) celebrating the first three *Paperless Studios*. Source: Hani Rashid, Scott Marble, and Greg Lynn Studio, "Paperless Studio: Fall 1994," *Newsline* (Jan/Feb, 1995): 6-7.

Fig 6.8 Excerpt showing student work from Greg Lynn's 1994 Fall Paperless Studio *The Topological Organization of Free Particles: Parking Garage Studio*. Source: GSAPP Columbia University, "Paperless Studios," Abstract, (1994-1995): 66.

Fig 6.9 Diagram interpretation of studio work from Greg Lynn's 1994 Fall Paperless Studio *The Topological Organization of Free Particles: Parking Garage Studio*. The expanded screen interface, with a list of commands and four abstract forms, emphasises the studio's focus on iterative form-finding in digital space. Source: Drawing by Endriana Audisho (author) with assistance from Shuang Wu. Used with permission.

Fig 6.10 Excerpts showing student work from Greg Lynn's Fall 1995 studio with Ed Keller (left) and Spring 1996 studio with Kazuyo Sejima (right). Source: GSAPP Columbia University, "Paperless and Mixed Media Studios," Abstract, (1995-1996): 59, 64.

Fig 6.11 Excerpt showing student work from Scott Marble's (assisted by William Massie) spring 1996 *Combined Media Studio*. Source: GSAPP Columbia University, "Paperless and Mixed Media Studios," Abstract, (1995-1996): 65.

Fig 6.12 Excerpt showing student work from Hani Rashid's 1994 Fall Paperless Studio *Media City: Architecture at the Interval*. Source: Hani Rashid, "Paperless Studio: Fall 1994," *Newsline* (Jan/Feb, 1995): 7.

Fig 6.13 Diagram of the screen-based exhibition set up in Hani Rashid's 1994 Fall Paperless Studio, *Media City: Architecture at the Interval*, where the different positions of the CRTs in space are an attempt to translate and spatialise the post-panoptic effects associated with multi-screen channels. Source: Drawing by Endriana Audisho (author) with assistance from Shuang Wu. Used with permission.

Fig 6.14 Diagram of the screen-based installation set up in Hani Rashid's 1995 Spring Studio, *Tokyo Extreme*, highlighting the network of visual technologies used to generate a live feed video loop of the space, directly engaging the audience in the studio's broader interrogation into the spatio-temporal effects of the screen. Source:

Drawing by Endriana Audisho (author) with assistance from Shuang Wu. Used with permission.

Fig 6.15 Excerpt from *Abstract* showing photos of Hani Rashid's spring 1995 studio *Tokyo Extreme*. Source: GSAPP Columbia University, "Advanced Architectural Studios," *Abstract*, (1994-1995): 55.

Fig 7.1 ShoP Architects' use of 1:1 drawings as templates on-site, to construct their installation *Dunescape*. Source: ShoP Architects, *Dunescape*, 2000, installation, ShoP Architects, <https://www.shoparc.com/projects/dunescape/>.

Fig 7.2 Six initial master-plan concept plans for the WTC site by Beyer Blinder Belle, July 2002. Source: Beyer Blinder Belle, *Master-plan concepts for the WTC site*, 2002, architectural models, The Skyscraper Museum, <https://skyscraper.org/world-trade-center-rebuilding/timeline/>.

Fig 7.3 Compilation of the six finalists of the *World Trade Centre Competition*, 2002. Source: "The NYC that never was: 1 WTC and the competition for the World Trade Center site," *Untapped New York*, November 4, 2004, <https://untappedcities.com/2014/11/04/the-nyc-that-never-was-1-wtc-and-the-competition-for-the-world-trade-center-site/>.

Fig 7.4 Hani Rashid in front of an image of his WTC proposal *Twin Twins*, for the 2002 exhibition *A New World Trade Centre: Design Proposals*. Source: "After September 11: Re-imagining Manhattan's Downtown," Michael Blackwood Productions, accessed December 7, 2022, <https://michaelblackwoodproductions.com/project/after-september-11-re-imagining-manhattans-downtown/>.

Fig 7.5 Compilation of (left to right) Office dA, FOA and NOX's WTC proposals for the 2002 exhibition *A New World Trade Centre: Design Proposals*. Source: "Witness and Response: September 11 Acquisitions," Library of Congress, accessed December 11, 2022, <https://www.loc.gov/exhibits/911/911-maxprotetch.html>.

Fig 7.6 Slide from United Architects' presentation of their 2002 WTC proposal, *United Towers*, highlighting "a bold vision of the future." Source: "United Architects," LMDC, accessed December 13, 2022, <http://www.renewnyc.com/PlanDesDev/Wtcsite/newdesignplans/firmf/slides/slide10.asp>.

Fig 7.7 Slide from United Architects' presentation of their 2002 WTC proposal, *United Towers*, highlighting "returning pride to the site." Source: "United Architects," LMDC, accessed December 13, 2022, <http://www.renewnyc.com/PlanDesDev/Wtcsite/newdesignplans/firmf/slides/slide12.asp>.

Fig 7.8 A still from Tom Jennings's film *The Architects: A Story of Loss, Memory and Real Estate*. Source: "Architecture & Design Film Festival Celebrates 8th Anniversary," Interior Design, accessed, December 13, 2022, <https://interiordesign.net/designwire/architecture-and-design-film-festival-celebrates-8th-anniversary/>.

Fig 7.9 Composite image of United Architects' WTC proposal, *United Towers*, 2002. Source (left): "United Architects," LMDC, accessed December 13, 2022, <http://www.renewnyc.com/PlanDesDev/Wtcsite/newdesignplans/firmf/slides/slide11.asp>. Source (right): "World Trade Centre Memorial Plans," The Guardian, accessed December 13, 2022, <https://www.theguardian.com/pictures/image/0,8543,-11104463251,00.html>.

Fig 7.10 Close-up of United Architects' WTC proposal, *United Towers*. Source: "The new World Trade Center could have been a 70-storey interconnected 'city in the sky,'" Business Insider, accessed December 13, 2022, <https://www.businessinsider.com/world-trade-center-documentary-2016-9>.

Fig 7.11 Image of United Architects' WTC proposal, *United Towers*, in the Manhattan skyline. Source: "The NYC that never was: 1 WTC and the competition for the World Trade Center site," Untapped New York, November 4, 2004, <https://untappedcities.com/2014/11/04/the-nyc-that-never-was-1-wtc-and-the-competition-for-the-world-trade-center-site/>.

Fig 7.12 Image of a view looking up at United Architects' WTC proposal, *United Towers*. Source: "greg lynn interview," designboom, October 20, 2012, <https://www.designboom.com/architecture/greglynn-interview/>.

Fig 8.1 The 'roundtable' at the Centre for Research Architecture (CRA), Department of Visual Cultures at Goldsmiths, University of London. Source: "Roundtables," Centre for Research Architecture, accessed November 17, 2022, <https://research-architecture.org/Roundtables-1>.

Fig 8.2 Triptych of Laura Kurgan's *Kuwait: Image Mapping*, 1991. Source: Laura Kurgan, *Close up at a Distance: Mapping, Technology, and Politics* (New York: Zone Books, 2013), 89, 91, 93.

Fig 8.3 A satellite image of Ground Zero from 15 September, only four days after the 9/11 attack, purchased by Laura Kurgan. Source: Laura Kurgan, *Close up at a Distance: Mapping, Technology, and Politics* (New York: Zone Books, 2013), 134-35.

Fig 8.4 Installation view of Laura Kurgan's large digital print, of a satellite image of Ground Zero, in the exhibition *ctrl [space]: the Rhetoric of Surveillance from Bentham to Big Brother*, 2001. Source: "ctrl [space]," *Frieze*, March 3, 2002, <https://www.frieze.com/article/ctrl-space>.

Fig 8.5 Installation view (left) and drawing (right) of *Exit* by Diller Scofidio + Renfro, Laura Kurgan, Mark Hansen, Ben Rubin with Robert Gerard Pietrusko, and Stewart Smith, 2008. Source: Diller Scofidio + Renfro, *Exit*, 2008, installation, Diller Scofidio + Renfro, https://dsrny.com/project/exit?index=false§ion=projects&tags=installation&wptouch_preview_theme=enabled&sort=alphabetic&view=list.

Fig 8.6 A map titled *Jewish Settlements in the West Bank* co-produced in 2002 by B'Tselem and Eyal Weizman as part of the *Landgrab* report. Source: "Jewish Settlements in the West Bank, May 2002," The Israeli Information Center for Human Rights in the Occupied Territories, accessed October 1, 2022, https://www.btselem.org/download/settlements_map_eng.pdf.

Fig 8.7 Cover of Rafi Segal and Eyal Weizman's *A Civilian Occupation*, 2003 revised edition. Source: Rafi Segal, Eyal Weizman and David Tartakover, *A Civilian Occupation: The Politics of Israeli Architecture*, rev. ed. (London: Babel, 2003).

Fig 8.8 Installation view of Forensic Architecture's *77sqm_9:26min*, exhibited at Documenta 14 in 2017. Source: Forensic Architecture, *77sqm_9:26min*, 2017, three-channel video installation, Forensic Architecture, https://forensic-architecture.org/programme/exhibitions/77sqm_926min-documenta-14.

Fig 8.9 View of Forensic Architecture's video investigation *Cloud Studies*, exhibited at UTS Gallery in 2020. Source: Photograph by Jacquie Manning, *Cloud Studies*, 2020, essay film, Forensic Architecture, <https://forensic-architecture.org/programme/exhibitions/cloud-studies-at-uts-gallery>.

Fig 8.10 View of collateral material from Forensic Architecture's *Cloud Studies* exhibition at UTS Gallery in 2020. Source: Photograph by Jacquie Manning, *Cloud Studies*, 2020, mixed-media installation, Forensic Architecture, <https://forensic-architecture.org/programme/exhibitions/cloud-studies-at-uts-gallery>.

Fig 8.11 Close-up of collateral material from Forensic Architecture's *Cloud Studies* exhibition at UTS Gallery in 2020. Source: Photograph by Jacquie Manning, *Cloud Studies*, 2020, mixed-media installation, Forensic Architecture, <https://forensic-architecture.org/programme/exhibitions/cloud-studies-at-uts-gallery>.

Fig 8.12 Installation view of Forensic Architecture's 2014 exhibition *FORENSIS* at the Haus der Kulturen der Welt. Source: Photograph by Laura Fiorio, *FORENSIS*, 2014, mixed-media installation, Forensic Architecture, <https://forensic-architecture.org/programme/exhibitions/forensis>.

Fig 8.13 View of visitors engaging with Forensic Architecture's 2014 exhibition *FORENSIS* at the Haus der Kulturen der Welt. Source: Photograph by Laura Fiorio, *FORENSIS*, 2014, mixed-media installation, Forensic Architecture, <https://forensic-architecture.org/programme/exhibitions/forensis>.

Fig 8.14 Compilation of citizen, local, and international media footage of the Pearl Roundabout during the Bahraini Uprising in 2011. Source: Image compilation by Endriana Audisho (author). Used with permission.

Fig 8.15 Drawing compiling images taken of the Pearl Roundabout during the Bahraini Uprising, identifying the location and perspective of each image, to gain a stronger spatial understanding of the event. Source: Drawing by Endriana Audisho (author). Used with permission.

Fig 8.16 Two video stills from Forensic Architecture's 2010 investigation *The Killing of Bassem Abu Rahma*. Source: Forensic Architecture, *The Killing of Bassem Abu Rahma*, 2010, video, Forensic Architecture, <https://forensic-architecture.org/investigation/the-killing-of-bassem-abu-rahma>.

Fig 8.17 A video still from Forensic Architecture's 2015 investigation, *The Bombing of Rafah*, showcasing the analysis of smoke clouds. Source: Forensic Architecture, *The Bombing of Rafah*, 2015, video, Forensic Architecture, <https://forensic-architecture.org/investigation/the-bombing-of-rafah>.

Fig 8.18 A video still from Forensic Architecture's 2015 investigation, *The Bombing of Rafah*, showing the analysed images situated in a 3D spatial digital model.

Source: Forensic Architecture, *The Bombing of Rafah*, 2015, video, Forensic Architecture, <https://forensic-architecture.org/investigation/the-bombing-of-rafah>.

Fig 8.19 A video still from Forensic Architecture's 2013 investigation, *Drone Strike in Mir Ali*, showcasing their applied methodologies of situated testimony and 3D

modelling. Source: Forensic Architecture, *Drone Strike in Mir Ali*, 2013, video, Forensic Architecture, <https://forensic-architecture.org/investigation/drone-strike-in-mir-ali>.

Fig 8.20 Image framing a witness directing the digital reconstruction of her home for

Forensic Architecture's 2013 investigation, *Drone Strike in Mir Ali*. Source: Forensic Architecture, *Drone Strike in Mir Ali*, 2013, video, Forensic Architecture,

<https://forensic-architecture.org/investigation/drone-strike-in-mir-ali>.

Fig 8.21 Video still showing the reconstruction of Saydnaya Prison in Forensic Architecture's 2016 investigation, *Torture in Saydnaya Prison*. Source: Forensic

Architecture, *Torture in Saydnaya Prison*, 2016, video, Forensic Architecture, <https://forensic-architecture.org/investigation/saydnaya>.

ABSTRACT

Architecture has recently begun to critically investigate its relationship to digital media. To date, this discussion has primarily focused on the algorithmic encoding of architectural form. However, the interface through which ‘the digital’ manifests and is engaged with – the screen – has received little attention. The thesis argues that by focusing on the screen, specifically cathode-ray tube (CRT) technology that underpinned both TV and computer screens during the 1990s, a different history of ‘the digital’ in architecture emerges. This history engages with how the screen organises relationships between aesthetic practices and geopolitical concerns. To establish this alternative account, the thesis assembles diverse material around the question of the screen – ranging from architectural theory, pedagogy, and practice to media theory and cultural events driven by conflict – to thread a discourse between architecture, media, and conflict.

The coalescence of “live” images of Baghdad unfolding on CRT screens during CNN’s coverage of the Gulf War in 1991, along with the resurgence of postmodern media theory exploring the screen’s reconfiguration of time and space, intersected with the arrival of CRT screens in Columbia University’s Graduate School of Architecture’s (GSAPP) Paperless Studios in 1994, constructing a context in which the screen’s material presence, spatial characteristics, and mediating effects became of architectural concern. These concerns were heightened in the 2000s with the rise of urban conflicts and advancements in screen technologies, leading to a deeper engagement between architecture, media, and conflict. By tracing this constellation of screen-based theory, pedagogy, and practice from the 1990s onwards, the thesis re-situates architectural production and representation at the confluence of media and conflict through the screen. More importantly, it presents ways in which architecture can critically engage with the geopolitical and aesthetic concerns raised by a culture increasingly driven by conflict and its mediation.

THESIS INTRODUCTION

Architecture has recently begun to critically investigate its relationship to digital media, specifically the effects of digital design on techniques of architectural production and representation. To date, discourse on ‘the digital’ in architecture has predominantly centred around the formal and tectonic capabilities introduced by a new generation of software, specifically spline modelling, in the early 1990s. Marked as the ‘digital turn’ in architecture, this discourse reduced digital design theory to discussions of blobs, folds, and topological geometries, departing from the Deconstructivist theory of the fragmentary. Yet, the interface through which ‘the digital’ manifests and is engaged with – the screen – has received little attention and has not been captured in this scholarship. The thesis argues that a focus on the screen, particularly cathode-ray tube (CRT) technology that underpinned both TV and computer screens during the 1990s, offers an alternative history of ‘the digital’ in architecture. This history is intertwined with a broader media theory and history of the screen and sheds light on how the screen organises relationships between aesthetic practices and geopolitical concerns.

A number of phrases have been used to describe the paradigm shift that manifested in architecture in the early 1990s, including the rise of ‘digital architecture,’ ‘the digital turn in architecture,’ and ‘computing architecture,’ among others. Architectural historian and critic Mario Carpo has identified digital architecture as architecture that is not only designed and built by digital tools but one that could not have been designed or built without them.³⁴ This description foregrounds an architecture intricately tied to and inseparable from computation as a mode of production. Nevertheless, a nuanced terminological distinction exists between the terms ‘digital’ and ‘computation,’ and the choice of either term implies a different historical perspective. Architect and theorist Stan Allen cast this distinction crudely by describing the digital as a state of being – a condition that deals with “pixels and

³⁴ Mario Carpo, *The Digital Turn in Architecture 1992 – 2012* (Somerset: John Wiley & Sons, Incorporated, 2012), 8.

raster images” – whilst the world of computation deals with “vector images.”³⁵ In asserting that computation maintains a degree of medium specificity,³⁶ in contrast to the digital, which collapses everything into pixels, Allen expresses a preference for the term ‘computation’ when referring to the computer in architectural terms.³⁷

On the contrary, architect and historian Antoine Picon argues that it is not only misleading but also limiting if the study of the digital in architecture is restricted to computing. Picon describes the digital as a pervasive condition in technology and culture, one that has profoundly reshaped our experience and understanding of the physical world, altering how we see, hear, and touch. Understanding the digital in architecture through this experiential dimension allows for a social and cultural reading beyond the digital tool itself. This thesis aligns with Picon’s position and proposes to use ‘the digital in architecture’ over terms like ‘digital architecture’ or ‘computing architecture.’ This choice is intentional, seeking to avoid constraining discourse solely to the tool, such as the computer, or limiting it to the production of digital architecture. Instead, it identifies the digital as a cultural condition that architecture is entangled in.³⁸ Operating within, and often against, the established context of ‘the digital in architecture,’ the thesis aims to develop an account of the screen that positions it, along with the digital, at the confluence of media and politics in architecture. This account aims to chart a new discursive trajectory on ‘the digital in architecture’ by foregrounding the screen as the means by which architecture has and continues to engage with the geopolitics of conflict.

³⁵ Stan Allen, “The Paperless Studio in Context,” in *When Is the Digital in Architecture?* ed. Andrew Goodhouse (Montréal: Canadian Center for Architecture, 2017), 386.

³⁶ For an explanation of how the digital has erased the very notion of a medium, see the introduction in Friedrich A. Kittler, *Gramophone, Film, Typewriter* (Stanford, Calif: Stanford University Press, 1999), 2.

³⁷ Allen’s distinction was influenced by Axel Killian (both were colleagues at Princeton University’s School of Architecture), who advocated using the term computation over the digital when referring to the computer in architectural terms. See Stan Allen, “The Paperless Studio in Context,” in *When Is the Digital in Architecture?* ed. Andrew Goodhouse (Montréal: Canadian Center for Architecture, 2017), 386.

³⁸ Antoine Picon, “Histories of the Digital: Information, Computer and Communication,” in *When Is the Digital in Architecture?* ed. Andrew Goodhouse (Montréal: Canadian Center for Architecture, 2017), 82.

Histories of computers and architecture have been and are currently being written by a number of key scholars who have explored the relationship between technology and architecture, many of which focus on the post-war period. One only has to turn to Nicholas Negroponte to read about the ‘machine-man’ interface and early experiments in using computers to aid the architect’s design process.³⁹ For a historical analysis of the role of technology in the corporate world of the US after the Second World War, Reinhold Martin uncovers an account of the subversive relationship between architecture, computers, and corporations that shifted social relations and transformed the post-war landscape in the US,⁴⁰ and John Harwood presents a historical account of the key role that designers and architects, such as Eliot F. Noyes and Charles and Ray Eames, played in shaping both the computer (understanding it as a spatial environment) and IBM’s corporate image.⁴¹

More recently, Picon has presented a historical overview of digital culture in architecture. This narrative unfolds with an origin story of digital design, moves on to examine the influence of digital culture on the urban landscape dating back to the information-based society at the end of the nineteenth century and ends with the potential impacts of digital culture on modern society, including the pervasive impacts of social media.⁴² In a more recent essay,⁴³ Picon’s observations are more focused and less a general historical overview of the digital. He concisely documents the development of the computer during the post-war period by characterising it as a machine that can think – coinciding with the rise of cybernetics, a machine that sees – as seen with SAGE’s Air Defense Computer System, and a machine that fabricates – dating back to early computer numerical control (CNC) machines, which have now become ubiquitous.

³⁹ Nicholas Negroponte, *The Architecture Machine* (Cambridge, Mass: MIT Press, 1970).

⁴⁰ Reinhold Martin, *The Organizational Complex: Architecture, Media, and Corporate Space* (Cambridge, Mass: MIT Press, 2003).

⁴¹ John Harwood, *The Interface: IBM and the Transformation of Corporate Design, 1945–1976* (Minneapolis: University of Minnesota Press, 2011).

⁴² Antoine Picon, *Digital Culture in Architecture: An Introduction for the Design Professions* (Basel: Birkhäuser, 2010).

⁴³ Picon, *Histories of the Digital: Information, Computer and Communication*, 79–98.

Picon's three identified lenses of a machine that thinks, sees, and fabricates find resonance in recent investigations into the relationship between computers and architecture. For example, Sean Keller sets up the historical backdrop to architecture's contemporary interest in computational design (algorithmic and parametric). He analyses the architect's shift to automatic design methods in the 1960s and 1970s, fostered by the computer and its processes.⁴⁴ Additionally, Molly Wright Steenson uses the work of four architects who engaged with cybernetics, artificial intelligence, and computer sciences in the post-war period to demonstrate that their architectural concepts have shaped contemporary "interactive" practices, such as information architecture, machine learning, and smart cities.⁴⁵

The most recent addition to the growing body of scholarship on how digital technologies have impacted architecture is an edited compilation by Teresa Fankhänel and Andres Lepik, 'The Architecture Machine' (2020). This compilation captures the role of computers in architecture from the 1950s through to today.⁴⁶ Through four distinct chapters, it recounts the development of the digital in architecture by characterising the computer as a Drawing Machine, a Design Tool, a Medium for Storytelling, and an Interactive Platform. With over 40 case studies spanning 50 years, this compilation presents more diverse accounts of the digital in architecture by including research and stories that sit outside of the master account of the digital. For instance, Anna-Maria Meister's exploration into the materiality of digital production and its pedagogical paper trail in the institutional setting of HFg Ulm and TU Munich is noteworthy.⁴⁷ Attention should also be drawn to Nathalie Bredella's 'The Architectural Imagination at the Digital Turn' (2022), which constructs a recent and alternative history of the digital turn by unpacking the material and social context of a series of case studies, including pedagogical endeavours

⁴⁴ Sean Keller, *Automatic Architecture: Motivating Form after Modernism* (Chicago: University of Chicago Press, 2018).

⁴⁵ Molly Wright Steenson, *Architectural Intelligence: How Designers and Architects Created the Digital Landscape* (Cambridge, Massachusetts: The MIT Press, 2017).

⁴⁶ Teresa Fankhänel and Andres Lepik, *The Architecture Machine: The Role of Computers in Architecture* (Basel: Birkhäuser, 2020).

⁴⁷ See Anna-Maria Meister, "Paper(less) Architecture: Medial and Institutional Superimpositions," in *The Architecture Machine: The Role of Computers in Architecture*, ed. Teresa Fankhänel and Andres Lepik (Basel: Birkhäuser, 2020), 20-27.

happening at universities (such as the Paperless Studio), new media institutions, and forms of fabrication, among others.⁴⁸

Despite the diverse perspectives presented by this body of work on the history of the digital in architecture, which has made a significant contribution to the ongoing discourse of technology and culture, most of the histories of the computer and architecture written so far have concentrated on the post-war period and its preoccupation with certain areas of research, such as cybernetics, up to the 1980s. It is no coincidence that these histories of the computer and architecture coincided with the rise of media theory of the 1960s and 1970s, predominately Marshall McLuhan's theoretical work at the height of the Vietnam War. However, almost sixty years have passed since McLuhan's prolific introduction of theories on 'understanding media',⁴⁹ and a more recent re-examination of the intersection of technology and culture is required. This thesis is an attempt to extend the existing scholarship on technology and culture; however, it proposes to focus on the period that has been less thoroughly explored – the 1990s onwards – for the purpose of constructing a recent history of the digital in architecture. The thesis recognises that it is still situated in the context of the digital in architecture; however, it carves its contribution as it is driven by an account of the screen in architecture that, as the thesis argues, has been complicated by media and conflict since the 1990s.

The thesis presents an alternative history that challenges the prevailing narratives surrounding the digital in the architecture during the 1990s, narratives that have privileged architectural form. Existing scholarship on the digital in architecture from this period has focused on tracing the genealogy from deconstruction to folding to blobs. It is important to recognise that this trajectory, constituting what this thesis calls the 'dominant' account, gained its prominence through a select group of individuals closely linked through either personal or professional relationships, as

⁴⁸ See Nathalie Bredella, *The Architectural Imagination at the Digital Turn* (Milton: Taylor and Francis, 2022).

⁴⁹ Marshall McLuhan, *Understanding Media: The Extensions of Man* (New York: McGraw-Hill, 1964).

well as ties to influential institutions, both educational and cultural.⁵⁰ This institutional affiliation, coupled with its inherent privilege and power, resulted in control over the circulation and amplification of discourse and material culture during that time, establishing what has now become the ‘canonical’ history of the digital in architecture. The thesis consistently employs the terms ‘dominant,’ ‘master,’ or ‘canonical’ as a deliberate acknowledgement of the underlying power structures that have shaped both the conceptualisation and instrumentalisation of these narratives. Distinguishing a dominant account also facilitates the construction of a ‘counter’ account or narrative.⁵¹ This not only emphasises the thesis’ alignment with the field of media archaeology and its advocacy for the construction of counter-histories by exploring the forgotten, obsolete, or marginalised aspects of media history, as highlighted in the thesis preface, but also aligns with a decolonial⁵² approach to

⁵⁰ Refer to the sub-section ‘An Alternative Account of the Digital in Architecture’ in the thesis Preface (xix) as well as footnote 33 (xxiii), which explicates the influence that figures such as Peter Eisenman, among others, had in the construction of what has become the ‘canonical’ history of the digital in architecture.

⁵¹ It is critical to note that to ‘counter’ does not imply replacing or rejecting established narratives; instead, it involves introducing alternative narrative possibilities in the hopes of including a broader range of perspectives. For an expanded definition of ‘counter-narrative’ see Sanne Frandsen, Timothy Kuhn, and Marianne Wolff Lundholt, *Counter-Narratives and Organization* (New York: Routledge, 2017) and Michael Bamberg and Molly Andrews, *Considering Counter Narratives Narrating, Resisting, Making Sense* (Amsterdam; John Benjamins Publishing Company, 2004).

⁵² Gaining prominence in the context of post-colonial studies, the term ‘decolonisation’ concerns the critical examination of the effects of colonisation, with a particular aim to dismantle the injustices, inequalities, power imbalances, and cultural violence caused by colonialism. To gain a more comprehensive understanding of decolonisation, and adjacent discourses, refer to the literature of the following key figures: Franz Fanon, Edward Said, Audre Lorde, bell hooks, Stuart Hall, Paulo Freire, and Walter D. Mignolo, among others.

Closely related, the terms ‘decolonial’ and ‘decoloniality’ refer to a theoretical framework and practice that critically engages diverse perspectives, histories, and worldviews in an attempt to challenge the dominance of colonial (often Eurocentric) narratives. Aligning with this approach, and particularly with the long-standing work of ‘Decolonizing Architecture Art Research (DAAR),’ who refer to decolonisation as an “ongoing practice of deactivation and reorientation” [Alessandro Petti, Sandi Hilal, and Eyal Weizman, *Architecture after Revolution* (Berlin: Sternberg Press, 2013), 18], a decolonial way of thinking underscores the motivations behind this thesis and shapes the arguments put forward. While this is more explicitly emphasised through my personal positioning and exploration of my teaching and research practice in the ‘Preface,’ as well as in ‘Section 03: The Screen in the Field’ and the ‘Thesis Conclusion,’ a decolonial thread can be traced through the thesis’ historiographical approach, particularly in its attempts to construct a ‘counter-narrative’ or ‘counter-history’ by highlighting overlooked sources, figures, and theories that make other interpretations of the digital in architecture possible. Furthermore, a decolonial approach is taken up through the selection and assemblage of the case studies and the subject matter they represent – from the critical analysis of Western media’s hegemonic accounts of cities through the case study of CNN’s live coverage of the Gulf War to the acknowledgement and recognition of the emergence of critical counter-pedagogies and counter-practices, primarily through the case studies of ‘The Centre for Research Architecture’ and ‘Forensic Architecture,’ who use the screen to engage with contemporary geopolitical concerns and advocate for environmental and social justice.

writing history. In a similar historiographical approach to media archaeology, writing history through a decolonial lens also seeks to destabilise established narratives, acknowledging that they have been shaped by power dynamics, cultural biases, and the influence of dominant groups.

As outlined in the sub-section 'An Alternative Account of the Digital in Architecture' in the thesis' Preface, the 'canonical' history of the digital in architecture, as also delineated by Carpo, has been influenced by a disparate group of ideas and thinkers. Primarily, this includes Gilles Deleuze's 'The Fold: Leibniz and the Baroque,' which was translated into English and published in 1993, Bernard Cache's interpretation of the fold in 'Earth Moves: The Furnishing of Territories,' and the subsequent application and development of the Deleuzian fold by Peter Eisenman and Greg Lynn to post-deconstructivist architecture theory in the United States.⁵³ This confluence of ideas was pronounced in a special issue of *Architectural Design* (AD) titled 'Folding in Architecture,' edited by Greg Lynn and originally published in 1993. Lynn's introduction establishes a shift from "the linguistic and representation focus of both Post-Modernism and Derridean Deconstruction"⁵⁴ towards the theoretical models of Deleuze concerning mathematical continuity. The theoretical writings of Lynn and Cache in the mid-90s, highlighting the significance of calculus and mathematics in generating continuous forms, coincided with the technical development of spline modelling software at the time. This convergence heralded an architectural formal language characterised by smoothness and continuity that became emblematic of 'the digital' in architecture in the 1990s. Various iterations of this formal language persist today.

Recent attempts to survey this period, such as Carpo's 'The Digital Turn in Architecture 1992-2012,' are significant in mapping the initial developments of computer-aided design in architecture. However, these contributions tend to reduce digital design theory to discussions of folds, blobs, and topological geometries, reinstating a history that privileges architectural form. Notably, in Lynn's essay

⁵³ Mario Carpo, *The Alphabet and the Algorithm* (Cambridge, Mass: MIT Press, 2011), 39.

⁵⁴ Greg Lynn, ed., *Folding in Architecture* (Chichester, West Sussex: Wiley-Academy, 2004), 9.

‘Architectural Curvilinearity: The Folded, the Pliant and the Supple,’ originally published in ‘Folding in Architecture,’ there is an overwhelming focus on the role of the computer in the digital design process. This narrows discourse on the digital in architecture to that of the tool and its formal and organisational capacities, particularly through the manipulation of curved lines and parametric variations. This focus on the digital design process is further exemplified by Lynn’s recent ‘Archaeology of the Digital’⁵⁵ project, which interrogates when and how digital technology began to transform the architect’s creative process and conceptual design work. As it is an archaeology and not a history, the project, although ambitious in terms of its exploration of what an archive of the ‘digital’ could look like, is limited to analysing how digital technology influenced the design process within the selected 25 architectural projects (including works by Peter Eisenman, Frank Gehry, Chuck Hoberman, and Shoji Yoh). Solely focusing on the influence of digital technology on the design process, as seen through these readers and anthologies, once again limits discourse on the computer to a means of production for architectural form. It also raises questions about the relevance of this trajectory of the digital, wherein figures who have contributed to the construction of the dominant account of the digital in the 1990s, such as Lynn, are returning to this moment and writing or even constructing a project (such as that of the ‘Archaeology of the Digital’) around their own history and ideologies.

Returning to the initial distinction between the digital and computation, this thesis argues that a history of ‘the digital’ in architecture requires more expansive contextualising, moving beyond known figures and theories to uncover other interpretations and investigations. Hints of a more expanded history can be found in Andrew Goodhouse’s edited volume ‘When is the digital in architecture?’⁵⁶ In this anthology, particular attention should be drawn to Picon’s essay, which advocates for plural histories of the digital, opening the possibility to counter established

⁵⁵ Greg Lynn, ed., *Archaeology of the Digital: Peter Eisenman, Frank Gehry, Chuck Hoberman, Shoji Yoh*, (Montréal, Québec: Canadian Centre for Architecture, 2013). This publication is part of the research and exhibition centred on digital architecture at the Canadian Centre for Architecture.

⁵⁶ Andrew Goodhouse, ed., *When Is the Digital in Architecture?* (Montréal: Canadian Center for Architecture, 2017).

narratives. In doing so, Picon claims that the computer is defined as something related to the environment, the sensory, and the immersive, and that architecture's relationship with these experiential dimensions (linked to electronic and video art) has yet to be fully restored.⁵⁷ In the same anthology, Nathalie Bredella similarly draws a broader cultural history of the digital. Bredella explains that during the 1990s, architecture became a prominent site for "negotiating the spatial and political implications of digital media and communications technologies,"⁵⁸ against the backdrop of the "live" broadcasts of the Gulf War in 1991. Furthermore, Bredella explicates that institutions such as V2_Institute for the Unstable Media, based in Rotterdam, became the site where architects connected with media theory and art and, consequently, began questioning the politics and aesthetics of technological systems in the 1990s through media-based installations and interactions. In both cases, there is a shift away from the dominant plot lines of the digital in the 1990s and a foregrounding of other protagonists.

By exploring *not* the history of computers and *not* the history of digital technologies and their influence on architectural form and geometry, this thesis aims to build upon what Picon and Bredella begin to suggest and construct an alternative history of the digital in architecture that is situated in a broader cultural and media theory context of the period. Apart from a light reference in Picon's and Bredella's essays, the interface through which 'the digital' manifests and is engaged – the screen – has received little attention and has not been thoroughly captured in the existing scholarship of the digital in architecture in the 1990s. Readers and anthologies from this period are significant in mapping the field and promoting a particular view of architecture at that moment. The significance of documents such as Lynn's special issue of AD, 'Folding Architecture,' extend beyond their role as mere records. They have evolved into primary sources shaping readers' perspectives and influencing anthologies of this period, including Mario Carpo's 'The Digital Turn in Architecture 1992-2012.' These documents are not just repositories of live observations and

⁵⁷ Picon, *Histories of the Digital: Information, Computer and Communication*, 89.

⁵⁸ Nathalie Bredella, "In the Midst of things: Architecture's encounter with digital technology, media theory and material culture," in *When Is the Digital in Architecture?* ed. Andrew Goodhouse (Montréal: Canadian Center for Architecture, 2017), 341.

notes on the emerging role of digital technology in architectural pedagogy and practice at the time; they have formulated into a material culture. In turn, they have contributed significantly to the construction of what we now recognise as the dominant account of the period. However, the almost three-decade gap since Lynn's 'Folding Architecture' and the introduction of computers into architectural studios allows for critical distance. Within this temporal expanse, this thesis aims to construct an alternative history, assembling other sources, figures, and material from the period that existing surveys have not captured. In doing so, it not only challenges but complements the dominant narrative, offering a perspective that enriches our understanding of the digital in architecture.

As an alternative history, 'Screening Architecture' identifies and foregrounds a series of cultural transitions in the 1990s, prompted by the screen, that have not been captured by the canonical techno-formal tales of the digital in architecture to date. It will do this by arguing that two events, linked by CRT screens, frame a different version of the so-called 'digital turn' in architecture: CNN's 24-hour live coverage of the Gulf War in 1991, which prompted new aesthetic and philosophical questions regarding the screen, and the arrival of CRT computer screens in Columbia University's Graduate School of Architecture's (GSAPP) Paperless Studios in 1994, which provided a fertile context for an emerging generation of screen-based avant-garde architects to critically speculate on the effects of the screen on architectural production and representation. The coalescence of "live" phosphor-green images of Baghdad unfolding on CRT screens during the Gulf War and the resurgence of media theory through the critical commentary on technology's impact on the organisation of space and perception of reality, predominantly through the theoretical writings of Paul Virilio and Jean Baudrillard, intersected with the arrival of CRT screens in architectural studio. This constructed a context in which the screen's material presence and its spatial and mediating effects became of architectural concern.

The launch of the Paperless Studios has been covered through Bernard Tschumi's genesis narrative,⁵⁹ which highlights the new language and discourse that GSAPP established through the introduction of the computer in the design studio. Stan Allen also provides a personal account⁶⁰ of the broader context and confluence of debates surrounding theory, technology, and culture in which the Paperless Studios emerged. More recently, Joseph Giovannini identifies Columbia University, specifically the theory and design work that emerged from the Paperless Studios, as one of the "disruptive" avant-garde forces of the twentieth century.⁶¹ However, this account, once again, focuses on the emergence of a digital design language through the animation of architectural form. The essay gives considerable attention to the advent of three-dimensional modelling and traces the use of software such as Form-Z, Softimage, the introduction of Silicon Graphics International (SGI), Alias, and Maya, among others, as the driving force behind the digital avant-garde – "architects were pushing the boundaries of the field through software."⁶² This position and focus on software is further highlighted through the final section of the account, which spotlights Lynn's relationship to digital design theory and the generation of a smooth and continuous architecture through the application of animation software to his own design work. Contrary to the prevailing narrative that emphasises form-finding exercises, this thesis aims to prove, through its close reading of the Paperless Studio, that this was not the only engagement with the screen. Shedding light on important figures often underrepresented in discussions about the Paperless Studio highlights the multitude of ways the screen was engaged with at the time. Notably,

⁵⁹ See Bernard Tschumi, "The Making of a Generation: How the Paperless Studios Came About," in *When Is the Digital in Architecture?* ed. by Andrew Goodhouse (Montréal: Canadian Center for Architecture, 2017), 405–20; and lecture by Bernard Tschumi on the Paperless Studios as part of the Canadian Centre for Architecture's (CCA) research seminar 'Toolkit for Today 2013:' CCAchannel, "Toolkit for Today 2013: Bernard Tschumi," YouTube video, 1:23:53. August 15, 2013, <https://www.youtube.com/watch?v=PE9LHXEsB4A>.

⁶⁰ See Stan Allen, "The Paperless Studio in Context," in *When Is the Digital in Architecture?* ed. Andrew Goodhouse (Montréal: Canadian Center for Architecture, 2017), 383–404; Stan Allen, "The Future That is Now," in *Architecture School: Three Centuries of Educating Architects in North America*, ed. Joan Ockman (Cambridge, Mass: MIT Press, 2012), 203–29; and lecture by Stan Allen on the Paperless Studios as part of the CCA's research seminar 'Toolkit for Today 2013:' CCAchannel, "Toolkit for Today 2013: Stan Allen," YouTube video, 1:35:26. August 17, 2013, <https://www.youtube.com/watch?v=y2jmA3lpZ08>.

⁶¹ See Joseph Giovannini, "Columbia: Paperless Studios 1, 2, 3 Jump!," in *Architecture Unbound: A Century of the Disruptive Avant-Garde*, ed. Joseph Giovannini (New York: Rizzoli, 2021), 628–48.

⁶² Giovannini, "Columbia: Paperless Studios 1, 2, 3 Jump!," 635.

Keller Easterling stands out among these figures, whose “paperless” pedagogy emphasised network thinking rather than a mere pursuit of formal outcomes. The inclusion of Easterling, among others, contributes to a more nuanced understanding of the multifaceted relationship between architecture and the digital.

Additionally, this thesis proposes to situate the Paperless Studios within a broader cultural and media theory context of the period, aiming to establish an expanded view of the screen in architectural production and representation beyond the techno-formal. To do so, diverse material – not automatically identifiable nor chronologically linked – is assembled around the question of the screen. This approach highlights overlooked explorations, both in design and theory, presenting new and heterogeneous engagements with the screen in architecture. This material ranges from architectural theory, pedagogy and practice to media theory and cultural events during and since the 1990s, such as the Gulf War. The thesis also draws upon post-war TV media theory and experimental art practices that have used television in their installation works, forming a pre-history that provides significant trajectories through the 1990s and onwards.

Various research methodologies have been deployed to draw together these disparate parts into a cohesive argument, forming what can be described as a constellation of screen-based theory, pedagogy, and practice. The chapter summaries in this introduction delve deep into the methodologies applied throughout the thesis. Broadly speaking, these methodologies include historiographic research into primary and secondary sources, the application of critical theory, interviews with key figures, critical review and analysis of documentation related to relevant screen-based exhibitions and project case studies, as well as the construction of new drawings and diagrams. It is worth noting that these drawings have been instrumental in aiding analysis and serve as a representational tool when reformulating information, particularly for the two key events identified by the thesis as framing an alternative account of the digital: CNN’s live coverage of the Gulf War and the Paperless Studio. The intentional use of a hybrid drawing style, incorporating text, collage, and projective architectural drawing, proves to be a useful methodology

in bringing together different pieces of information and, in turn, prompting new readings through association, juxtaposition, and layering. The hybrid drawings also serve as a means of translating textual information and/or oral accounts, taken from primary and secondary sources, into visual and spatial narratives. The new constructed drawings, which often resemble network and communication diagrams, support the thesis' argument by presenting the screen(s) as the locus of a series of spatial, material, and mediating relations. This collection of drawings also creates a new archive of material that can facilitate future research on the digital in architecture.

'Screening Architecture' argues that focusing on the screen, particularly CRT technology that underpinned both TV and computer screens during the 1990s, allows for an alternative history of the digital in architecture and of contemporary architecture itself. This history is intricately woven into a broader cultural and media theory context of the screen, shaping the relationships between aesthetic practices and geopolitical concerns. While the thesis will explore several kinds of digital technology, with a primary focus on TV and computer screens, the convention will be to use 'screen' as the encompassing term to explore the material, spatial, and mediating effects of these screen technologies. The technological and material differences of the screen technology under investigation will be explicated in each instance.

The thesis understands that screens are all at once technological, architectural, and material objects. They are commonly defined as a flat surface onto which an image is projected or reflected. The two-dimensional frontal surface plane of screens also presents, through their rectilinear enclosures, a three-dimensional depth in space, particularly in the case of CRT screens. The vacuum tube that makes up the CRT, whose depth depends on the screen size, defines its objecthood. The envelope of the tube is comprised of the neck, funnel, and screen. Internally, a series of component layers facilitate the movement of electron beams projected from an electron gun at the back of the tube towards the front of the phosphor-coated screen, which then converts the beams into light to create images. This conversion is

materialised through the continuous scanning of horizontal lines to complete an image on the screen, or what is formally known as the process of rasterisation. The CRT screen, as an architecture, as well as its material characteristics, are of concern to the thesis.

Screens are also machines of seeing. Expressed through a mirror, window, lens, or interface, the screen has predominantly been theorised within cinema studies and the history of visual representation as a metaphor for seeing. Core to these metaphorical comparisons, as traced by Anne Friedberg, are the conditions of perception – “we know the world by what we see: through a window, in a frame, on a screen.”⁶³ Although these terms might initially appear as different words describing the same thing, each fundamentally points to a distinct construction of user-spectator engagement. The screen is not a window, as it can no longer be contained within the optical framing of perspectival geometry. It is also not a mirror; TV and computer screens do not reflect any form of split identity, nor do they primarily function as markers of the primordial recognition of one’s self, as in Lacan’s mirror stage.⁶⁴ By understanding the screen outside the figural and deviating from its metaphorical association with a window or mirror, this thesis proposes to consider it as an architecture that constructs spatial relationships at different scales.

The physical presence of the screen as an object on a desk, wall, or in our hands configures a spatial arrangement between the body and the screen’s surface in space, inherently making it inherently architectural in nature. Referred to as the ‘interface,’ the surface of the screen is the exact site that mediates this relationship between ‘man’ and machine. It is also the site of image presentation and construction, granting or limiting access to representations of space across multiple scales. Recently, the proliferation of portable handheld screens has transformed the passive spectator into an active agent, documenting and thus producing representations of space. The thesis proposes to move beyond the entrenched

⁶³ Anne Friedberg, *The Virtual Window: from Alberti to Microsoft* (Cambridge, Mass: MIT Press, 2006), 1.

⁶⁴ Giuliana Bruno, *Surface: Matters of Aesthetics, Materiality, and Media* (Chicago, Illinois: University of Chicago Press, 2014), 75.

understanding of the screen as solely a visual technology and expand its study to include its material, spatial, and mediating effects.

In alignment with the thesis argument, the structure of 'Screening Architecture' sees the first section, 'The Screen in Culture,' frame the screen as a cultural product by re-visiting post-war media theory and selected screen-based art and architectural projects of the 1960s and 1970s. This section serves as a pre-history to the second section and core of the thesis, 'The Screen in Studio,' which constructs the theoretical and design context of architecture's different engagements with the screen in the 1990s, primarily within the institutional context of GSAPP's Paperless Studios. It will also narrate its transformation over the decade and the turn to post-criticality at the turn of the millennium, marking, as claimed by the thesis, the end of the critical and speculative project of the screen on the East Coast of the US. The final section of the thesis, 'The Screen in the Field,' presents the work of 'The Centre for Research Architecture' and 'Forensic Architecture' in a broader context of counter-pedagogies and practices, arguing that a critical engagement with the digital, where the screen was being established at the confluence of media and politics in architecture, occurred concurrently with the rise of post-criticality.

'The Screen in Culture' initiates the process of contextualising the screen as a cultural product by re-visiting Marshall McLuhan's theorisation of TV as a 'cool medium' during the Vietnam War. The war marked the first instance of televised conflict, and as McLuhan underscored, TV screens brought "the brutality of war into the comfort of the living room,"⁶⁵ thereby creating a set of complex spatial relationships where the living room became unexpectedly connected to the battlefield through the screen. Introducing the idea of the 'global village' during the Vietnam War highlights the consequences of media consumption by global audiences, constructing a society of the screen. Chapter 01, 'The Electronic Environment: McLuhan's Theory of TV as a Cool Medium, 1964,' will draw largely on McLuhan's theories, in conjunction with insights from other media theorists, to highlight how electronic media were constructing a new environment that

⁶⁵ Marshall McLuhan, *Montreal Gazette*, May 16, 1975.

significantly altered our relationships, and reconfigured conceptions of time and space in the new 'global village,' as heavily mediated by the 'cool' screen.

Parallel to McLuhan's theory for a cool medium, which categorised the TV as a medium that demands greater audience interaction, the relationship between audience and screen was also being explored in art and architectural projects of the 1960s and 1970s. As broadcast TV became a ubiquitous part of culture in the 1960s, a generation of artists recognised the potential of the cathode-ray tube as an emerging medium in art. Chapter 02, 'Techniques of the TV Screen: Video Art and Architectural Projects of the 1960s and 1970s,' will discuss the video art and installations of media-based artists such as Nam June Paik, Bruce Nauman, Dan Graham, and the multi-screen architectural works of Charles and Ray Eames. These projects are key examples that began to translate the material, spatial, and aesthetic concerns regarding the screen discussed in media theory during the same decade. This section of the thesis becomes a prelude to the confluence of media studies and architecture in the 1990s.

Section two and the core of the thesis, 'The Screen in Studio,' will continue to situate the screen in a broader cultural and media theory context. However, it recognises a shift in postmodern media theory during the 1980s and 1990s, where the screen became the locus of the tension between reality and its simulated representation, particularly for the French cultural theorists Jean Baudrillard and Paul Virilio. Their theories gained prominence in architecture during this period, drawing critical attention to how technology was impacting the organisation of space, the body, and the perception of reality. Chapter 03, 'Liveness, Mediation, and the Simulated: Jean Baudrillard and Paul Virilio,' will use their work as a framework to investigate how their theories simultaneously addressed the effects of "liveness" as witnessed through conflicts beamed through living room TV screens, notably CNN's live coverage of the Gulf War, as well as their critical observations on how technologies such as CRT distort access to reality and, more importantly, reconfigure our conceptions of time and space.

In 1991, Cable News Network's (CNN) 24-hour live coverage of the Gulf War prompted new aesthetic and philosophical questions. This coverage marked the first live report of a conflict in the world, with CRT screens materialising real-time images of Baghdad through a grainy phosphor-green night-vision filter. This visual presentation made it difficult to distinguish between reality and its simulated representation. CNN correspondents transformed into eyewitnesses, reporting in a live, unfiltered, and speculative manner. Both correspondents and viewers became hostages to the effects of liveness, situated in a space that anticipates the real through the simulated. Arguably, TV has grown 'hotter' since the 1960s through its increased picture quality. However, the lack of message or 'low definition' in CNN's live coverage reinforces McLuhan's theory of TV as a cool medium and his axiom, the medium is the message. The CRT screen is the message here – Baghdad materialised through a phosphor-green coating, luminous yet posing an "eery, remote control quality."⁶⁶ Chapter 04, 'Screen Conflict: CNN and the Al-Rashid Hotel, Baghdad, 1991,' will expand on Baudrillard and Virilio's theories regarding the effects of "liveness." It will unpack CNN's live coverage to discuss the impact of simulation, via the screen, on our experiences of reality and, more importantly, on our experience of space. In addition to the textual analysis of the coverage, the drawings created in this chapter spatialise the oral transcripts from the coverage and aid in evidencing the material and spatial relations at play across time.

In the context of the screen's heightened cultural presence, the early 1990s became an opportunity to theorise and speculate on the effects of the screen on architectural production and representation. The thesis argues that the momentum for experimentation was not only a direct response to the arrival of CRT screens in architecture schools. It was also a result of the transitional period in architecture characterised by a crisis within the field concerning design and its relationship to theory. Chapter 05, 'Screen Theory and Practice: The Emergence of Screen-Based Architecture in the Late 1980s – 1990s,' will narrate the emergence of screen-based architectural theory and practice at the turn of the 1990s. It will navigate this terrain

⁶⁶ William Finnegan, "The Talk of the Town," *The New Yorker*, January 28, 1991, <https://archives.newyorker.com/newyorker/1991-01-28/flipbook/020>.

by examining the cultural and material evidence from the period, including journals, events, and architectural projects, and present works that openly explored the complex relationship between architecture, theory, and media in the age of the screen. A notable example is the publication 'Semiotext(e) Architecture,' 1992, edited by Hraztan Zeitlian. This publication featured a series of screen-based architectural projects by Diller Scofidio, Asymptote, Jesse Reiser, and Stan Allen, among others, who explicitly engaged with the aesthetic concerns regarding the tension between reality and its simulated representation. Semiotext(e) Architecture is one of a series of publications and events in this period, alongside the 'Anyone Corporation' conferences and magazines, the architectural journal 'Assemblage,' and the bi-annual journal 'Columbia Documents of Architecture and Theory,' that will be analysed to highlight the emergence of a screen-based architecture. Within this context, there will be a focus on the small, critically engaged screen-based practices, namely Asymptote and Diller Scofidio, that built upon the lineage of video art and installation of the 1960s and 1970s. By re-visiting the cultural and material evidence of the period, the overall aim of this chapter is to present this constellation of screen-based theory and practice, highlighting the screen's cultural role in architecture at the turn of the 1990s and generating the beginnings of an alternative account of the digital in architecture.

The reorientation of theoretical concerns in the early 1990s crossed with the arrival of CRT screens connected to Silicon Graphics computers at Columbia University's Graduate School of Architecture, Planning and Preservation's (GSAPP) Paperless Studios in 1994. The studio nurtured an environment of experimentation in architectural pedagogy, with a specific focus on the screen. Chapter 06, 'Screen Pedagogy: The Paperless Studio, 1994,' draws on interviews conducted with key figures such as Bernard Tschumi (Dean of GSAPP, 1988-2003), the first Paperless Studio teachers (including Greg Lynn and his digital assistant Ed Keller, Hani Rashid, Jesse Reiser, and Keller Easterling), and primary material from this period. These materials include the Paperless Studios syllabi, GSAPP's faculty newsletter, 'Newline,' the annual publication of faculty-selected student work, 'Abstract,' and the 'School Self Study' from Columbia University archives. This chapter aims to

unpack this pivotal moment in architecture's relationship with the digital. In addition to the textual analysis of primary materials, this chapter incorporates produced drawings to visualise the physical space of the Paperless Studio, illustrate the spatial implications of hosting computers in the design studio, and to evidence the different pedagogical engagements with the screen. The presence of bulky CRT computer screens reconfigured the studio space into a series of "hardware clusters" and constructed a mediated environment between the subject and object. Conflicting theories and positions emerged in the Paperless Studio regarding architecture's relationship to CRT screens. Some, like Greg Lynn, were interested in operating behind the screen to explore the formal potentials of digital design techniques. Others, like Hani Rashid, situated the screen in physical space, extending the lineage of video art and installation from the 1960s and 1970s. The chapter explores the heterogeneous lines of inquiry in the Paperless Studio to highlight alternative engagements with the screen and, by extension, the digital in architecture in the 1990s.

By the end of the decade, the distinct lines of inquiry and theoretical positions prompted by the Paperless Studio began to blur as the computer became mainstream in architectural education and practice. This transformation will be contextualised by unpacking the shifts in the discipline at the turn of the century: the rise of pragmatism, the pro-practice stance, post-criticality in the globalised context of the early 2000s, and the consequent desire for innovation. This era saw the screen being used as a tool for the production of a techno-formal aesthetic. Chapter 07, 'An Avant-Garde Collapse: World Trade Centre Competition, 2002,' argues that the shift from the screen as a tool for thinking and experimentation to a tool for the production of a techno-formal aesthetic is epitomised by the digitally smooth, photo-rendered images, enabled by LCD and plasma screen technology, of the 2002 proposals to design a new World Trade Centre. This chapter will analyse how the computer-generated renders produced by the digital avant-garde collaborative 'United Architects' presented a "progressive" aesthetics that depoliticised the event and epitomised the victory of the simulated over the real. Ironically, the loss of United Architect's proposal marks the end of the critical and speculative project of the

screen on the East Coast of the US, as initially fostered by the Paperless Studios. This case study will illustrate how, at the turn of the twenty-first century, screen-based architecture and the screen's live transmission of conflicts would merge and literally collapse in the architectural competition for the 9/11 site.

Although the heterogeneous lines of inquiry prompted by the Paperless Studios were eventually subsumed by a techno-formal aesthetic by the end of the decade, the third section of the thesis, 'The Screen in the Field,' highlights the rise of socio-political engagements with the screen. It showcases how the screen can play an empowering, democratising, and decolonial role in contemporary architectural education and practice. This section of the thesis presents the work of The Centre for Research Architecture (CRA) and Forensic Architecture (FA), directed by Eyal Weizman, to argue that a critical engagement with the digital was occurring parallel to the rise of post-critical positions. In order to demonstrate the revival of the critical project of the screen at the turn of the twenty-first century, Chapter 08, 'The Centre for Research Architecture and Forensic Architecture: Critical Counter-Pedagogy and Counter-Practice,' situates the CRA and FA within a broader context of counter-pedagogies and counter-practices that have contributed to an alternative and politically driven engagement with the screen, in response to the rise of urban warfare in the 2000s. The increase in urban conflicts crossed with the rise of social media and proliferation of open-source media, as captured by, and consumed through the screen, gave rise to a new mode of architectural practice – one that took on a social and activist role, employing the techniques and methods of investigative journalism in the pursuit of accountability or 'truth.'

The work of the CRA and FA has led this reorientation in architectural practice through their investigations into human rights violations and environmental crimes. This chapter will examine the work of FA, both as an emerging field of practice and an academic endeavour developed at the CRA, to establish the screen, and by extension, the digital, at the confluence of media and politics in architecture. This will be undertaken through a broader contextualisation of their work in the 2000s, coupled with a detailed account of their modus operandi by unpacking several of

FA's case study investigations. Specific attention will be drawn to the role of the screen in the investigative methodology developed by FA. Ultimately, concluding the thesis on the work of CRA and FA aims to recognise that a critical engagement with the screen, and consequently the digital in architecture, was revived as new aesthetic and geopolitical concerns emerged at the turn of the twenty-first century, and simultaneously challenged the techno-formal aesthetic of the post-critical in architecture. The architectural and media techniques used by FA constitute a retooling and rethinking of the screen for the field – one that counters the digital design techniques that once were limited to the “innovation” discourse of the pro-practice stance at the turn of the century. It presents the screen as a complex apparatus with greater spatial, material, and aesthetic impacts on architectural production and representation than the blob will ever have. In essence, ‘Screening Architecture’ not only offers an alternative narrative of the digital in architecture by situating the screen in a broader cultural and media theory context but, more importantly, it threads a discourse between architecture, media, and conflict through a critical account of the screen since the 1990s. By re-situating architectural production and representation at the confluence of media and conflict, via the screen, the thesis presents ways in which architecture can critically engage with the geopolitical and aesthetic concerns raised by a culture that is increasingly driven by conflict and its mediation.

SECTION 01: THE SCREEN IN CULTURE

Chapter 01: The Electronic Environment: McLuhan's Theory of TV as a Cool Medium, 1964

1.1 Introduction

This introductory section, or pre-history, situates the thesis in a broader cultural and historical context. In doing so, it asserts that understanding architecture's relationship with the screen is intricately tied to a larger discourse concerning the impact of electronic media on society and culture. This chapter will focus on the post-war media theories prevalent in the 1960s and 1970s, with a primary emphasis on Marshall McLuhan's theorisation of the new electronic media environment. By closely examining McLuhan's theories, the objective is to unpack the profound effects of media, technology, and communication on human environments, highlighting how they have not only shaped but reconfigured conceptions of space and time. This pre-history is important as the period under investigation marks the moment in which media theory emerged as a formal field of study, wherein theorists began to explore the effects of media beyond their technical or technologically innovative sense or use.

This is significant as this thesis also aims to transcend a mere technical understanding of the screen and, in turn, seeks to explore a more expansive account that considers the material, spatial, and mediating effects of the screen. Drawing upon McLuhan's extensive body of work and insights from other media theorists, this chapter will provide a brief overview of the consequences stemming from the shift from print to electronic media during the latter half of the twentieth century. This shift will be unpacked through a selection of three of McLuhan's media theories: (1) the conceptualising of media as an environment, (2) the identification of the interconnectedness of the world as a result of electronic technology, which is referred to as the 'global village,' and, of particular relevance to this thesis, (3) his theorisation, at the height of the Vietnam War, of TV as a 'cool' medium that fosters

greater audience participation. While McLuhan didn't explicitly focus on architecture, these theories are pertinent to the thesis because they facilitate an understanding of how media influences and shapes our perception of space – an approach applied when analysing the thesis' case studies, across sections two and three.

1.2 Media as Environment

Media, as cultural critic Raymond Williams explains, is a term that stems from 'medium' and has been in use in English since the sixteenth century. Throughout the seventeenth century, it was used to describe something with "the sense of an intervening or intermediate agency or substance"⁶⁷ and became commonly used in the twentieth century with the rise of the press and broadcasting as prominent features of mass communications.⁶⁸ Its definition and scope transformed over this period into what Williams describes as a convergence of three senses of the term: (1) the original understanding of media as an intervening or intermediate agency or substance, (2) a technical sense that places distinctions between print, sound, and vision as media, and finally (3) a capitalist sense which sees media as a service (for instance, as a means for advertisement).⁶⁹ Although all three senses contribute to the complex nature of media, it is the first – understanding it as an intervening or intermediate phenomenon – that is of interest in the context of this chapter, as it prompts a spatial dimension. Understanding media as an 'intervening' or 'intermediate' agent places more emphasis on the relationship between technology and people and how this 'intervening' or 'intermediate' agent has enhanced or disturbed configurations of space and time. This understanding is crucial for the thesis, as it forms the foundational framework that permeates through all the case study investigations in sections two and three. It fosters a critical reading into how this intervening agent has either augmented or disrupted configurations of space and time in each context.

⁶⁷ Raymond Williams, *Keywords: A Vocabulary of Culture and Society* (London: Fontana, 1976), 203.

⁶⁸ *Ibid.*

⁶⁹ *Ibid.*

In the post-war period, the understanding of media as an ‘intervening’ or ‘intermediate’ agent became the premise for a widespread body of work across disciplines, including architecture. The rise of electronic technology during the socio-politically charged 1960s and 1970s significantly influenced architects and designers to rethink their design approaches. Simultaneously, leading media theorist Marshall McLuhan’s presence in architecture’s vanguard institution in the mid-1960s⁷⁰ “was a sign of the beginning of the end for a particular modernist conception of architecture and its subsequent colonization by the logic of communications, networks, systems, and signs.”⁷¹ Respectively, a “radical” cohort of architects in Europe and the US reacted towards modernism’s hyper-functionalism and began exploring architecture’s relationship to electronic technology and the pervasive information society.⁷²

Form and function were exchanged for networks and nomadism. Conscious of the mobility of technological tools of communication, speculative projects such as Hans Hollein's 'Mobile Office' (1969) and Michael Webb's 'Cushicle' (1964) presented nomadic working and living models through inflatable architectures for the body. Equipped with technologies such as a typewriter and telephone in the case of the 'Mobile Office' and a heating system, radio, and mini-TV in 'Cushicle,' these speculative projects enabled the setup of work or domestic environments anywhere, at any time, establishing a new temporal and technological urbanity. This sense of temporality and dematerialisation of architecture was also seen in Archigram's 'Instant City' of 1969. Conceptualised as a travelling metropolis made up of a kit of parts, including suspended screens, hot air balloons, and mobile homes, among other technological objects, the proposal envisioned arriving at a site, setting up, and then disappearing, transforming the city into a network of informational and audio-visual environments. Furthermore, projects such as Superstudio's 'Supersurface'

⁷⁰ See Larry Busbea, “*McLuhan’s Environment: The End (and the Beginnings) of Architecture*,” *Aggregate* 3, (December 2015): 1, <http://weaggregate.org/piece/mcluhans-environment>; “his participation at venues like Constantinos A. Doxiadis’s Delos cruises or the Graham Foundation, and his publication in *Perspecta* 11, for instance, mark a very particular juncture in the disciplinary development of architecture in the postwar period.”

⁷¹ *Ibid.*

⁷² Marie-Ange Brayer, “Work and Play in Experimental Architecture, 1960-1970,” *PCA-Stream*, 2012, <https://www.pca-stream.com/en/articles/work-and-play-in-experimental-architecture-1960-1970-57#bibliography-20>.

(1972) and Archizoom's 'No-Stop City' (1969-1971), both ironic in nature, proposed infinite grids that acted as circuit boards. Given the freedom to plug anywhere into the technical infrastructure – hidden in 'Supersurface' and comprised of repeated, artificially lit, and air-conditioned interior spaces in 'No-Stop City' – these projects once again epitomised the ephemeral qualities of a technological urbanism.⁷³

At a time when visionary utopias of the 1960s and 1970s were foreseeing the advent of an electronic and information society (and simultaneously operating/circulating through these means),⁷⁴ and when Archizoom were proclaiming that "media is architecture,"⁷⁵ media theory was emerging as a formal field of study. In the 1960s, numerous media scholars sought to unpack mass media's effects on society and "bring into focus the material and technological aspects of communication."⁷⁶ McLuhan, for instance, argued that societal and cultural changes are an effect of new mediums, asserting that understand these changes is impossible "without a knowledge of the way media work as environments."⁷⁷ In his 1967 book 'The Medium is the Massage,' he explains, "All media work us over completely. They are so pervasive in their personal, political, economic, aesthetic, psychological, moral, ethical, and social consequences that they leave no part of us untouched, unaffected, unaltered."⁷⁸ From his first published book 'The Mechanical Bride: Folklore of Industrial Man' (1951), which decodes the hidden agenda of advertisement and the press, to 'The Global Village' (1989), which highlights the

⁷³ For an expanded reading on the works of the post-war avant-garde as well as the context in which the radical movement emerged, see Pino Bruggellis, Gianni Pettena and Alberto Salvadori, eds., *Radical Utopias: Beyond Architecture, Florence 1966-1976* (Vol. 16. Macerata: Quodlibet, 2017); Alex Coles and Catharine Rossi, eds., *EP/ Volume 1: the Italian Avant-Garde, 1968-1976* (Berlin: Sternberg Press, 2013) and Martin van Schaik and Otakar Máčel, eds., *Exit Utopia: Architectural Provocations, 1956-76* (London: Prestel, 2005).

⁷⁴ For instance, Archizoom's 'No-Stop City' first appeared in the Italian architectural and design magazine *Casabella* in 1970, Hans Hollein's 'Mobile Office' was a two-minute and twenty-second long performance exclusively produced for television, and Archigram (a combination of architecture and telegram) began as a self-published magazine between the years of 1961-1974 to showcase and disseminate their visionary projects.

⁷⁵ Editrice Brianza, ed., "Distruzione dell'oggetto," in *Argomenti e immagini di design*, March-June 1971, 79.

⁷⁶ Geoffrey Winthrop-Young and Michael Wutz, "Translators' Introduction," in *Gramophone, Film, Typewriter*, ed. Friedrich A. Kittler (Stanford, Calif: Stanford University Press, 1999), xiii.

⁷⁷ Marshall McLuhan, Quentin Fiore, and Jerome Agel, *The Medium Is the Message: An Inventory of Effects* (New York: Bantam Books, 1967), 8.

⁷⁸ McLuhan, Fiore and Agel, *The Medium is the Message: An Inventory of Effects*, 26.

interconnectedness of the world as a result of electronic technology, McLuhan consistently focused on raising awareness of these *effects* of media. The thesis has specifically emphasised McLuhan for this reason, as his commitment to revealing the formerly invisible effects of media goes beyond purely technical analysis, offering a comprehensive exploration of their broader impact.

McLuhan's observations and prophecies, or "probes" as he terms them, primarily concentrating on the effects rather than the content of electronic communications, sit within a broader lineage of analyses aimed at unpacking the workings of media on society and culture. A collection of works at the turn of the century, including Karl Kraus' critique of mass media's role during the First World War, which filled the pages of his magazine 'Die Fackel,' Siegfried Kracauer's analysis of mass aesthetic entertainment, illustrated through his description of the Tiller Girls in his 1963 essay 'The Mass Ornament,' and Walter Benjamin's influential 1936 essay 'The Work of Art in the Age of Mechanical Reproduction,' outlining the role mechanical reproduction played in shaping aesthetic experience (specifically the decline of the aura or authenticity of a work of art), contributes to an oeuvre of theory and criticism on the relationship between mass media and modernity. Also contributing to this body of work, with a focus on exploring a single medium, Guy Debord's 'The Society of the Spectacle' (1967) and Susan Sontag's 'On Photography' (1977), both published at the height of the Vietnam War, examined how the omnipresent nature of images mediates people and, consequently, intertwines reality with representation.

In addition to this list, however, less known are the writings of Harold Innis.⁷⁹ Influencing McLuhan's thinking most, Innis situated media at the centre of historical analysis. He delineates his primary thesis into two types: time-binding (media that influence cultural transformation through duration) and space-binding (media that extend influence over distance). Ultimately, Innis argues that a medium of communication exercises a powerful influence on the spread of knowledge over

⁷⁹ See Harold Innis, *Empire and Communications* (Oxford: Clarendon Press, 1950); *The Bias of Communication* (Toronto: University of Toronto Press, 1951).

space and time.⁸⁰ The relationship between different media and their impact on space and time is a recurring theme in McLuhan's media theory and is most prominent through his description of the 'global village' – "a brand-new world of all-at-once-ness. 'Time' has ceased, 'space' has vanished. We now live in a global village...a simultaneous happening... Information pours upon us, instantaneously and continuously."⁸¹ The round-the-clock and round-the-globe circulation of information reconfigures traditional conceptions of time and space, as well as patterns of human associations, thereby creating what McLuhan refers to as a "new environment" – not unlike the nomadic and global infinite grid environments envisioned by Superstudio and Archizoom.

In his 1967 article titled 'The Invisible Environment: The Future of an Erosion,' published in *Perspecta* 11, McLuhan reflects on the "new and potent electronic environment,"⁸² proclaiming that it also possesses a mysterious feature – "the really total and saturating environments are invisible."⁸³ It is precisely this invisibility that inhibits awareness of the effects of media, as it is easier to be consciously aware of the environment that has preceded us. As McLuhan describes, we are always one step behind, perceiving the world through a rear-view mirror; that is, the effects of an environment only become visible once a new environment has superseded them. As the present is always invisible, McLuhan advocates for understanding the new electronic extensions of man and the types of environments they generate. Postulating the study of media as an environment, formally identified today as the field of media ecology,⁸⁴ McLuhan places less emphasis on media in the technical sense but acknowledges that media, specifically electronic media, take place *in* and constitute *an* environment.

⁸⁰ Marshall McLuhan and W. Terrence Gordon, *Understanding Media: The Extensions of Man*, Critical ed. (Corte Madera, CA: Gingko Press, 2003), 11.

⁸¹ McLuhan, Fiore and Agel, *The Medium is the Message: An Inventory of Effects*, 63.

⁸² Marshall McLuhan, "The Invisible Environment: The Future of an Erosion," *Perspecta* 11, (1967): 164.

⁸³ *Ibid.*

⁸⁴ Although McLuhan alluded to media as an environment as early as his 'Gutenberg Galaxy,' 1962, 'media ecology,' which is a field of inquiry based on the metaphor that all communication is an environment, was formalized in a keynote lecture by media theorist Neil Postman at the Speech Communication Association in 1973. See Neil Postman, "Media Ecology Education," *Explorations in Media Ecology* 5, no.1 (March 2006): 5–14.

What is evident today, that space and time are very much implicated in the invisible electronic environment, was not of core concern for most media theorists of this period, who primarily focused on studying the content of the medium with a “rear-view-mirror” approach. Highlighting a point of difference, McLuhan understood media as an ‘intervening’ or ‘intermediate’ agent that transforms our experience of each other, the spaces we live in, and the world. He explained, “Effective study of the media deals not only with the content of the media but with the media themselves and the total cultural environment within which the media function,”⁸⁵ therefore, they must be studied for their effects and not solely for their content.

Content is not entirely disregarded here but is subordinate to the medium. McLuhan emphasises that the medium or form of communication exerts more of an effect on us than the content or information itself, as expressed in his well-known axiom, ‘the medium is the message.’ Consequently, McLuhan’s entire theoretical focus involved raising awareness of media as an environment and making visible the “invisibility” of their effects – how media environments work, how they structure what we see and do, and how they reconfigure our relations to each other and to space in this new ‘global village.’ The recognition of the broader effects of this “new environment” is particularly significant, serving as a frame of reference in the analyses of the thesis’ case studies. This is especially evident in the analysis of CNN’s live coverage of the Gulf War in section two, where it becomes apparent that the “live” coverage influenced public perceptions and reactions by compressing both temporal and geographic distance.

1.3 A Global Village of Simultaneous Happenings

McLuhan’s conception of the global village was inherent to the new electronic environment. Although each media exerts an environment and rearranges patterns of human association, McLuhan was particularly fascinated by the scale of sensory transformation and the significant reconfigurations of time and space involved in the electronic environment. In his first major work, ‘The Gutenberg Galaxy: The Making

⁸⁵ Marshall McLuhan, “Playboy Interview: Marshall McLuhan,” *Playboy Magazine*, March, 1969, 54.

of *Typographic Man*' of 1962, he explains that the new electronic environment, an extension of our nervous systems, has constituted a single field of experience – “simultaneous and global in extent.”⁸⁶ He distinguishes this by tracing the shift in sensory ratios across the typographic and mechanical era to the electronic environment. Pre-literate cultures, as McLuhan describes, are “tribal” and engage all senses (with an emphasis on oral communication), while the literate society, with the advent of the phonetic alphabet and invention of the printing press, privilege one sense, that of the visual, at the expense of other more interactive senses. Consequently, McLuhan claims that since Gutenberg’s invention of the printing press, perceptual emphasis has shifted from the ear to the eye; however, the emergence of the electronic environment has recalibrated sensory ratios by increasing the activity of all senses.⁸⁷

Pre-literate or oral cultures live with all senses balanced and simultaneous. This distinction arises because, unlike the “neutral” eye of literate societies, the ear is sensitive and hyperaesthetic. McLuhan stressed this contrast by explaining that tribal man lived in an “acoustic space,” where everything is perceived through the simultaneous interplay of all senses, resulting in a radically different concept of time-space relationships.⁸⁸ On the other hand, the visual sense, being the only one allowing detachment, gives rise to a fragmented environment in “visual space.” The linear logic promoted by the visual space of the phonetic alphabet constructs a uniform organisation of time and space⁸⁹ as those subjected to “the arrangement of language visually in lines, highly sequential and precise and rigid”⁹⁰ transfer these arrangements and patterns into their way of living and social existence. In contrast, the “ear, unlike the eye, cannot be focused and is synaesthetic rather than analytical and linear,”⁹¹ thus promoting engagement. According to McLuhan, the implicit and

⁸⁶ Marshall McLuhan, *The Gutenberg Galaxy: The Making of Typographic Man* (Toronto: University of Toronto Press, 1962), 5.

⁸⁷ McLuhan, Fiore and Agel, *The Medium is the Message: An Inventory of Effects*, 125.

⁸⁸ McLuhan, “Playboy Interview: Marshall McLuhan,” 59.

⁸⁹ Marshall McLuhan, *Understanding Media: The Extensions of Man* (New York: McGraw-Hill, 1964), 357.

⁹⁰ Marshall McLuhan, Stephanie McLuhan, and David Staines, *Understanding Me: Lectures and Interviews* (Cambridge, MA: MIT Press, 2003), 36.

⁹¹ *Ibid.*

simultaneous mode of living of the pre-literate man, where all senses are developed, is far richer than that of the literate.

The new electronic environment, in contrast, does not involve linearity as a characteristic. Linear conceptions of time and Euclidean space are disrupted by the round-the-clock and round-the-globe circulation of information provided by electronic technologies. Firstly, the electronic environment dismantles the monopoly of visual space⁹² and embraces what McLuhan terms a “mosaic space.” Electronic technology, such as the TV, provides non-linear and discontinuous patterns characteristic of a mosaic – “for the mosaic is not uniform, continuous, or repetitive. It is discontinuous, skew, and non-linear.”⁹³ Secondly, the collapse of time through electronic technology is, as McLuhan explains, a peculiar dimension of a mass audience consuming media simultaneously. Simultaneously is the key concept here. “It’s a time factor,” McLuhan pronounces, as he explains that the invention of the printing press and, consequently, the printed book created “publics” while the electric circuitry created “the mass.”⁹⁴ The particular characteristic of a mass audience is that what they are experiencing is all happening at once – “a simultaneous happening.”⁹⁵ As “mosaic space” challenges a literate society's highly sequential, rigid, and lineal characteristics, the electronic environment presents many experiences simultaneously.

In addition to the linear logic prompted by a literate society, print technology – mainly through the portability of the book – fostered the cult of individualism,⁹⁶ where separate closed systems support private, isolated thoughts. Contrastingly, the simultaneous happenings of the electronic environment threaten privacy as they construct global dialogue and contact zones between disparate societies. This, of course, sits at odds with the divided and fragmentary process and individualism

⁹² Marshall McLuhan, Quentin Fiore, and Jerome Agel, *War and Peace in the Global Village: An Inventory of Some of the Current Spastic Situations That Could Be Eliminated by More Feedforward* (Corte Madera, CA: Gingko Press, 2001), 7; McLuhan, “Playboy Interview: Marshall McLuhan,” 59.

⁹³ McLuhan, *Understanding Media: The Extensions of Man*, 357.

⁹⁴ McLuhan, McLuhan, and Staines, *Understanding Me: Lectures and Interviews*, 82.

⁹⁵ McLuhan, Fiore and Agel, *The Medium is the Message: An Inventory of Effects*, 63.

⁹⁶ McLuhan, *The Gutenberg Galaxy: The Making of Typographic Man*, 206.

encouraged by the phonetic alphabet and print technology. Living in a “single global tribe” demands a high intensity of participation and involvement as sight, sound, and movement are simultaneous and global in extent.⁹⁷ Although the simultaneous happenings of the electronic environment threaten one’s claim for privacy, they also restore, according to McLuhan, the tribal patterns of the pre-literate society, which were not limited to a single sense but instead prompted an interplay between all the senses. For these reasons, electronic technologies have fostered a return to a “tribal” experience.

The simultaneous happenings of the electronic environment also result in translating more of ourselves into the form of information, it “pours upon us instantly and continuously the concerns of all other men.”⁹⁸ All of a sudden, we have become “irrevocably involved with, and responsible for each other”⁹⁹ in the global village. Therefore, this instantaneous co-existence, where we live “pluralistically in many worlds and cultures simultaneously”¹⁰⁰ and know more about each other, demands collective consciousness and action. This realisation is fundamental when comprehending our relationship to contemporary events, particularly those of a socio-political nature, as it raises questions of ethics and justice. This ethical dimension, which involves navigating the electronic environment with a heightened awareness of our shared responsibilities within the expansive boundaries of the global village, is further explored in section three of the thesis, particularly through the detailed case study of Forensic Architecture.

1.4 Television as a ‘Cool’ Medium

Just as phonetic literacy endangered oral-tribal “man,” electronic media – that is, the telegraph, radio, films, telephone, television, and the computer – have destabilised the disassociated role of Gutenberg man. This is because, as emphasised thus far, electronic media “have enhanced and externalised our entire central nervous

⁹⁷ McLuhan, *The Gutenberg Galaxy: The Making of Typographic Man*, 5.

⁹⁸ McLuhan, Fiore and Agel, *The Medium is the Message: An Inventory of Effects*, 16.

⁹⁹ McLuhan, Fiore and Agel, *The Medium is the Message: An Inventory of Effects*, 24.

¹⁰⁰ McLuhan, *The Gutenberg Galaxy: The Making of Typographic Man*, 31.

system.”¹⁰¹ This technological extension immerses us in the simultaneous happenings of the global village and, in turn, prompts high participation and response across all senses. As extensions of our nervous systems and not our corporeal bodies, electronic media alter sensory patterns and inexorably reshape our social and psychic existence, transforming our environment.¹⁰² Although McLuhan’s inquiry into the effects of media encourages them to be understood as environments, the starting point is always the individual. His analysis is, therefore, constantly dependent on the relation between the physical sense of the body and any alterations to the sense ratio through the technological extensions of the body. McLuhan’s exploration into this scale of inquiry, underscoring the transformative impact of technological extensions on an individual’s reality, provides a critical framework for the analysis of screen-based installations throughout the thesis. Within this framework, the interaction between the corporeal and technological is seen as anything but neutral.

Alterations to the sense ratio are measured through McLuhan’s temperature-based metaphor of “hot” and “cool” media. This theory defines the level of audience participation and interactivity with a given media. The contrast between hot and cool media hinges on the resolution of the visual, auditory, or tactical medium in use, or what McLuhan refers to as the “definition” of the medium. The response of our physical senses to the medium varies between a “high” definition to a “low” definition medium. High-definition media, a term usually associated with television systems, provides sharper and/or more information in contrast to low-definition media, which requires more participation from the viewer to fill in or complete the missing information. This becomes the basic principle when defining what is hot or cold. Hot media, such as radio, print, and photographs, are of “high-definition” and require little to no participation. Cool media, such as the telephone or television, are “low-definition” and require high levels of participation from the viewer. Furthermore, hot media usually extend a single sense in high definition, for instance, the enhancement of auditory information provided by the radio, whereas cool media see the audience

¹⁰¹ McLuhan, “Playboy Interview: Marshall McLuhan,” 60.

¹⁰² McLuhan, “Playboy Interview: Marshall McLuhan,” 54.

use a variety of senses to construct the whole. Put simply, hot media “exclude,” and cool media “include” an audience as they are an “active constituent of the viewing or listening experience.”¹⁰³

McLuhan’s hot and cool media theory supports his axiom that ‘the medium is the message.’ The medium – whether hot or cool – and not the content defines the limits of participatory experiences and, therefore, is the message. The most significant of the electric media for McLuhan was the cool medium of television. This was not only because of its extensive reach and presence in almost every home in the US in the post-war period but also the television’s ability to extend “the central nervous system of every viewer as it works over and molds the entire sensorium with the ultimate message.”¹⁰⁴ One of the most prominent cultural objects of the second half of the twentieth century, television’s convergence of sound and moving-image encourages the interplay of all senses as opposed to separating them, countering the disassociated and fragmented Gutenberg man. The medium of television is enveloping, as all the senses are simultaneously stimulated, and therefore, it reverses the process and “returns man’s five senses to their pre-print, pre-literate “tribal” balance.”¹⁰⁵

As a cool medium, television does not provide detailed information and is of “low definition,” heightening audience participation as the viewer is implicated in completing the detail of what is missing from the TV image. This differs from other audio-visual media, such as the high definition-low participation of the hot medium of film, which amplifies one sense – that of the visual – and demands less participation as the spectators are engulfed and captivated in the context of a “dark” movie theatre (there is a sense of completeness). As Roland Barthes describes in ‘Leaving the Movie Theatre,’ the darkness of the cinema results in an immobilisation of the body.¹⁰⁶ Regardless of the film's content, the spectator’s posture begins to relax and

¹⁰³ McLuhan, “Playboy Interview: Marshall McLuhan,” 61.

¹⁰⁴ Ibid.

¹⁰⁵ McLuhan, McLuhan, and Staines, *Understanding Me: Lectures and Interviews*, 14.

¹⁰⁶ Roland Barthes, *The Rustle of Language*, trans. Richard Howard (New York: Farrar, Straus and Giroux, 1986), 346.

exudes a level of passivity. In contrast, television relies on the audience to be completely involved – “TV will not work as a background. It engages you. You have to be *with* it.”¹⁰⁷ This differentiation between film and television is further emphasised when McLuhan declares that film audiences are the camera, as the eyes follow the sequence and narrative movement of the frame, while with TV, the eye has to reconfigure the non-linear patterns on the screen, and therefore, the viewer is part of a circuit of participation that constructs the image and completes the medium – “you are the screen.”¹⁰⁸

This distinction suggests a different understanding of the technical functioning of the television’s cathode-ray tube (CRT) versus the film screen onto which images are projected. Unlike the film screen, McLuhan explains that the TV image is a “mosaic mesh not only of horizontal lines but of millions of tiny dots”¹⁰⁹ that project onto the phosphor screen. The viewer is psychologically limited to only picking up a fragment of these dots to shape the TV image; thus, “he is constantly filling in vague and blurry images, bringing himself into depth involvement with the screen and acting out a constant creative dialog with the iconoscope.”¹¹⁰ Moreover, the continuous flickering of the phosphor “mosaic mesh” requires a high level of involvement of the eye – an intensity compared, for McLuhan, to the sense of touch – “The TV image requires each instant that we “close” the spaces in the mesh by a convulsive sensuous participation that is profoundly kinetic and tactile because tactility is the interplay of the senses, rather than the isolated contact of skin and object.”¹¹¹ The bombardment of light impulses, the fuzziness of the phosphors on the screen, and the continuous scanning technique of the TV, which shapes images on the screen through contours rather than fixed snapshots, enhance the “tactility” of the medium. For these reasons, understanding television as primarily a visual medium is a misconception to McLuhan. Instead, it is a medium that is an extension of the sense of touch, an audio-tactile medium that involves all senses and, therefore, dislocates the purely

¹⁰⁷ McLuhan, *Understanding Media: The Extensions of Man*, 332.

¹⁰⁸ McLuhan, *The Gutenberg Galaxy: The Making of Typographic Man*, 39.

¹⁰⁹ McLuhan, “Playboy Interview: Marshall McLuhan,” 61.

¹¹⁰ *Ibid.*

¹¹¹ McLuhan, *Understanding Media: The Extensions of Man*, 273.

visual legacy of the mechanical era.¹¹² Reflecting the romanticised notion of synaesthesia, television's "cool" and "tactile" experience is responsible for ending the visual supremacy of mechanical knowledge.¹¹³

By reawakening the tactile sense that was anesthetised in the mechanical age, television's "cool" characteristic involves the audience in the message. The body's deep entanglement with the screen and consequent wiring to the global village sees an implosion of scales, spaces, and time. A number of world-first "televised" events that beamed through living room TV screens evidenced the "implosion" McLuhan was prophesising at the time. From John F. Kennedy's state funeral in 1963 to Apollo 11's 1969 transmissions from outer space, which fostered a reflexive response of being "outered" and "innered" at the same time... across earth and the moon simultaneously,¹¹⁴ these televised events demonstrated the power of the cool medium to involve an entire population across space where "the true action in the event was not on earth or on the moon, but rather the airless void between."¹¹⁵ This airless and wired void breaks down distances as the living room is instantly connected to the global phenomenon – we are "here" and "there" at the same time.

This collapse of physical distance is inherent to the term 'television.' The root words 'tele,' meaning far off, and 'vision,' meaning the act of seeing, straightforwardly describe the medium's ability to bring something up close from a distance, simultaneously through visual and audio means. When understood from this perspective, television displays a very distinctive set of qualities. It surpasses being a mere technology for transmitting information or a medium of audio-visual representation. By breaking down distances, it devises a situated mediation – a dynamic exchange and negotiation between two contexts that come into being through the screen. While mediation could be associated with other electronic media, such as radio waves traversing borders in information transmission and reception,

¹¹² McLuhan, *Understanding Media: The Extensions of Man*, 360.

¹¹³ McLuhan, "Playboy Interview: Marshall McLuhan," 61.

¹¹⁴ Marshall McLuhan and Bruce R. Powers, *The Global Village - Transformations in World Life and Media in the 21st Century* (New York: Oxford University Press, 1989), 4.

¹¹⁵ Ibid.

the “tactility” of the television makes this exchange more powerful. Through an interplay of the senses, fostering high audience participation and requiring viewers to complete the medium, the perception of being “there” is enhanced – an unrivalled situated mediation.

Nowhere was the implosion of space and a heightened sense of situated mediation more prevalent than in the televised coverage of the Vietnam War. Often referred to as the first televised war, the Vietnam War (1954-1975) is delineated by McLuhan in ‘War and Peace in the Global Village’ (1968) as a departure from previous wars. World War I, he describes as a railway war, an extension of industrialism that birthed mass everything – armies, guns, and ammunition). World War II, he contends, was a radio war, the first electronic war that “awakened the tribal energies and visions of the European peoples in the way that television is now doing to America”¹¹⁶ (in reference to the Vietnam War). Although not broadcast live, it was the first time in the US that news networks and journalists were allowed to report first-hand, uncensored coverage from the front line to the American public who were “comfortably” watching at home. McLuhan highlights that TV screens brought “the brutality of war into the comfort of the living room,”¹¹⁷ curating a complex spatial relationship where the living room suddenly connected to the battlefield through the screen. The main actions of the war were being fought from the comfort of the home.¹¹⁸

Through the tactility of the television screen, the domestic living room transformed into a highly mediated space, enabling the public to actively participate in every phase of the war as though they were physically present. Familiar features of the domestic, television, and the living room were contributing to a new form of politics, with McLuhan announcing that “the living room has become a voting booth. Participation via television in Freedom Marches, in war, revolution, pollution, and other events is changing everything.”¹¹⁹ In the case of the first televised war, the heightened viewer participation facilitated by the tactile nature of the screen

¹¹⁶ McLuhan, Fiore and Agel, *War and Peace in the Global Village*, 132.

¹¹⁷ Marshall McLuhan, *Montreal Gazette*, May 16, 1975.

¹¹⁸ McLuhan, Fiore and Agel, *War and Peace in the Global Village*, 132.

¹¹⁹ McLuhan, Fiore and Agel, *The Medium is the Message: An Inventory of Effects*, 22.

profoundly affected the public's perception of the conflict. As the living room transformed into the battlefield, viewers found their capacity for critical distance diminished. The absence of both temporal and spatial distance laid bare the brutalities of the war, leading to an immediate revulsion against the war. The television coverage, coupled with some of the most dramatic and shocking pieces of photojournalism,¹²⁰ became an iconic representation of the Vietnam War and fueled strong public anti-war reactions. This new and up-close experience of war contributed to the dissent – “Vietnam is our first TV war. That's why people won't buy it. It's too involving.”¹²¹ The involvement reached a point where viewers felt wired to the simultaneous happening of the global village through the screen, portraying media as an environment and society inherently linked to the TV screen.

1.5 Conclusion

This chapter revisits post-war media theory, focusing on McLuhan's comprehensive examination of the shift from print to electronic media. McLuhan's emphasis on understanding the pervasive *effects* of electronic technology across various scales, from the personal to the global, provides the thesis with a critical framework for analysing the screen in a broader cultural and historical context. By exploring McLuhan's theory of the 'global village' and TV as a 'cool' medium within the methodological approach of understanding media as environment, significant observations emerge. The global village represents an instantaneous co-existence, eroding traditional notions of time and space. Additionally, simultaneous and global sensory experiences in the electronic environment foster greater audience participation and demand for collective consciousness and action, particularly exemplified by television as a 'cool' medium.

¹²⁰ The 1968 photograph taken by Eddie Adams of General Nguyen Ngoc Loan executing a Vietcong prisoner during the beginning of the Tet Offensive and the 1972 photograph taken by Associated Press photographer Nick UT of a nine-year-old Vietnamese girl fleeing from a Napalm bombing are two of many iconic images of the war.

¹²¹ McLuhan, McLuhan, and Staines, *Understanding Me: Lectures and Interviews*, 156.

Building upon these observations, the thesis extends McLuhan's theories, placing a greater emphasis on uncovering the ethical and political underpinnings of the consequences associated with the global village and the unique attributes of television as a 'cool' medium. While McLuhan's theories do not present electronic media as neutral, there is a tendency to frame the global village as a "seamless" global community. While acknowledging this, the thesis, especially in section three and in its final concluding remarks, expands on the narrative by highlighting the ethical ramifications of information access disparities, exacerbating social inequalities, and the ethical considerations surrounding privacy and surveillance in an era dominated by the global village.

Moreover, in the context of TV as a 'cool' medium, the thesis places an increased emphasis on understanding the political impact of the medium, echoing McLuhan's early endeavours in analysing events such as the Vietnam War. As demonstrated in the case study investigation of CNN's live coverage of the Gulf War, the thesis aims to shed light on how television influences collective consciousness, shapes public opinion, and contributes to political discourse. Ultimately, McLuhan's theories serve as a launchpad for the thesis to contribute a comprehensive understanding of the ethical and political implications embedded in the contemporary media landscape by continuing to critically explore the material, spatial, and mediating effects of the screen.

Chapter 02: Techniques of the TV Screen: Video Art and Architectural Projects of the 1960s and 1970s

2.1 Introduction

Parallel to McLuhan's theory for cool media, which categorised the TV as a medium demanding greater audience interaction, the exploration of the relationship between audience and screen extended into art and architectural projects of the 1960s and 1970s. As broadcast TV became a ubiquitous part of culture in the 1960s and the then-new technology of the portable video camera became widely accessible, a generation of artists recognised the potential of the cathode-ray tube (CRT) as an emerging creative medium in art. Aligned with the counter-culture movement, these artists questioned the normalisation of the TV in homes, especially its role, for example, during the Vietnam War, in constructing passive viewers through its one-way flow of information. Advocating for decentralisation and the democratisation of the screen, video collectives began utilising public broadcast TV and incorporating video techniques, such as live video camera feeds and closed-circuit time delays, in their video art and installations to explore alternative audience engagements with the screen.

The increasing use of CRTs as a non-commercial medium to explore alternative relationships between the audience and the screen was reflected in the 1969 exhibition 'TV as a Creative Medium,' curated by Howard Wise. Video artists such as Nam June Paik and Earl Reiback, among others, modified commercial CRTs to alter the imagery on monitors or used hidden cameras to broadcast live footage of subjects and other spaces in the gallery on monitors. This reconfiguration of subjects and space through the screen was also a concern for video installations by artists such as Dan Graham and Bruce Nauman, as well as the multi-screen work of architects Charles and Ray Eames. The scale of this body of work, intimate to the body and primarily operating within the gallery context, addressed the material, spatial, and mediating effects of the screen, echoing discussions in media theory during the same decade.

This interrogation of the relationship between the audience and the screen, referred to in this thesis as the screen interface, is fundamental for unpacking the screen's material, spatial, and mediating effects. The first section of this chapter will set up an expanded definition of the screen, moving beyond its conventional understanding as a flat surface, through the notion of 'screen as interface.' Using source material from the period, mainly the exhibition catalogue of 'TV as a Creative Medium' and the video journal 'Radical Software,' the chapter then uses the notion of the screen as interface to discuss the video art and installations of the aforementioned artists and architects. This chapter aims to demonstrate that the screen was being used to experiment with and construct alternative spatial and social environments that emphasised greater audience engagement. In parallel, delving into the nuanced scale between the screen and the audience serves as a fitting continuation from the preceding chapter, wherein McLuhan's concept of the global village was explored, thereby illuminating the interconnected nature of the effects of the screen on both global and more intimate local scales (that of the body).

2.2 The Screen Interface

Screens are ubiquitous objects in today's society. It would be no surprise if you were in close vicinity to a screen, if not multiple screens of differing scales, while reading this. As Anne Friedberg describes, "Screens are now everywhere – on our wrists, in our hands, on our dashboards and in our backseats, on the bicycles and treadmills at the gym, on the seats of airplanes and buses, on buildings and billboards."¹²² We are constantly fed information through screens and, in many cases, have become dependent on communicating primarily through them. Film screens, television screens, computer screens, and more recently, mobile phone screens, among other public display screens, have structured our relationship to knowledge. This dependence has been further exacerbated by the recent COVID-19 lockdowns, during which our relationship with the "exterior" and each other was being mediated

¹²² Anne Friedberg, *The Virtual Window: from Alberti to Microsoft* (Cambridge, Mass: MIT Press, 2006), 87.

by the multi-frame Zoom interface and daily news report feeds on our screens.¹²³ Examples like these highlight the seamless integration of screens into our daily routines and rituals, primarily in a Western context. However, this normalisation warrants further investigation, as screens have considerably reconfigured our relationship with each other, other objects, and space.

It is critical to firstly note that discourse on the screen fits into a body of scholarship, mainly a visual culture history, that has interrogated how visual technologies have structured the body or 'subject' in various ways and shifted modes of visual perception. Formulations of the relationship between visual technologies and the body have often been theorised through metaphors of the mirror, window, or lens. For instance, French psychoanalyst Jacques Lacan, in his theory of 'The Mirror Stage,' describes the moment when an infant recognises itself through the reflection of its body in the mirror.¹²⁴ This concept is a re-interpretation and extension of Freud's work around the ego, specifically the narcissistic model of the ego. The recognition of the self through the image in the mirror establishes a distinction between the infant and their caretaker (or the other). The infant's interaction with the mirror "marks the child's earliest understanding of space, distance, and position."¹²⁵ Consequently, the reflection in the mirror constructs the subject as it also reveals other relations, as points of difference, within its image – whether that is of other subjects or objects.

Core to Lacan's 'Mirror Stage' and the body of scholarship exploring the relationship between visual technologies and the body are the conditions of perception – "we know the world by what we see: through a window, in a frame, on a screen."¹²⁶ Vision plays a significant role in the formulation of this condition, influencing the degree of separation and/or engagement between the subject and the object. This is

¹²³ See Endriana Audisho, "Something is Happening Outside," *Places Journal* (August 2020), <https://placesjournal.org/workshop-article/something-is-happening-outside-screen-views-into-two-conflicts/>.

¹²⁴ Jacques Lacan, "The Mirror Stage as Formative of the *I* Function as Revealed in Psychoanalytic Experience," in *Ecrits: a Selection*, trans. Alan Sheridan (London: Tavistock Publications, 1977).

¹²⁵ Elizabeth Grosz, *Jacques Lacan: A Feminist Introduction* (Hoboken: Taylor and Francis, 1990), 32.

¹²⁶ Friedberg, *The Virtual Window: From Alberti to Microsoft*, 1.

emphasised by Jonathan Crary, who argues that a new kind of “observer” was produced in the early 19th century as a consequence of a shift in the relationship between the body and the then-emerging visual technologies. Crary explains that pre-modern notions of the single perspective, reinforced by devices such as the camera obscura, were challenged by the invention of optical devices such as the stereoscope. These newer devices required the body to be fully engaged, making it evident that “ideas of things and events in the world were never copies of external reality but rather the outcome of an interactional process within the subject.”¹²⁷ As a result, the body, once rejected by earlier understandings of vision, became “the site on which an observer is possible.”¹²⁸ Superseding forms of technological determinism, Crary emphasises that this embodied relationship with visual technologies, such as that with the stereoscope, determines a shift in subjective experience, not the object itself.

A more recent account of the relationship between visual technologies and the body, which to some degree expands on Crary’s body of work, has been explored in Friedberg’s ‘The Virtual Window: From Alberti to Microsoft.’ Using the ‘window’ as a metaphor to trace a genealogy from Alberti’s Renaissance window to Microsoft’s post-perspectival window of the computer screen, Friedberg details how the development of visual technologies and technologies of display have shifted spectatorial experience. Friedberg argues that each development of an imaging technology transforms the subjectivity of the spectator – from the fixed and passive position of a viewer of a painting to the fragmented user experience associated with the advent of multiple windows on the computer screen. Although a frontal spatial condition is still set up by new digital technologies, where the body is positioned parallel to the surface of the screen, the visual system and language of computers signal the demise of perspectival space. Instead, they welcome a contemporary mode of perception that is “post-Cartesian, post-perspectival, post-cinematic, and post-television.”¹²⁹ The multiple, adjacent, and overlapping windows of the computer

¹²⁷ Jonathan Crary, *Techniques of the Observer: On Vision and Modernity in the Nineteenth Century* (Cambridge, Mass: MIT Press, 1990), 100.

¹²⁸ Crary, *Techniques of the Observer: On Vision and Modernity in the Nineteenth Century*, 69.

¹²⁹ Friedberg, *The Virtual Window: From Alberti to Microsoft*, 7.

construct an overload of stimuli, resulting in what Walter Benjamin and Siegfried Kracauer (who was specifically discussing the picture palaces of the 1920s as sites that fostered distraction for the masses) had previously referred to as a state of distraction.¹³⁰ Friedberg, through her analysis, focuses on the shift in the visual perception of a subject interacting with these new digital technologies.

Although this existing scholarship is relevant in understanding the shifts in modes of perception, there is a common assumption by the authors that visual technologies, including screens, are primarily optical devices – an assumption already dismantled by McLuhan through his theorisation of TV as a ‘cool’ medium that engages all senses. Furthermore, expressed through a window, frame, mirror, or lens, the screen to date has been mainly theorised through cinema studies and the history of visual representation as a metaphor for seeing. Although the metaphors for seeing may seem to be just different words describing the same thing, each fundamentally points to a different construction of user-spectator engagement. Whilst acknowledging that vision plays a significant role in the construction of subjectivity, this thesis argues that screens also have a spatial, material, and architectural dimension. The screen is not a window or a frame; it can no longer be contained within the optical framing of perspectival geometry. It is also not a mirror. TV and computer screens do not reflect any form of split identity, nor do they primarily function as markers of the primordial recognition of one’s self, as in Lacan’s mirror stage.¹³¹ Understanding the screen outside the figurative, deviating from its metaphorical association with a window or mirror, this thesis proposes to consider it as an architecture that constructs spatial and material relationships at different scales – from the global, as discussed through McLuhan’s idea of a global village, to the body, the focus of this chapter.

To recognise this spatial dimension, screens need to be understood as all at once technological, architectural, and material objects. They are commonly defined as a

¹³⁰ See Walter Benjamin, “The Work of Art in the Age of Mechanical Reproduction,” in *Illuminations*, ed. Hannah Arendt and trans. by Harry Zohn (New York: Schocken Books, 1969): 219–54; Siegfried Kracauer, “Cult of Distraction: On Berlin’s Picture Palaces,” *New German critique* 40, no. 40 (1987): 91–96.

¹³¹ Giuliana Bruno, *Surface: Matters of Aesthetics, Materiality, and Media* (Chicago, Illinois: University of Chicago Press, 2014), 75.

flat surface onto which an image is projected or on which it is reflected. While this definition is useful, it only addresses the physicality and technological capability of screens. Screens, with their “transparent” glass panels, are deceiving. Their physical and material quality automatically makes it difficult to think of them as anything other than a flat and “transparent” surface. One assumes neutrality to the screen, but the screen is a piece of architecture in itself and is a complex mediating structure. This is reinforced when architectural historian John Harwood states, “Although it seems to be unitary, it is always fragmentary and complex; although it seems to be two-dimensional, it is always at least three-dimensional and rendered in depth; although it seems to be solid and impermeable, it is always carefully perforated to allow strategically mediated interactions between man and machine.”¹³² Although referring to the computer screen, this description is broad enough to apply to all screens. Through their rectilinear enclosures, the two-dimensional frontal surface plane of screens presents a three-dimensional depth in space. Their physical presence as an object on a desk, on the wall, or in our hands configures a spatial arrangement between the body and the screen’s surface in space.

Therefore, screens must be understood as material artefacts that construct immaterial spatial relationships. Kate Mondloch precisely describes this interplay between the material and immaterial when she states, “from movie screens to television sets, from video walls to PDAs, screens literally and figuratively stand between us, separating bodies and filtering communication between subjects.”¹³³ Screens both divide and connect subjects; they reveal and filter or curate information for or from subjects. Whether this occurs in a gallery, a domestic space, or even on the street, there usually is a target audience or a public who consciously or subconsciously interacts with the screen(s). The screen positions the user-spectator in a material and spatial relationship to its surface and imagery, making it inherently architectural in nature. Therefore, the spatiality of the screen is most often relative to the body. From this perspective, the screen transforms from being solely understood

¹³² John Harwood, *The Interface: IBM and the Transformation of Corporate Design, 1945–1976* (Minneapolis: University of Minnesota Press, 2011), 9–10.

¹³³ Kate Mondloch, *Screens Viewing Media Installation Art* (Minneapolis: University of Minnesota Press, 2010), 19.

as a flat surface to a more expanded definition, describing it as an architectural, spatial, and mediating device.

The surface of the screen plays a significant role as it is the exact site that mediates a relationship between “man” and machine (see Fig 2.1). This complex relationship between the screen and the body can be understood through the concept of the ‘interface,’ which gained popularity in the architecture and design context of post-war America. Harwood, for instance, uses the interface as a metaphor to track the design history of the multinational corporation IBM between 1945 and 1976.¹³⁴ Harwood explains that the interface was originally used as a scientific term in the 1880s to describe the surface along which two adjacent bodies met. However, a shift in the meaning occurred in the 1940s when the field of ergonomics adopted the term to describe the “site at which the human body interacts with a complex mechanical apparatus.”¹³⁵ This definition of the interface is broad enough to include anything from the screen, a keyboard, sitting surface, a proscenium, or a curtain wall.¹³⁶ Establishing the term ‘interface’ is significant, as it marks the first time the relationship between the body and machine is articulated as a whole. More importantly, it reflects a coordinated relationship between the two agents without granting priority to one over the other. For these reasons, the screen interface will be used in this chapter to unpack the spatial and material arrangement between the body and the surface of the screen in space.

¹³⁴ Industrial designer and architect Eliot F. Noyes, hired in 1956 to re-invent IBM’s corporate image, constructed a team of American industrial designers and architects, notably the office of Charles and Ray Eames, to help unify the corporation’s image. Noyes firmly reasoned that for this unification to occur, IBM had to be thought of as a “business of controlling, organizing and redistributing information in space,” as opposed to simply a maker of machines. Consequently, it becomes about the coordination of information between the design object and people in an abstract space. This hinge between the world of things and the world of numbers is what Harwood refers to as the interface. See Harwood, *The Interface: IBM and the Transformation of Corporate Design*, 5–10.

¹³⁵ Harwood, *The Interface: IBM and the Transformation of Corporate Design*, 9–10.

¹³⁶ Ibid.

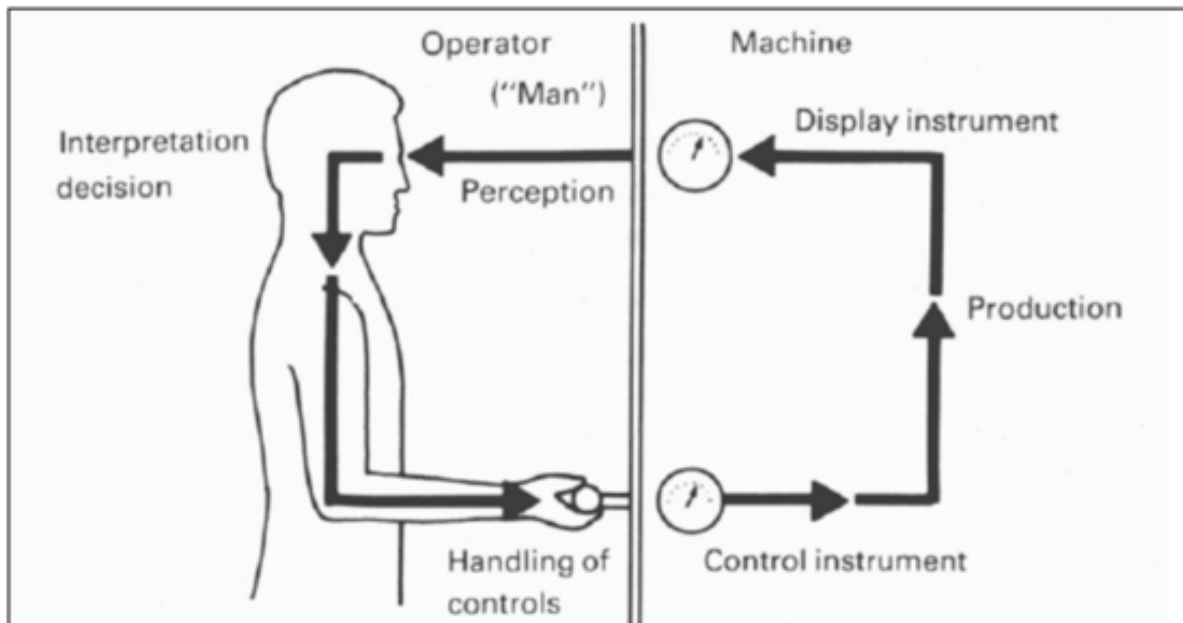


Fig 2.1 Etienne Grandjean's diagram of the 'man-machine system.' Source: Etienne Grandjean, *Fitting the Task to the Man: An Ergonomic Approach* (London: Taylor & Francis, 1980), 113, fig.84.

The next section of the chapter revisits a historical moment in which the one-way spectatorial relationship set up by commercial broadcasters before the 1960s was being challenged through the screen interface. To contextualise the emergence of a deeper exploration of the screen interface, the chapter explicitly turns to the early developments of video, in conjunction with CRTs, as a medium that was used to construct alternative media in the counterculture of the United States during the 1960s and 70s. Examining these early instances of alternative media production sheds light on the transformative potential of the screen interface in shaping social, cultural and political narratives. This thematic exploration serves as a prelude to section three of the thesis, where a more in-depth investigation into the agency of the screen unfolds, centred around the case study of Forensic Architecture. Moreover, the chapter explicitly positions itself within the larger framework of the thesis, clarifying that while one aspect of its goal is to unpack the expansive spatial, material, and mediating dimension of the screen, an equally critical dimension is unveiled – the screen as a transformative tool.

2.3 Alternative Media: Video Collectives in the 1960-70s Counterculture of the US

It should be prefaced that the emergence of video art and installations arose from a specific political and social context, constructing a distinct version of the screen interface. The inception of video art and its history have been heavily documented. As noted, besides the arrival of low-cost videotape equipment in the late 1960s, providing greater access to technology, video art emerged from and was greatly influenced by the countercultural milieu in the United States. The term counterculture, originating from sociology studies of the 1950s and 1960s,¹³⁷ describes a movement that opposes dominant culture with “distinct norms and values generated out of its conflictual interaction with dominant society.”¹³⁸ In the US, the counterculture of the 1960s and early 1970s saw the widespread rejection of practices of inequality. The counterculture youth advocated for social justice and, through the Civil Rights, Women’s Liberation, and Gay Liberation movements, drew attention to the inequalities practised in the US. Furthermore, coinciding with America’s involvement in Vietnam, the counterculture led the anti-Vietnam War demonstrations, opposing US involvement “in what was seen as an unnecessary and misguided war”¹³⁹ – the same war that, as McLuhan described, was brought into the comfort of the living room through the TV.

The living-room war, among other things, spurred the counterculture’s opposition to mainstream mass media. Criticism specifically targeted the commercial broadcast industry, which, before the 1960s, controlled television content as well as the tools

¹³⁷ Sociologist John Milton Yinger coined the term “contraculture” in “Contraculture and Subculture,” *American sociological review* 25, no. 5 (1960): 625–35.

¹³⁸ Elissa Auther and Adam Lerner, “Introduction - The Counterculture Experiment: The Consciousness and Encounters at the edge of art,” in *West of Center: Art and the Counterculture Experiment in America, 1965–1977*, eds. Elissa Auther and Adam Lerner (Minneapolis: University of Minnesota Press, 2011), 19.

¹³⁹ Kathy High, “Beginnings (With Artist Manifestos),” in *The Emergence of Video Processing Tools: Television Becoming Unglued*, eds. Kathy High, Sherry Miller Hocking, and Mona Jimenez (Bristol: Intellect Books, 2014), 12.

and telecommunications infrastructure required to produce content.¹⁴⁰ Although fulfilling McLuhan's prophecy of a global village tied together through electronic communication, the economically driven interests of commercial broadcasting, along with the hegemony associated with disseminating the same corporate media message into every living room in the US (consumed as one "truth" by the masses), raised concerns within the counterculture scene. Counterculture ideology, encouraging "returning the power of technology to the people to subvert structures of corporate-controlled media,"¹⁴¹ led to the growth of video collectives who turned to video as a medium to construct alternative media and, in turn, build alternative social and cultural structures. This approach is celebrated throughout the thesis, particularly in section three, where a socio-political reorientation and engagement with the screen emerges from a critique of dominant power structures.

In an attempt to "interrupt broadcast television's one-way flow of information,"¹⁴² these video collectives started exploring alternative counterimages, programming, and engagements with the screen. This was first achieved by turning to public broadcasters, as well as alternative media and equipment centres, to gain access to video equipment and expand alternative programming. Public television stations in the US, such as WBGH, WNET and KQED, led workshops and invited artists-in-residence to access the tools of television. Additionally, alternative television centres such as the Experimental Television Centre and the Kitchen, both based in New York, and Video Free America in San Francisco, provided resources and disseminated alternative media. Video Free America, also functioning as an exhibition space for these artists, used decentralised media to construct video narratives of subjects from the local community whose profiles had been overlooked or misrepresented by mainstream media.¹⁴³ Other centres, such as the Media

¹⁴⁰ Jeremy Culler, "Mapping Video Art as Category, or an Archaeology of the Conceptualizations of Video," in *The Emergence of Video Processing Tools: Television Becoming Unglued*, eds. Kathy High, Sherry Miller Hocking, and Mona Jimenez (Bristol: Intellect Books, 2014), 38.

¹⁴¹ Deanne Pytlinski, "San Francisco Video Collectives and the Counterculture," in *West of Center: Art and the Counterculture Experiment in America, 1965–1977*, eds. Elissa Auther and Adam Lerner (Minneapolis: University of Minnesota Press, 2011), 58.

¹⁴² Ibid.

¹⁴³ Auther and Lerner, "Introduction - The Counterculture Experiment: The Consciousness and Encounters at the edge of art," 68.

Access Centre, had a more educational focus by providing cameras to community, specifically youth groups, enabling them to record their own stories.¹⁴⁴ In all cases, they were driven by a common goal: to liberate from mainstream media through decentralisation and build richer forms of interpersonal communication.¹⁴⁵ Building alternative social and cultural structures relied on a decentralised model of the screen interface – “the alternative media must give as many cameras away as possible – this is the only liberation of the media that will actually change the state of things. The real community must become the program manager.”¹⁴⁶

Although anti-mainstream, these video collectives were not anti-technology. Many of them were influenced by the writings of McLuhan and his proclamation that electronic media could motivate social change. Therefore, the motivations for alternate social and cultural structures “required the embrace, not a rejection, of technological tools.”¹⁴⁷ The only difference is that they were working with technological tools to disseminate a critique of mass media’s impact on American culture. In their 1975 performance ‘Media Burn,’ Ant Farm, a countercultural video collective¹⁴⁸ whose work intersects media and architecture, staged, and recorded the collision of two of America’s most iconic cultural symbols at the time: the automobile and television (see Fig 2.2). They invited local journalists to watch their visual manifesto, hoping for them to cover the performance on the very same platform they were critiquing. Designed as a parody of news coverage of a space launch, an artist impersonating John F. Kennedy introduced the performance by provoking, “Who can deny that we are a nation addicted to television and the constant flow of media?...

¹⁴⁴ Pytlinski, “San Francisco Video Collectives and the Counterculture,” 58.

¹⁴⁵ Pytlinski, “San Francisco Video Collectives and the Counterculture,” 57.

¹⁴⁶ David Silver, “Televisionaries versus Televisigoths,” *Radical Software* 1, no.2 (1970): 18, <https://www.radicalsoftware.org/e/volume1nr2.html>.

¹⁴⁷ Pytlinski, “San Francisco Video Collectives and the Counterculture,” 59.

¹⁴⁸ For further reading on Ant Farm, see Patricia Mellencamp, “VIDEO POLITICS: ‘Guerrilla TV’, Ant Farm, ‘Eternal Frame,’” *Discourse* 10, no. 2 (1988): 78–100, <http://www.jstor.org/stable/43385518>; Constance M. Lewallen and Steve Seid, eds., *Ant Farm, 1968-1978* (Berkeley: University of California Press, 2004); Patricia Mellencamp, “Ant Farm Redux: Pyrotechnics and Emergence,” *Journal of Film and Video* 57, no. 1/2 (2005): 40–56, <http://www.jstor.org/stable/20688483>; Felicity D. Scott, *Architecture or Techno-Utopia: Politics after Modernism* (Cambridge, Mass: MIT Press, 2007); Felicity D. Scott, *Ant Farm: Living Archive 7* (Barcelona: Actar, 2008); Liz Flyntz and David Everitt Howe, *The Present Is the Form of All Life: The Time Capsules of Ant Farm and LST* (Brooklyn: Pioneer Works Press, 2016).

Haven't you ever wanted to put your foot through your television?"¹⁴⁹ Two members of Ant Farm, dressed in space suits, then proceeded to drive a 1959 Cadillac Eldorado through a pyramid of burning TV sets. Self-labelled as the "ultimate media event," it presented an affront to the invited press. The message was for the media.

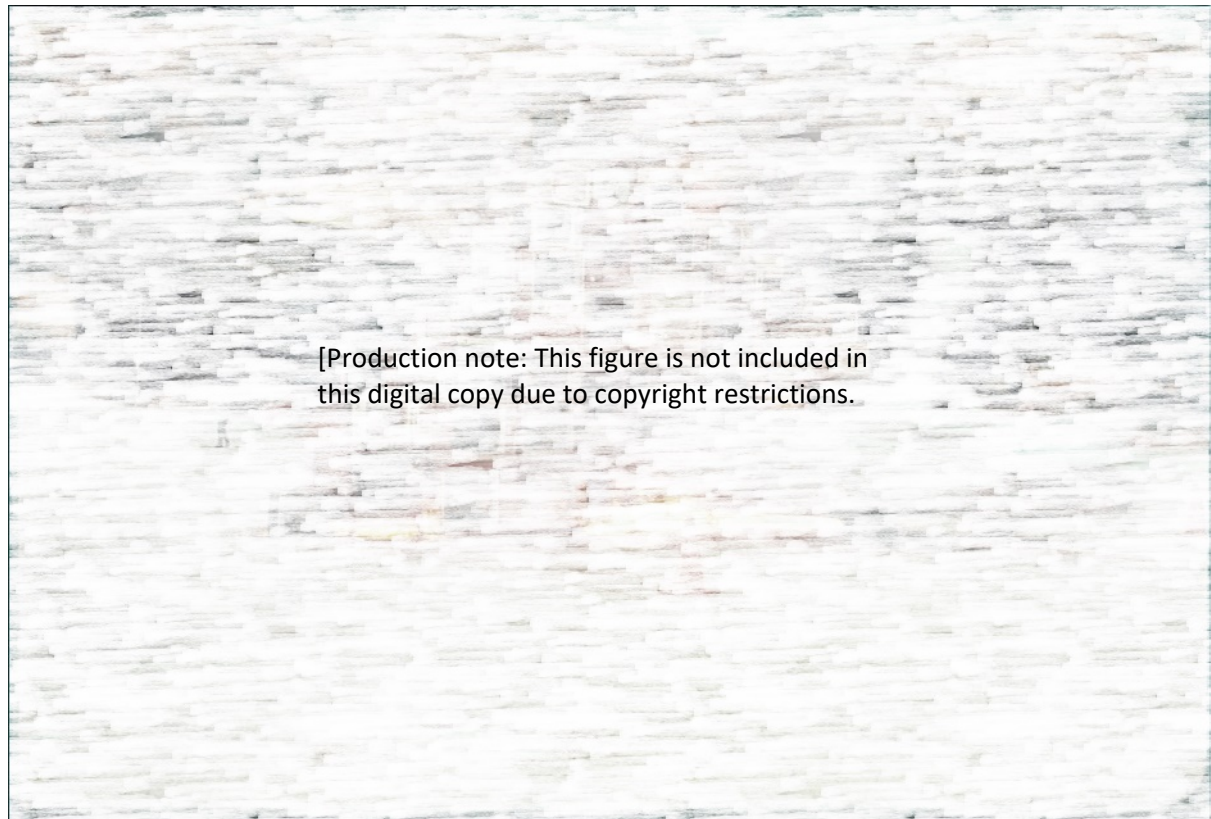


Fig 2.2 A video still from the *Media Burn* performance by Ant Farm, 1975. Source: Ant Farm, *Media Burn*, 1975, single-channel video, San Francisco Museum of Modern Art, <https://www.sfmoma.org/artwork/91.210/>.

In another of their projects, titled the 'Video Media Van,' a van was retrofitted into a mobile television studio (see Fig 2.3). Themes of decentralisation and democratisation of information foregrounded the project's intention as Ant Farm travelled around the US, documenting "unmediated" perspectives on political and social issues. For example, in 1971, the van was set up at an anti-high-rise demonstration in San Francisco to record local political candidates and the mayor

¹⁴⁹ The Museum of Contemporary Art, "Ant Farm - Media Burn - West Coast Video Art – MOCAtv," YouTube Video, 15:45, <https://www.youtube.com/watch?v=FXy6ocvaZyE>.

discussing the issue.¹⁵⁰ The flyer designed by Ant Farm announced, “see your favourite politician perform on unedited, unwashed people’s TV... This is free public information and we are moving it your way.” This grassroots form of information feedback was also seen on the East Coast with Dean and Dudley Evenson’s ‘Fobile Muck Truck’ (see Fig 2.4) and Videofreex’s ‘Media Bus’ (see Fig 2.5). The Fobile Muck Truck intended to hit the road and set up video theatres with local communities to show alternative tapes – “We want to introduce people to each other... We believe there is more to life than war, tragedy, death. We want to learn much more about our world, to see what is really happening in our country.”¹⁵¹ Similarly, Videofreex’s ‘Media Bus’ produced community-based programming. Their information feedback diagrams (see Fig 5), which placed people, video cameras, and TVs “in the field,” reflected their manifesto – “we want to plug the people into: other people, local hardware, our tape library (cultural data bank), and a local distribution system.”¹⁵² In all three examples, video’s portability crossed with the van’s mobility represented a guerrilla-style, on-the-ground form of social activism with the screen interface at the centre. This use of the screen transforms it from a passive viewing platform to an active agent of change, embodying the thesis’ exploration of alternative and transformative potentials embedded in the screen interface.

¹⁵⁰ Pytlinski, “San Francisco Video Collectives and the Counterculture,” 64.

¹⁵¹ Dean and Dudley Everson, “Fobile Muck Truck,” *Radical Software* 1, no.3 (1970): 4, https://www.radicalsoftware.org/e/volume1nr3_pics.html.

¹⁵² Ibid.

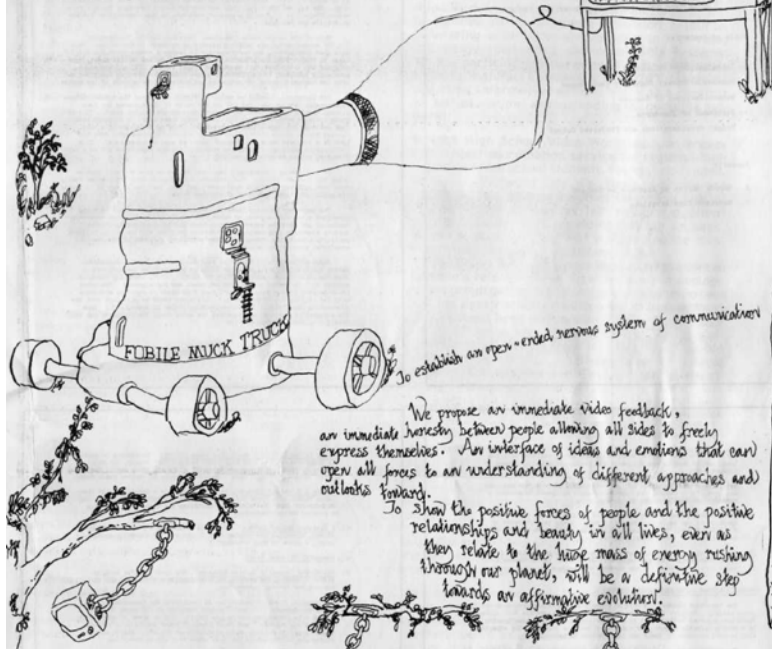


[Production note: This figure is not included in this digital copy due to copyright restrictions.]

Fig 2.3 Drawing of *Video Media Van* by Ant Farm, 1970. Source: Ant Farm, *Video Media Van*, 1970, visual graphic, Chip Lord, <https://chiplord.net/airspace-1>.

and for this to occur, the energy fed to the mass must be higher in content than the mass, not lower as it is now.

Our environment is inadequately and inaccurately relayed to us by present means of communication. Results are inept reactions of people to nonexistent or warped stimuli. Expansion of cable television and the introduction of video cassettes and portable video recording systems promise to change present communication structures, however, in order for any real change to occur, existing concepts of communication must be changed. If no stimulus is applied to the present system of mass information, a stagnant situation will continue.



To establish an open-ended nervous system of communication

We propose an immediate video feedback, an immediate honesty between people allowing all sides to freely express themselves. An interface of ideas and emotions that can open all forces to an understanding of different approaches and outlooks forward.

To show the positive forces of people and the positive relationships and beauty in all lives, even as they relate to the huge mass of energy rushing through our planet, will be a definitive step towards an affirmative evolution.

and tape exchanges are being proposed as one means to this end. In addition to this new approach we will work within the already established system of cable television and work to expand programming possibilities, hopefully to encourage a new kind of public programming.



And then—we want to turn around and show it to you, show it on your own television screen via cable tv or video cassette, if possible. And if that is difficult, you can see it on our tv because we intend to give shows. We want America to see itself as it really is, via tv. But not just television as an isolated medium. We want to create an environment with television as a focus, complemented by light and sound because we're interested in those things too. Music, beautiful images, abstract patterns of light, abstract patterns of sound, and multi-channel tv. Multi-media and multi-channel. Several television screens showing us several scenes, co-ordinated, complementary. An environment where you can relax, enjoy, be moved and be entertained. Where many people can participate and possibly even see a snatch of life that is their own.



Fig 2.4 Drawing of *Fobile Muck Truck* by Dean and Dudley Evenson as featured in Radical Software video journal. Source: Dean and Dudley Evenson, "Fobile Muck Truck," *Radical Software 1*, no.3 (1970): 4, https://www.radicalsoftware.org/e/volume1nr3_pics.html.

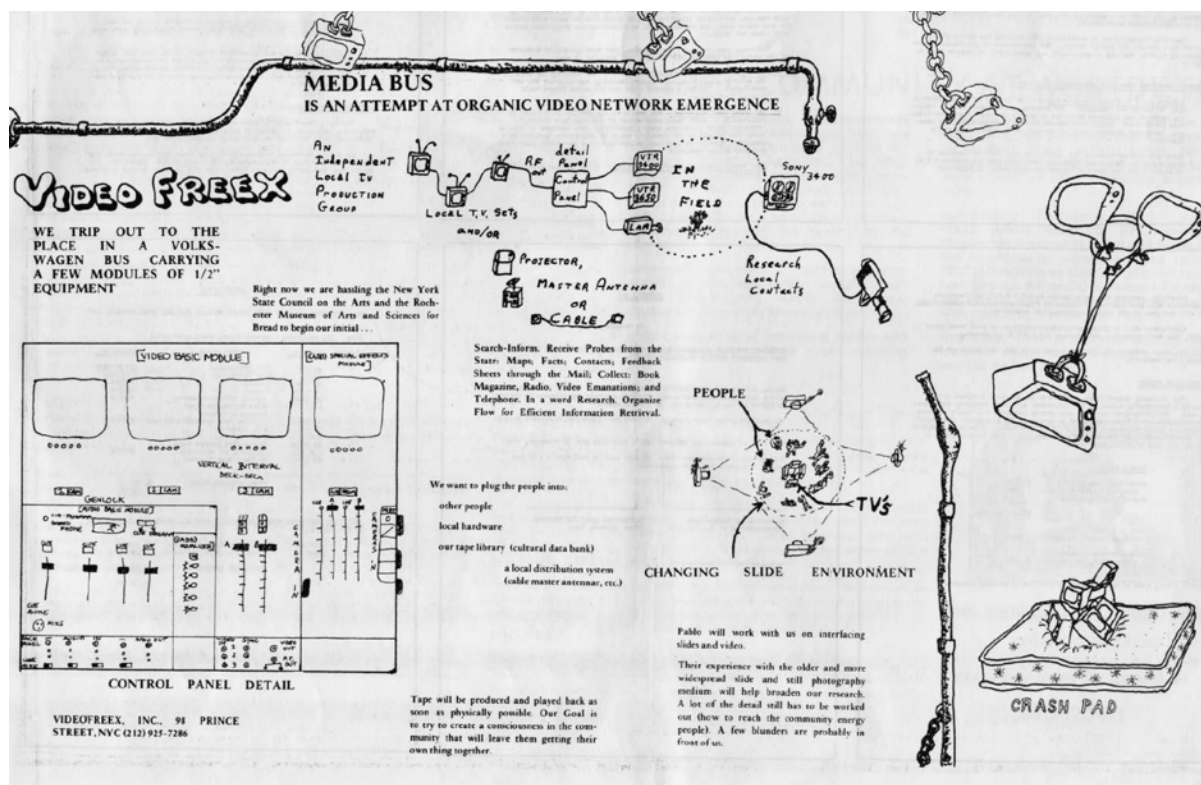


Fig 2.5 Information feedback diagrams of *Media Bus* by Videofreex as featured in *Radical Software* video journal. Source: Videofreex, "Media Bus," *Radical Software* 1, no.3 (1970): 4, https://www.radicalsoftware.org/e/volume1nr3_pics.html.

This grassroots approach was emblematic of the broader do-it-yourself culture, primarily advocated through the countercultural publication, the 'Whole Earth Catalog'¹⁵³ (see Fig 2.6). Featuring the slogan, "access to tools," the magazine played a fundamental role in democratising access to technology through its "how-to" technical manuals. More importantly, it influenced one of the main resources for early video collectives and artists, the journal 'Radical Software,' and the book

¹⁵³ The Whole Earth Catalog was founded and edited by Stewart Brand in 1968, see Stewart Brand, ed., *Whole Earth Catalog* (Menlo Park, CA: Portola Institute, 1969-1998). For additional reading on the Whole Earth Catalog see Andrew Kirk, "Appropriating Technology: The Whole Earth Catalog and Counterculture Environmental Politics," *Environmental History* 6, no. 3 (2001): 374-94, <https://doi.org/10.2307/3985660>; Sam Binkley, "The Seers of Menlo Park: The Discourse of Heroic Consumption in the 'Whole Earth Catalog,'" *Journal of consumer culture* 3, no. 3 (2003): 283-313, <https://doi.org/10.1177/14695405030033001>; Fred Turner, *From Counterculture to Cyberculture: Stewart Brand, the Whole Earth Network and the Rise of Digital Utopianism* (Chicago: Chicago University Press, 2006); Andrew Kirk, *Counterculture Green: The Whole Earth Catalog and American Environmentalism* (Lawrence, KA: University Press of Kansas, 2007); Simon Sadler, "An Architecture of the Whole," *Journal of architectural education* (1984) 61, no. 4 (2008): 108-29, <https://doi.org/10.1111/j.1531-314X.2008.00194.x>; Caroline Maniaque-Benton and Meredith Gaglio, eds., *Whole Earth Field Guide* (Cambridge, MA: The MIT Press, 2016).

'Guerrilla Television,'¹⁵⁴ which was an offshoot of the journal. Eleven issues were published between 1970 to 1974 (see Fig 2.7) with contributions by Nam June Paik, Frank Gillette, Ira Schneider, Buckminster Fuller, Beryl Korot, Ant Farm, and many others. Like the Whole Earth Catalog, the journal was filled with product reviews, "how-to" and DIY manuals,¹⁵⁵ theoretical texts on alternative media, and a section dedicated to collectives working in this space (referred to as the cultural data bank). The opening editorial, written by Beryl Korot, Phyllis Gershuny, and Michael Shamberg, asserted, "Power is no longer measured in land, labor, or capital, but by access to information and the means to disseminate. As long as the most powerful tools (not weapons) are in the hands of those who would hoard them, no alternative cultural vision can succeed."¹⁵⁶ This message of "committing to getting the recording equipment into the hands of the radically aware, the humane, the visionary, the man on the street,"¹⁵⁷ was a genuine attempt to democratise the screen and, in turn, design alternative social and cultural structures. These new forms of independent and participatory engagements with the screen, as well as its democratisation, constructed a specific version of the screen interface – an "active" body that used "the powerful tool" (and weapon) of the screen (both the video camera and TV) in a battle against mass media. Establishing this paradigm shift is crucial for the thesis at large as it fundamentally reorients the screen, endowing it with social, cultural, and political agency – an observation that has contributed significantly to shaping the overall conclusions of the thesis.

¹⁵⁴ See Michael Shamberg, *Guerrilla Television*, 1st ed. (New York: Holt, Rinehart and Winston, 1971).

¹⁵⁵ For example, see Parry Teasdale, "Tips for Using Portable Half-Inch Equipment," *Radical Software* 1, no.2 (1970): 9, <https://www.radicalsoftware.org/e/volume1nr2.html>.

¹⁵⁶ Beryl Phyllis and Korot Gershuny, "Editorial Statement," *Radical Software* 1, no.1 (1970): 1, <https://www.radicalsoftware.org/e/volume1nr1.html>.

¹⁵⁷ Silver, "Televisionaries versus Televisigoths," 18.

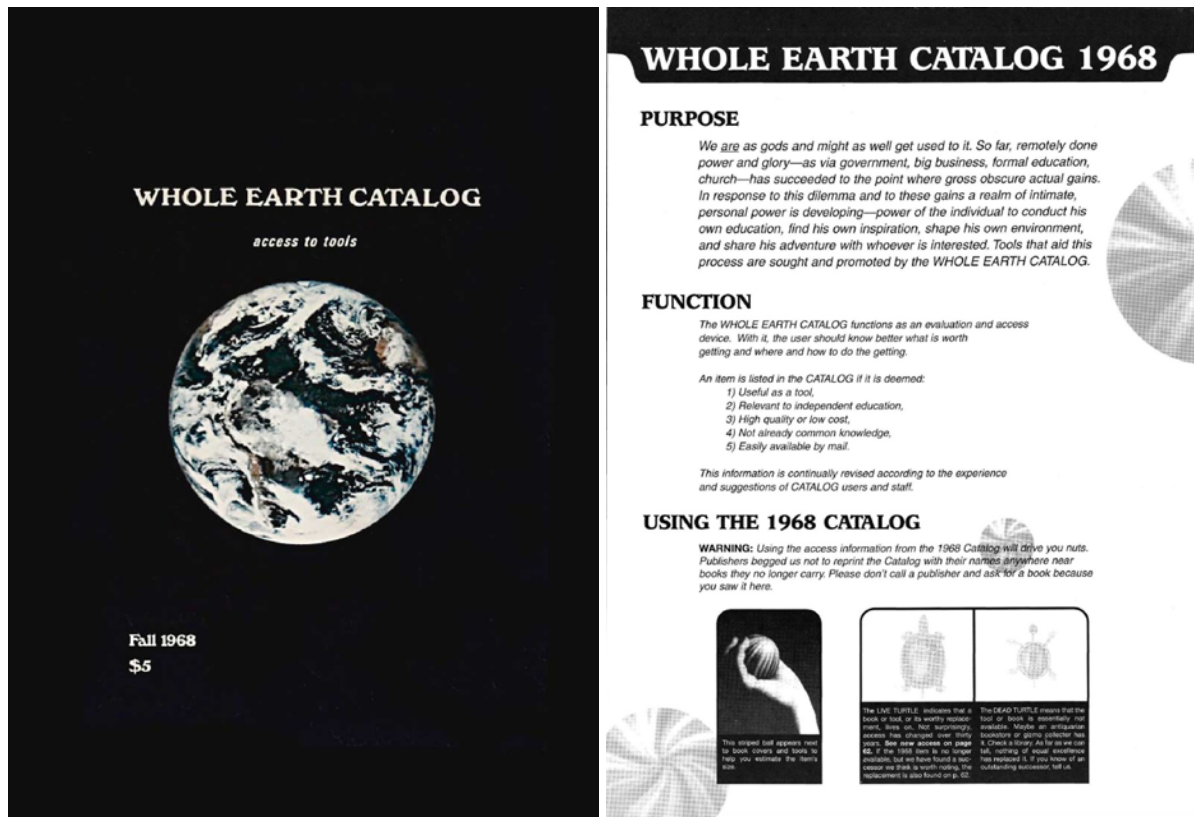


Fig 2.6 Front cover (left) and excerpt (right) from the *Whole Earth Catalog*, Fall 1968 issue. Source: Steward Brand, ed., *Whole Earth Catalog* (Menlo Park, CA: Portola Institute, 1969-1998), front cover and 4, https://monoskop.org/images/0/09/Brand_Stewart_Whole_Earth_Catalog_Fall_1968.pdf.



Fig 2.7 Covers of *Radical Software* video journal, spanning 11 issues from 1970 to 1974. Source: “Home,” Radical Software, accessed September 19, 2022, <https://www.radicalsoftware.org/e/index.html>.

2.4 TV as a Creative Medium: Video Art and Installations in Post-War Art and Architectural Production

Another battle ensued in the institutional spaces of galleries and museums as the cultural obsession with the art object was further challenged in the late 1960s by explorations with the screen interface. In ‘Sculpture in the Expanded Field,’ art critic Rosalind Krauss characterises this as a part of a greater shift in art production, wherein the curatorial category of “sculpture” expanded to include other works,

specifically video art and installations.¹⁵⁸ This expanded field of artistic production challenged the modernist desire for medium-specificity¹⁵⁹ and the conventional understanding that “artworks are authentic, autonomous objects hung on walls or placed on pedestals.”¹⁶⁰ In his 1965 manifesto, founder and pioneer of video art Nam June Paik provoked that just as collage techniques replaced oil paint, the cathode-ray tube would replace the canvas. By the late 1960s, Paik’s prediction was realised as TV monitors and video cameras became ubiquitous within the gallery space. The screen interface was used to demonstrate the medium’s creative capacities and extend the counterculture desires to construct alternative media and spatial and social environments.

As video art and installation emerged as an art form within the gallery, the canvas’s primacy was replaced by a deeper exploration of the relationship between the audience and artwork. This reconfiguration of the relationship between an audience and a work of art resisted the modernist ‘white cube’ and exchanged it for the ‘black box’ of video art installations. As art critic Brian O’Doherty describes, the gallery is constructed along rigorous laws where “the outside world must not come in... walls are painted white”¹⁶¹ and “the presence of that odd piece of furniture, your own body, seems superfluous, an intrusion.”¹⁶² Furthermore, he argues that the sacredness of the “white box” has no room for the body because the flat surface of modernist painting separates the eye from the body. On the contrary, video art and installations broke the monotony of the modernist white box, welcoming the body into a spatial relationship with the screen and the broader context of the gallery – both the eye and the body are involved.

¹⁵⁸ Krauss remarks, “Over the last ten years rather surprising things have come to be called sculpture: narrow corridors with TV monitors at the ends; large photographs documenting country hikes; mirrors placed at strange angles in ordinary rooms; temporary lines cut into the floor of the desert.” Rosalind Krauss, “Sculpture in the Expanded Field,” *October* 8 (1979): 30, <https://doi.org/10.2307/778224>.

¹⁵⁹ Krauss, “Sculpture in the Expanded Field,” 42.

¹⁶⁰ Culler, “Mapping Video Art as Category, or an Archaeology of the Conceptualizations of Video,” 35.

¹⁶¹ Brian O’Doherty, *Inside the White Cube: The Ideology of the Gallery Space* (Santa Monica: Lapis Press, 1986), 15.

¹⁶² *Ibid.*

Featuring investigations with the split-screen, multi-screen, and live video camera feeds, as well as closed-circuit time delays, video art and installations invited the audience to play a more active role and dismantle the traditional one-way relationship between an audience and a work of art. Both video art, mainly concerned with exploring the visual and audio components and innately the medium's limitations, and video installations, which merge video technology with installation art to affect the audience in space, rely on an interaction between the body and screen. In the case of video art, the body is most often that of the artist, and the "environments on which they train their closed-circuit systems are defined not by the presence of spectators, but by the presence and actions of the artists themselves."¹⁶³ Vito Acconci's 1971 performance, 'Centers,' is a prime example. Video installations, on the other hand, use the viewer as their subject. They directly invite participation in the work of art or implicate the viewer as the interpretive receptor of information in unexpected ways.¹⁶⁴ The body is, as Krauss describes, "centred" in the instant feedback loop between two machines: the recording camera and the TV screen, which re-projects the performer's image.¹⁶⁵

Early explorations with the screen interface were seen in the 1969 exhibition 'TV as a Creative Medium' curated by Howard at the Howard Wise Gallery in New York. In his introduction to the exhibition catalogue, Wise proclaimed, "Ever since Marshall McLuhan has become a household name, people have become aware of the tremendous force, both actual and potential, that TV is having and will have on their lives."¹⁶⁶ The generation of artists who were brought up on TV in the 1950s, who were "trained in the technology while they were in the armed forces,"¹⁶⁷ and had been scrounging around second-hand shops for TV parts for the decade leading up to the exhibition "sensed the potential of TV as a medium for their expression."¹⁶⁸ In what was dubbed the first major show of television, eleven artists, including Nam

¹⁶³ Peter Frank, "Video Art Installations: The Telenvironment," in *Video Art: An Anthology*, eds. by Ira Schneider and Beryl Korot (New York: Harcourt Brace Jovanovich, 1976), 208.

¹⁶⁴ Frank, "Video Art Installations: The Telenvironment," 206.

¹⁶⁵ Rosalind Krauss, "Video: The Aesthetics of Narcissism," *October* 1 (1976): 52, <https://doi.org/10.2307/778507>.

¹⁶⁶ Howard Wise, *TV as a Creative Medium* (New York: Howard Wise Gallery, 1969), 1.

¹⁶⁷ *Ibid.*

¹⁶⁸ *Ibid.*

June Paik, Earl Reiback, Frank Gillette, and Ira Schneider, among others, exhibited work investigating the screen interface. The exhibition catalogue, as well as other video art and installations from the period, reveal three broader approaches to the screen interface: (1) participation through the sensory, that is, a fascination with the “materiality” of the screen, both as an object in space as well as the synthesised image on the screen, (2) participation through single-channel video, specifically through a closed-circuit installation, and as an extension, (3) participation through a multi-channel installation. These approaches are not mutually exclusive and sometimes overlap through a single work of art. However, they are useful as initial framings to unpack the screen interface.

The sensory, and by extension, the participatory, was seen predominantly through Earl Reiback and Nam June Paik’s works exhibited in ‘TV as a Creative Medium.’ With an interest in luminal art, Reiback’s ‘Three Experiments within the TV Tube’ challenged the assumed pseudo-transparent and flat screen of the TV (see Fig 2.8). Working with “the depth of the TV tube,”¹⁶⁹ Reiback manipulated the screen in three different ways: in ‘Electron Beam,’ the conventional phosphor coating on the screen was removed and replaced with neon gas, enabling viewers to see the scanning beam of electrons and use an external magnet to manipulate them; in ‘Suspension,’ a phosphor-coated grid receiving a broadcast image was suspended within the tube and disrupted the electrons of the back of the screen; and in ‘Thrust,’ the inside of the tube was coated with a phosphor psychedelic swirling pattern, resulting in the viewer being drawn into the depth of the space of the screen as the installation illuminated and materialised the vacuum component of the CRT. These screen manipulations support the thesis’ argument that CRTs have a material and architectural dimension capable of producing alternative engagements between the body and screen in space.

¹⁶⁹ Wise, *TV as a Creative Medium*, 3.

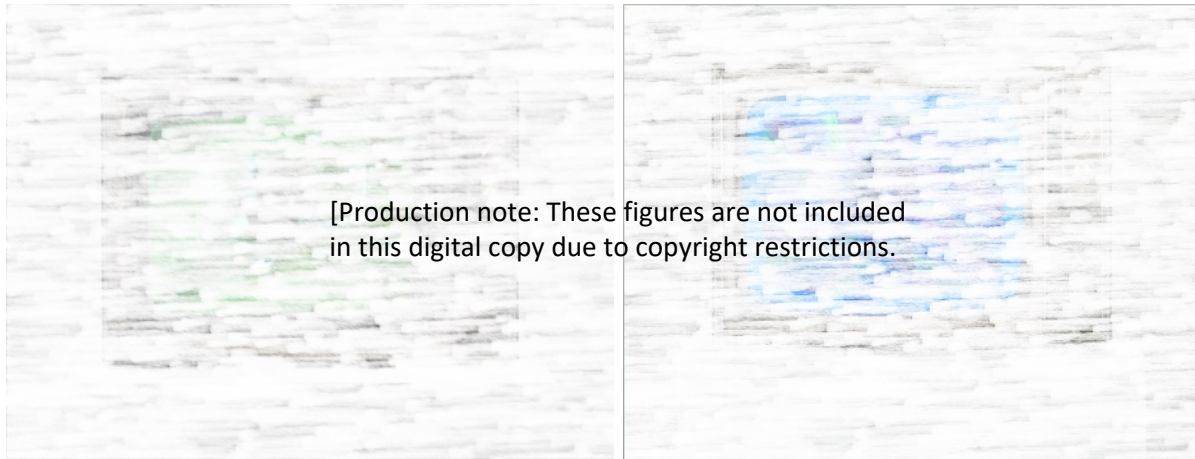


Fig 2.8 CRT installations: *Suspension* and *Thrust* by Earl Reiback, exhibited in *TV as a Creative Medium* in 1969. Source (left): Earl Reiback, *Suspension*, 1969, modified television set, Whitney Museum of American Art, <https://whitney.org/collection/works/9238>. Source (right): Earl Reiback, *Thrust*, 1969, modified television set, Whitney Museum of American Art, <https://whitney.org/collection/works/9239>.

Also working with the sensory, albeit relying more on an active role by the viewer, was Paik's 'Participation TV.' The viewer, now a performer, was invited to speak into a microphone attached to a Philco Color lite TV set. The echoes were then translated and displayed through patterns of lines of light on the screen (see Fig 2.9). In another piece titled 'TV Bra for Living Sculpture' (see Fig 2.10), two miniature TV monitors were attached to cellist Charlotte Moorman's chest, strongly connecting to performance art. When Moorman played the cello, the sound would "change, modulate, regenerate the picture on her TV-Bra"¹⁷⁰ (see Fig 2.11). The intention behind replacing an intimate piece of clothing with the screen, a TV-Bra, was to explore the relationship between technology and the human and to also "stimulate viewers... to look for new, imaginative and humanistic ways of using our technology."¹⁷¹ In this case, the screen became an architecture for the body, an "extension of (wo)man," to use McLuhan's phrase, reflecting the countercultural desires to humanise technology. Both Reiback and Paik's works experimented with the formal qualities of the TV set through image manipulation and involved the viewer through a fascination with the synthesised image on the screen. By creating images that opposed standard TV, the works implicitly challenged the

¹⁷⁰ Wise, *TV as a Creative Medium*, 2.

¹⁷¹ Ibid.

institutionalisation of TV in the 1960s and visually subverted “the system that brought the Vietnam War home every night.”¹⁷²

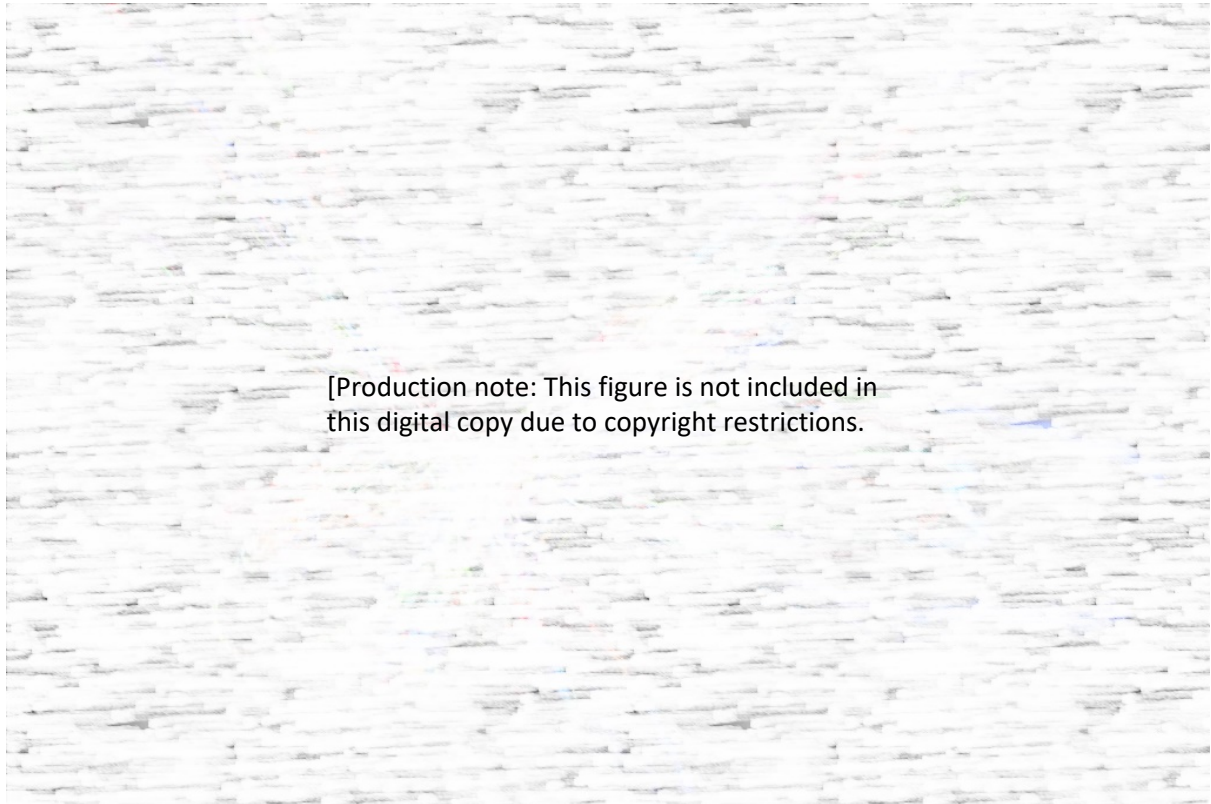
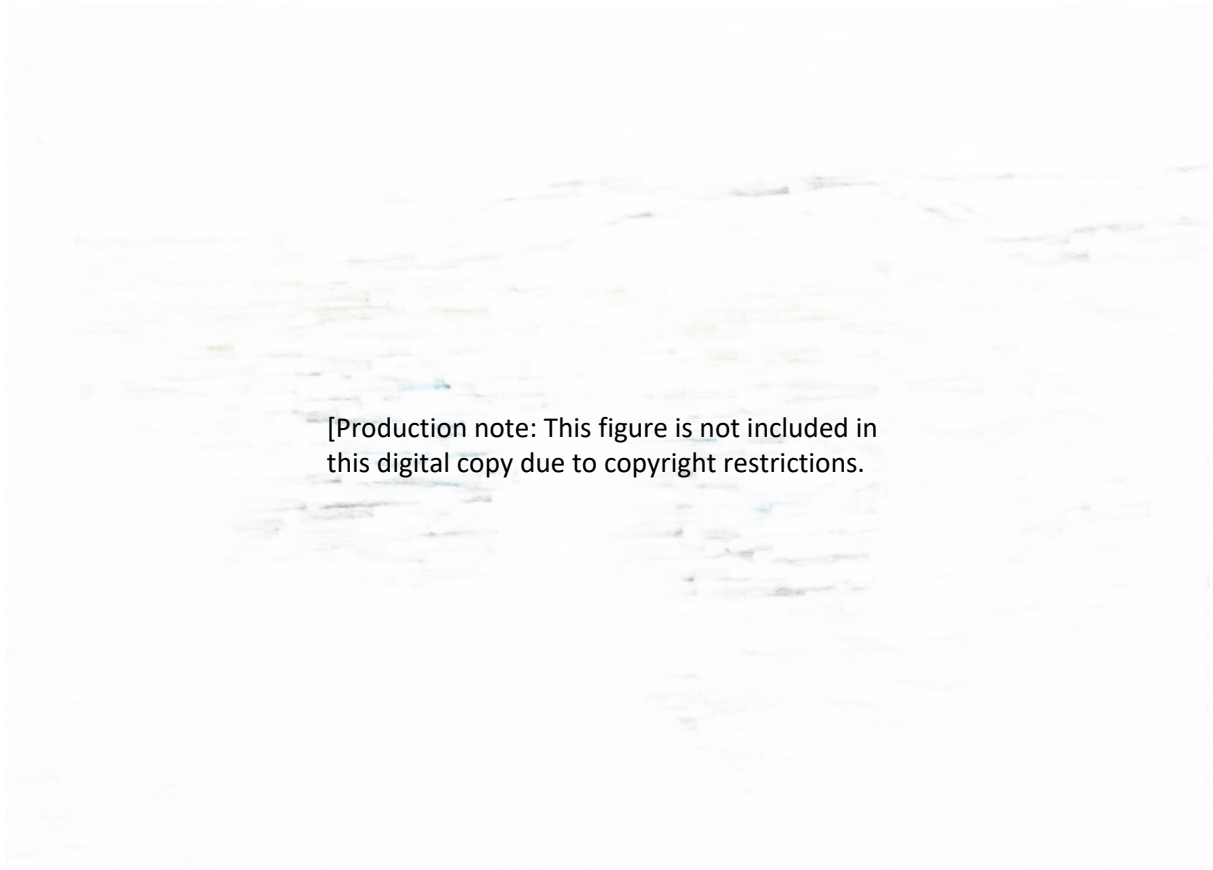


Fig 2.9 CRT display of sound translated into light in Nam June Paik’s *Participation TV*, exhibited in *TV as a Creative Medium* in 1969. Source: Nam June Paik, *Participation TV*, 1969, philco color lite TV set and two microphone N.Y. amplifiers, David Bermant Foundation, <https://davidbermantfoundation.org/project/participation-tv/>.

¹⁷² Lucinda Furlong, “Tracking Video Art: “Image Processing” as a Genre,” *Art Journal* 45, no.3 (1985): 234, <https://doi.org/10.1080/00043249.1985.10792303>.



[Production note: This figure is not included in this digital copy due to copyright restrictions.]

Fig 2.10 Two three-inch cathode-ray tubes, encased in vinyl straps, constitute Nam June Paik's *TV Bra for a Living Sculpture*, exhibited in *TV as a Creative Medium* in 1969. Source: Nam June Paik, *TV Bra for Living Sculpture*, 1969, performance and video, T. B. Walker Acquisition Fund, 1991, <https://walkerart.org/collections/artworks/tv-bra-for-living-sculpture>.



Fig 2.11 In the 1969 exhibition *TV as a Creative Medium*, cellist Charlotte Moorman wore Nam June Paik's *TV Bra for Living Sculpture*, with her cello's sound processed to generate live television images during the performance. Source: Nam June Paik, *TV Bra for Living Sculpture*, 1969, performance and video, Paik Studios, <https://www.paikstudios.com/>.

Similarly subverting the commercial use of TVs, Frank Gillette, and Ira Schneider's 'Wipe Cycle,' developed for 'TV as a Creative Medium,' particularly aimed to challenge "the notion of information presentation, and the integration of the audience into the information."¹⁷³ As visitors entered the gallery, they faced nine monitors, and

¹⁷³ Jud Yalkut, "Parts I and II of an interview with Frank Gillette and Ira Schneider," *Radical Software* 1, no.1 (1970): 9, <https://www.radicalsoftware.org/e/volume1nr1.html>.

a hidden camera mounted above the installation. The grid of screens presented various displays: viewers saw themselves recorded in real-time on the centre screen, with a corresponding time delay screen, a live TV broadcast on another screen, and several pre-recorded videos (see Fig 2.12). A grey screen called the "wipe cycle" also moved across the screens in a counterclockwise motion. Acting as a reset, it broke the overstimulation of information and prompted a pause amid the temporal nature of the electronic environment set up by the multi-channel work.



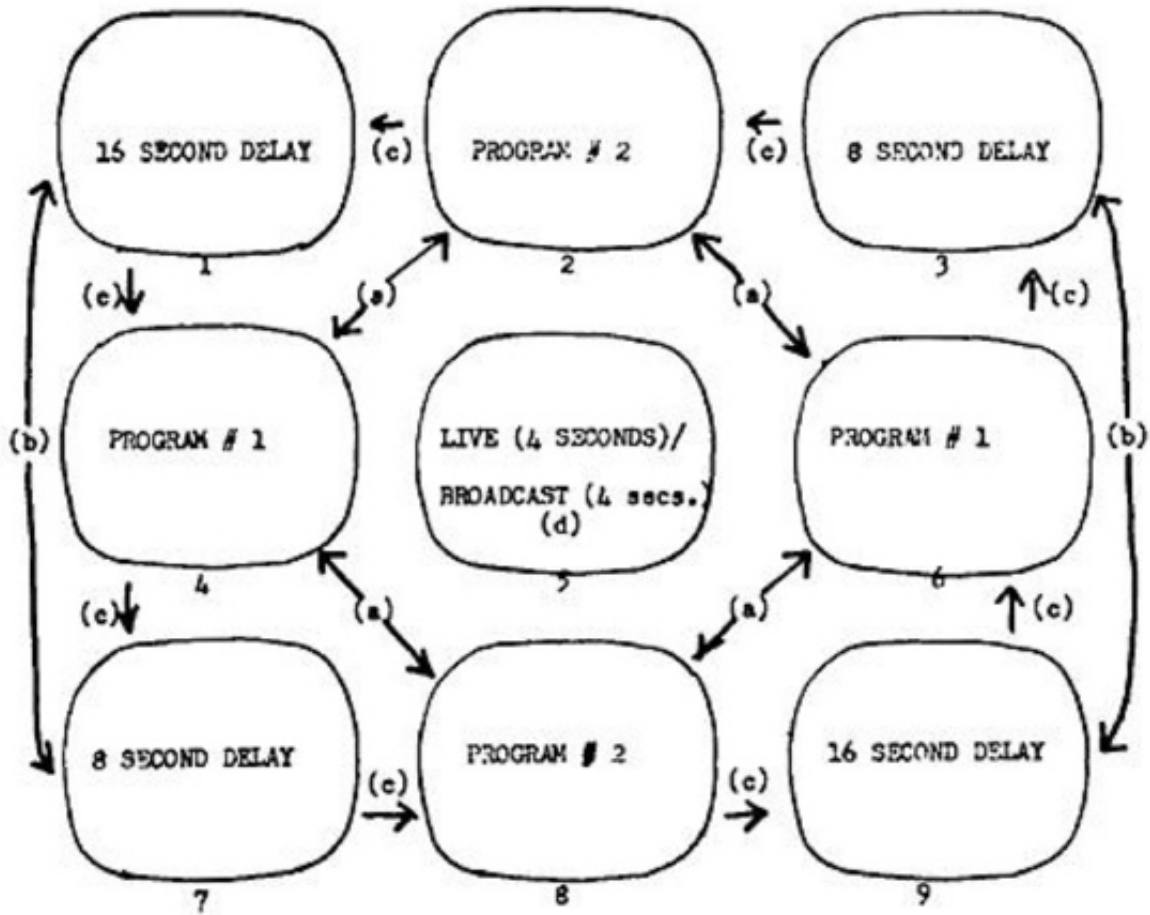
Fig 2.12 Frank Gillette and Ira Schneider's video installation, *Wipe Cycle*, first exhibited in *TV as a Creative Medium*, 1969, consisted of a grid of nine monitors displaying synchronised cycles of live and delayed feedback, broadcast TV, and taped programming. Source: Frank Gillette and Ira Schneider, *Wipe Cycle*, 1969, video installation, Frank Gillette, <https://www.frankgillette.com/wipe-cycle>.

In an interview in *Radical Software*, Gillette noted that it was an attempt to “reshuffle one’s temporal experience—one’s sense of time and space.”¹⁷⁴ More importantly, he said it was to “demonstrate that you’re as much a piece of information as tomorrow morning’s headlines.”¹⁷⁵ For many viewers, this was the first time they could see themselves in real-time on the screen, as video recorders, such as the Sony Portapak, were only becoming available outside of commercial use. The live component of the screen interface implicated the viewer within the gallery in a broader system of information transmission, as meticulously planned through the feedback diagram (see Fig 2.13). The multi-screen format allowed one to see themselves juxtaposed with images of Earth, and news broadcasts, among other things. In turn, it prompted the notion that “we’re all potential actors-effectors”¹⁷⁶ of this mediatised environment. Underscoring the multi-screen format in Gillette and Schneider’s ‘Wipe Cycle’ was another countercultural attempt to advocate for participatory engagements with the screen to produce alternative media.

¹⁷⁴ Ibid.

¹⁷⁵ Yalkut, “Frank Gillette and Ira Schneider Parts 1 and II of an interview,” 10.

¹⁷⁶ Ibid.



- CYCLE (a) Monitors 2, 4, 6 and 8: Programmed change cycle, Program No. 1 alternating every eight seconds with Program No. 2.
- CYCLE (b) Monitors 1, 3, 7 and 9: Delay change cycle, Nos. 1 and 7 and 3 and 9 alternating (exchanging) every four seconds.
- CYCLE (c) Monitors 1, 2, 3, 4, 6, 7, 8 and 9: Wipe cycle, grey "light" pulse, moving counterclockwise every two seconds.
- CYCLE (d) Monitor 5: Live cycle, four seconds of live feedback alternating with four seconds of broadcast television.

Fig 2.13 Feedback diagram for Frank Gillette and Ira Schneider's video installation, *Wipe Cycle*.

Source: Frank Gillette and Ira Schneider, *Wipe Cycle*, 1969, video installation, Frank Gillette, <https://www.frankgillette.com/wipe-cycle>.

Explorations with the multi-screen, such as that of Gillette and Schneider's 'Wipe Cycle,' were formalised through the exhibition 'TV as a Creative Medium.' However, architectural historian Beatriz Colomina argues that, although the evolution of the multi-screen tends to be associated with the counterculture movement, "architects were involved much earlier and in very different contexts, such as military operations

and governmental propaganda campaigns.”¹⁷⁷ Referring to the multi-screen work of Charles and Ray Eames in the 1959 American exhibition in Moscow, Colomina explains that the “exhibition was a Cold War operation in which the Eameses’ multiscreen technique turned out to be a powerful weapon.”¹⁷⁸ Their film, ‘Glimpses of the U.S.A.’, comprised over 2200 still and moving images across seven screens, promoting the American “good life” through the saturation of visual stimuli, as offered by the multi-screen format (see Fig 2.14).

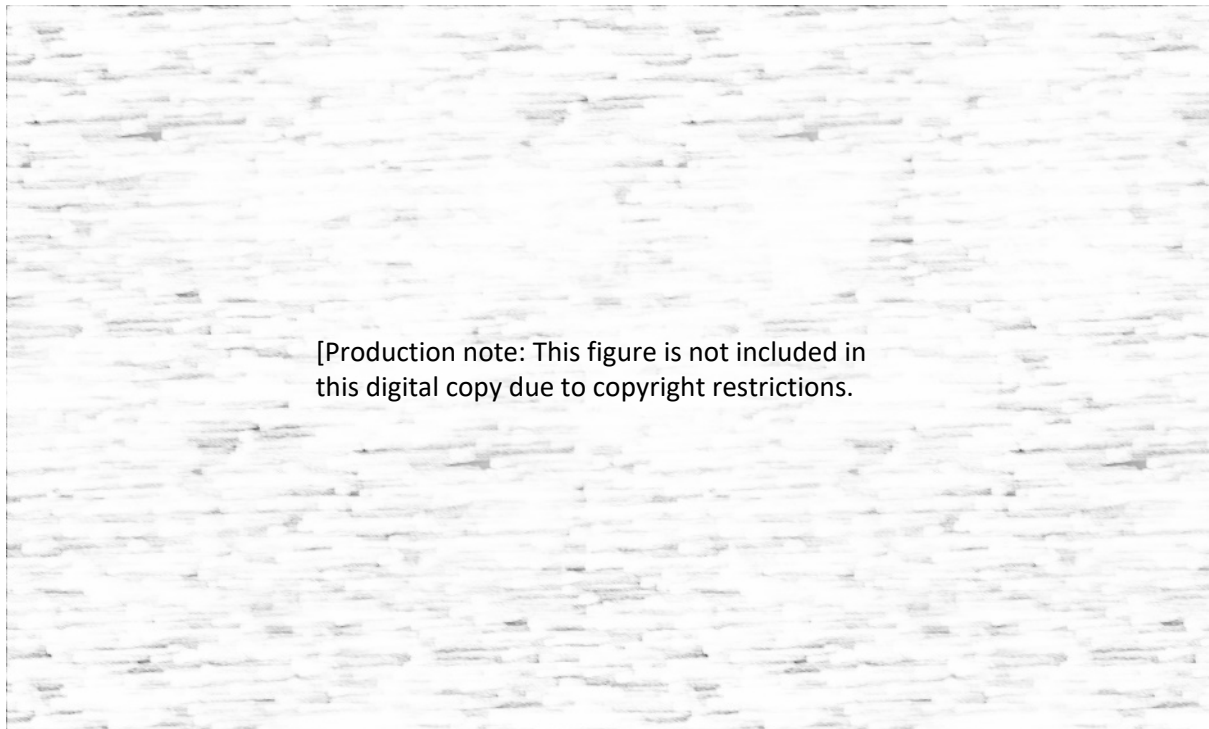


Fig 2.14 Installation view of the film *Glimpses of the U.S.A.* by Charles and Ray Eames as part of the 1959 American exhibition in Moscow. Source: Charles and Ray Eames, *Glimpses of the U.S.A.*, 1959, multi-screen film installation, Eames Office, <https://www.eamesoffice.com/the-work/glimpses-of-the-u-s-a-film/>.

Intending to proudly introduce American design and culture to the predominantly Soviet audience, ‘Glimpses of the U.S.A.’ represented the complexity and diversity of the American landscape. The images were divided across seven screens, four on top and three below, installed in Buckminster Fuller’s geodesic dome. The screens

¹⁷⁷ Beatriz Colomina, “Enclosed by Images: The Eameses’ Multimedia Architecture,” *Grey Room*, no. 2 (2001): 8, <http://www.jstor.org/stable/1262540>.

¹⁷⁸ *Ibid.*

were suspended in a curved formation, spatially engulfing the audience through their sheer scale, measuring twenty by thirty feet each. The multi-screen format reinforced “the material abundance of the United States”¹⁷⁹ as viewers were presented with seven diverse images simultaneously and at a speed that gave more data than the viewer could possibly process.¹⁸⁰ This was also seen in their film ‘Think!,’ designed for the IBM Pavilion at the 1964-1965 New York World’s Fair. The multi-screen installation was suspended in a structure called the Ovoid Theater (see Fig 2.15). The audience was lifted to the installation through an elevated stand, which could hold up to 400 guests. Once facing the installation, they were engulfed by seven screens showing images of the American way of life. Saturating the viewers with information overload, both installations broke the centrality of a single frame and required a higher degree of attentiveness from the viewer, as attention is distributed over an array of screens. The non-linear narrative of the films, curated by the multi-screen configuration, saw the Eameses become architects of a new kind of multimedia space that re-enacted the representational space of the TV, or as Colomina highlights, “the logic of the Eameses multiscreen is simply the logic of the mass media.”¹⁸¹

¹⁷⁹ Colomina, “Enclosed by Images: The Eameses’ Multimedia Architecture,” 13.

¹⁸⁰ Paul Schrader, “Poetry of Ideas: The Films of Charles Eames,” *Film Quarterly* 23, no. 3 (1970): 7, <https://doi.org/10.2307/1210376>.

¹⁸¹ Colomina, “Enclosed by Images: The Eameses’ Multimedia Architecture,” 22.

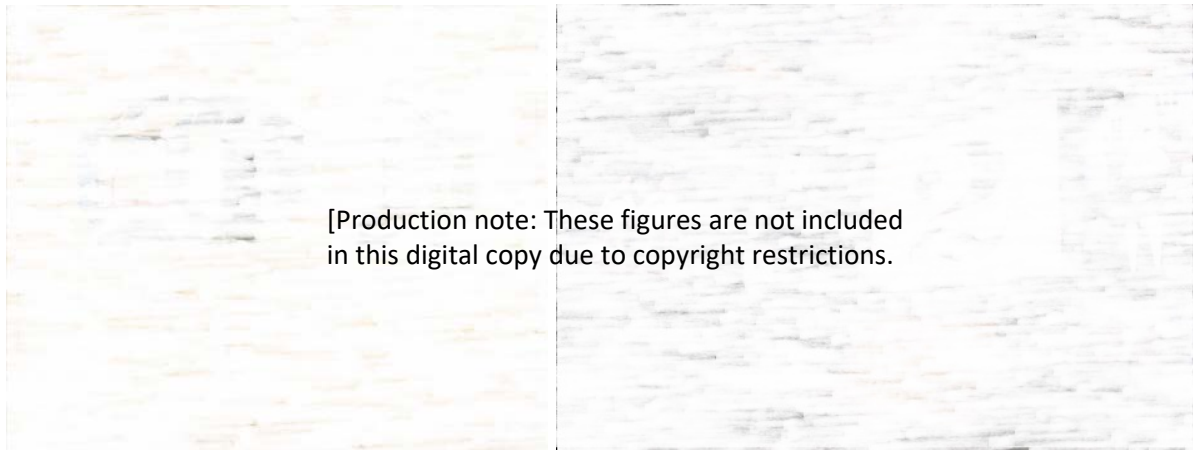


Fig 2.15 A sectional architectural drawing (left) and installation view (right) of the multi-screen installation, *Think!*, by Charles and Ray Eames exhibited in the Ovoid Theater at the 1964 New York World's Fair. Source (left): Charles and Ray Eames, *IBM World's Fair pavilion, Ovoid Theater. Section of auditorium*, 1964, drawing, Library of Congress, <https://www.loc.gov/item/2015646235/>. Source (right): Charles and Ray Eames, *Think!*, 1964, multi-screen film installation, Eames Office, <https://www.eamesoffice.com/the-work/think-film/>.

Although the spectator was seen as more or less a passive consumer of a bombardment of visuals, what is striking about the Eameses multi-screen installations is the architectural nature of their work. The sheer size, number, and arrangement of the screens created a spatial environment. This line of work, where the screen(s) produce an architecture, found further exploration in 1970s installation work, precisely that of Bruce Nauman and Dan Graham. Less concerned with information stimulus, Nauman and Graham's video installations relied on two conditions to complete the work of art: the architecture of the installation, as well as the engagement of the viewer through the live video camera feeds and closed-circuit time delays. Viewers were implicated through the video work's spatio-temporal conditions and the site-specific architecture that housed it.

For instance, Nauman's 'Live-Taped Video Corridor' (1970) featured two TV monitors at the end of a 10m long and 50cm wide constructed corridor (see Fig 2.16). Both monitors were linked to a camera mounted at the corridor's entrance. The top monitor displayed the live-feed, while the bottom monitor played pre-recorded footage of the corridor empty. The narrowness of the corridor made it difficult for more than one person to enter the installation at a time. As someone

entered the corridor, an image of them from behind was captured on the top monitor through the live-feed. As the individual, now subject, moved towards the monitors and away from the camera at the entrance, their figure became smaller on the screen. The physical motivation to get closer to see more and the resulting image of a diminishing figure on the screen are counterintuitive. Challenging a sense of self-reflection, the installation distances the subject from their actions and movements through the spatio-temporal conditions of the video and the narrow and long architecture of the corridor.



Fig 2.16 View of the entrance (left) and a close-up of stacked monitors (right) in Bruce Nauman's video installation, *Live Taped Video Corridor*. Source (left): Bruce Nauman, *Live Taped Video Corridor*, 1970, video installation, Medien Kunst Netz, <http://www.medienkunstnetz.de/works/live-taped-video-corridor/images/1/#reiter>. Source (right): Bruce Nauman, *Live Taped Video Corridor*, 1970, video installation, Linnea West, <https://linneawest.com/re-experiencing-bruce-naumans-live-taped-video-corridor-1970/>.

Graham's 'Present, Continuous Past(s)' (1974) presented conditions similar to Nauman's installation, manipulating the movement and experience of the subject

through site-specific closed-loop video work. The video installation consisted of a room lined with two-way mirror on two perpendicular walls. A video camera and a screen were mounted onto the third wall, with the camera positioned on top of the screen (see Fig 2.17). As viewers entered the installation, they could see their live or "present" image reflected in the mirror. Turning to the video camera, they were recorded in real-time, but the video played back on the screen with an 8-second lag. Looking at the screen, the viewer could see themselves from eight seconds ago superimposed onto another image of what was reflected on the mirror (behind them) sixteen seconds earlier, resulting in an infinite image of the body. The visualisation of temporal distance in space, created by the time lag, showed that time, as a measure, could be manipulated and experienced in space through the screen.

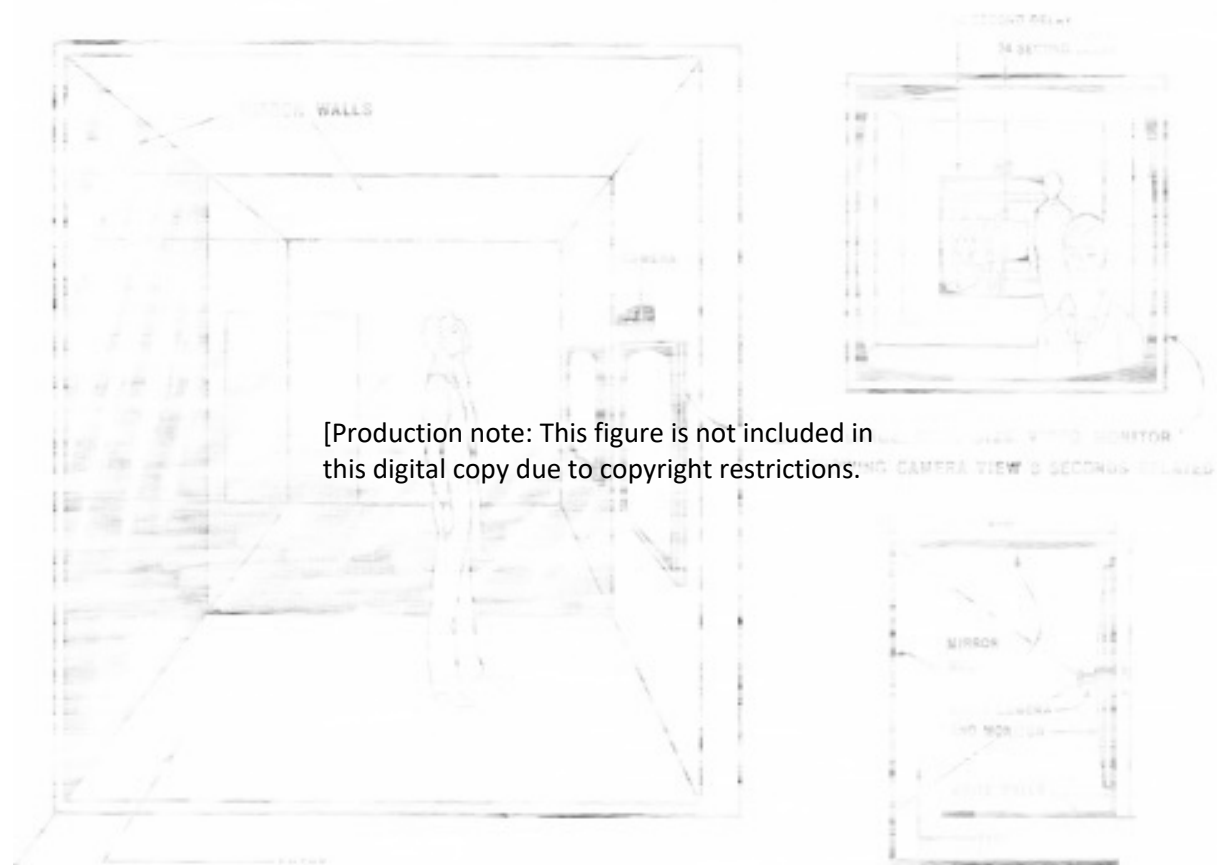


Fig 2.17 Drawing by Dan Graham of his 1974 video installation, *Present, Continuous Past(s)*. Source: Dan Graham, *Present, Continuous Past(s)*, 1974, video installation, Medien Kunst Netz, <http://www.medienkunstnetz.de/works/present-continuous-pasts/>.

Similarly, Graham's 'Time Delay Room' (1974) relied on the audience's interaction with the spatial environment and screen to complete the artwork. This video installation featured two identical rooms connected by a passageway (see Fig 2.18). The interior wall of each room had two TV screens displaying footage from the two surveillance cameras mounted on the passageway wall. Each camera pointed towards, and consequently filmed, one of the rooms. In room A, one of the monitors displayed audience B live, while the second monitor played an eight-second delayed image of audience B. In room B, audience B also saw a delayed image of themselves on one of the monitors and live footage of audience A on the second monitor. As visitors entered the installation, they felt "trapped in a state of observation in which self-observation is subjected to an externally visible control authority,"¹⁸² as opposed to the traditional one-way relationship and individual contemplation in front of an auratic object.¹⁸³ The manipulation of space and time through the screen interface's feedback loop reflects the representational space of the TV screen and surveillance systems. Showing that "there is no possible experience of one's self that is not mediated,"¹⁸⁴ the perpetual visualisation of temporal distance in space via the screen interface simultaneously transforms the viewer into a subject and object of perception.

¹⁸² Gregor Stemmrich, "Dan Graham," in *Ctrl (space): Rhetorics of Surveillance from Bentham to Big Brother*, eds. Thomas Y. Levin, Ursula Frohne, and Peter Weibel (Karlsruhe: ZKM Center for Art and Media, 2002), 68.

¹⁸³ Ibid.

¹⁸⁴ Birgit Pelzer, "Double Intersections: The Optics of Dan Graham," in *Dan Graham*, ed. Beatriz Colomina (London: Phaidon, 2001), 53.

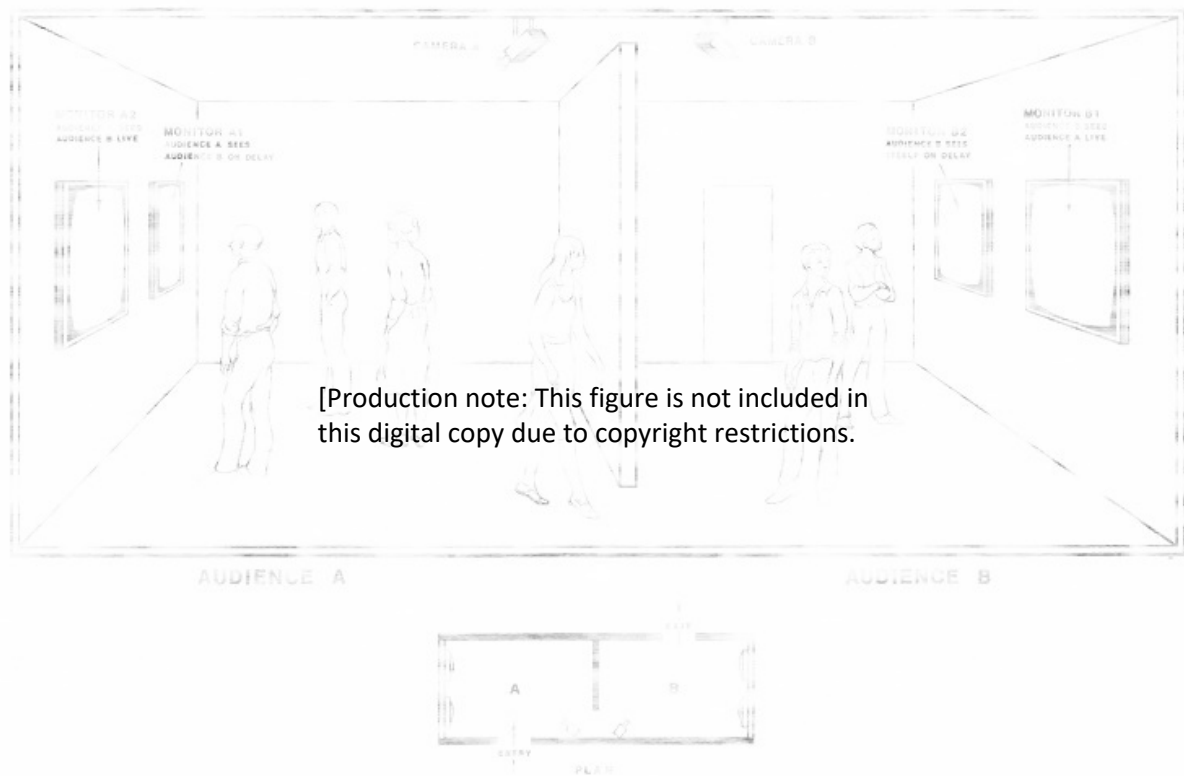
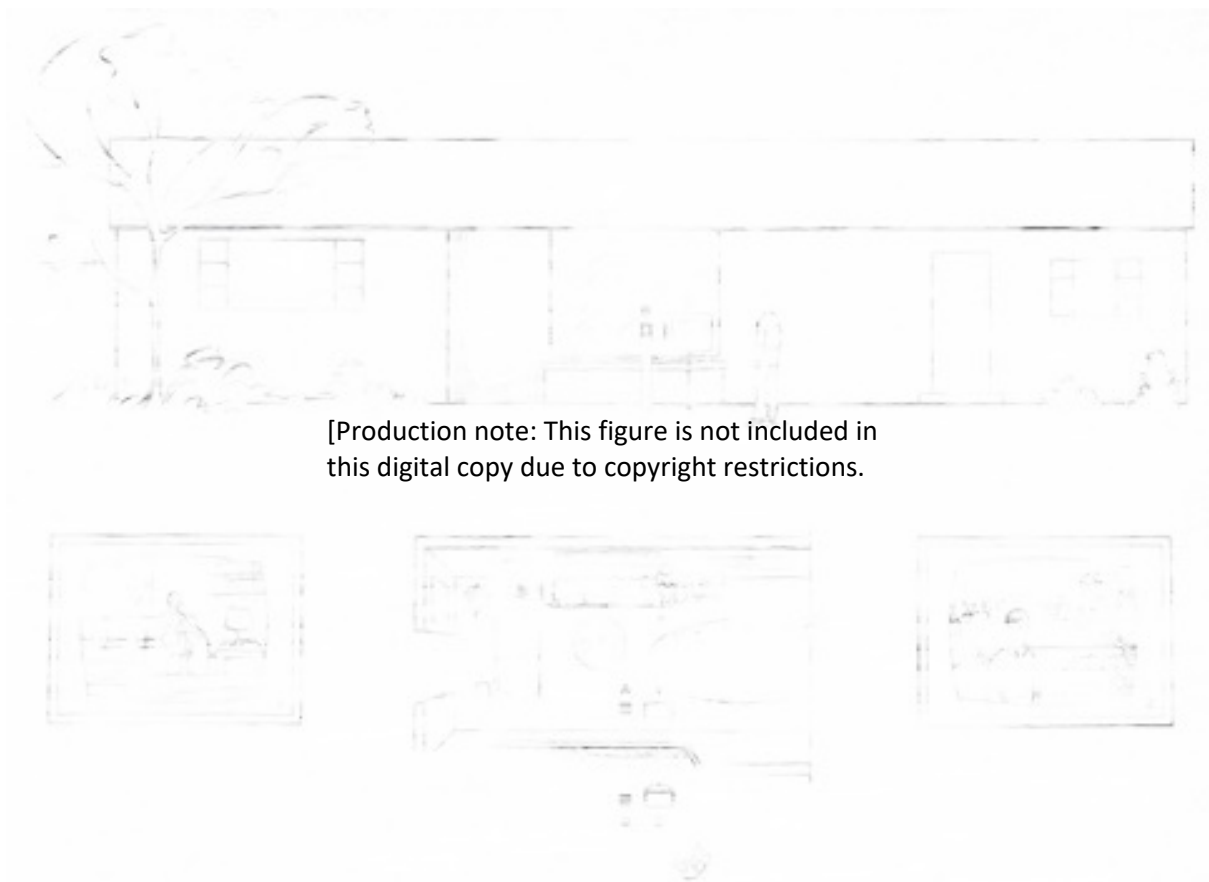


Fig 2.18 Drawing by Dan Graham of his 1974 video installation, *Time Delay Room*. Source: Dan Graham, *Time Delay Room*, 1974, video installation, Medien Kunst Netz, <http://www.medienkunstnetz.de/works/time-delay-room/?desc=full>.

Particularly aware of the spatial and mediating effects of the screen interface, Graham investigated questions of privacy and its possible subversion through the screen. Stepping outside the gallery, Graham proposed a series of video installations within the domestic architecture of the family home. Advancing McLuhan's theory that TV functions as a cool medium, requiring greater interaction on the part of the audience, Graham used the screen to make drastic changes to domestic architecture. In doing so, he made visible the deep entanglement between space, screen, and subject. In 'Picture Window Piece' (1974), Graham devised a two-way surveillance system by installing a camera and monitor both inside and outside of a house (see Fig 2.19). Observer(s) on each side were presented with an image of themselves on the respective screen (and through their self-reflection in the glass), simultaneously viewing each other through the picture window. The degree of transparency of the glass at different times of the day further influenced this visibility. This piece challenged the conventional code of privacy within the home, where

external observers avert from looking into picture windows. Instead, the installation enticed the observer toward the window, subverting “the exclusive interior private or exterior public perspectives”¹⁸⁵ through the architectural placement of the screen interface. Flirting between pieces of art and architecture, Nauman and Graham’s video installations, which rely on the architecture of the screen and the engagement between the viewer and the screen to complete the work of art, encapsulate the argument of this chapter – screens have a spatial, material, and architectural dimension.



[Production note: This figure is not included in this digital copy due to copyright restrictions.]

Fig 2.19 Drawing by Dan Graham of his 1974 video installation, *Picture Window Piece*. Source: Dan Graham, *Picture Window Piece*, 1974, video installation, Medien Kunst Netz, <http://www.medienkunstnetz.de/works/picture-window-piece/images/2/>.

¹⁸⁵ Benjamin H.D. Buchloh, *Video-Architecture-Television: Writings on Video and Video Works 1970-1978* (Halifax: The Press of the Nova Scotia College of Art & Design, 1979), 35.

2.5 Conclusion

This chapter establishes the ‘screen interface’ as a lens for examining the spatial relationship between the body and the screen. By turning to the counterculture milieu of post-war United States, this exploration brings to the forefront a critical screen-based body of work that confronted the one-way spectatorial relationship dictated by TV institutions in the 1960s. Within this context, video collectives sought to subvert the commercial use of TV, exploring alternative counterimages, programming, and engagements with the screen. In doing so, they countered the criticised dominant form of spectatorship – that of the passive viewer, replacing it with an “active” body that wielded the screen as a tool and weapon against the homogenising influence of mass media. This transformation was deeply rooted in the counterculture’s desire to decentralise and democratise information and technology – as exemplified by video collectives like Ant Farm. A parallel approach emerged, also challenging the commercial use of TVs, by positioning TV as a creative medium. Post-war video art and installations disrupted traditional spectatorial relations, engaging audiences through sensory manipulations and spatio-temporal conditions facilitated by live video camera feeds and closed-circuit time delays, disrupting the neutrality of the “white” box.

Importantly, the lineage established in this chapter provides context for the core of the thesis in two significant ways. Firstly, by expanding the definition of the screen through the notion of ‘interface,’ it offers an analytical framework for future case studies, one invested in exploring the architectural, spatial, and mediating effects of the screen. Secondly, the examination of this historical screen-based body of work allows for the identification of similar approaches in the thesis’ main case studies, specifically the ways in which the screen can play a transformative role in shaping social, cultural, and political narratives, as seen through Section 03 of the thesis with the case studies of the Centre for Research Architecture and Forensic Architecture.

SECTION 02: THE SCREEN IN STUDIO

Chapter 03: Liveness, Mediation, and the Simulated: Jean Baudrillard and Paul Virilio

3.1 Introduction

Building upon the pre-history formulated around TV media theory and screen-based art, Section 02 will continue to situate the screen in a broader media theory and historical context. However, it will focus on a critical account of the screen from the 1990s onwards. This chapter recognises a shift in the discourse on the screen, representing both an extension and deviation from McLuhan's TV media theory, within the context of postmodern media theory in the 1980s and 1990s. Core to the postmodern condition is the reaction to the assumed certainty of scientific or objective efforts to explain reality. Instead, there is a claim that the distinction between reality and its representation is blurred in a media-saturated society. In this postmodern context, the screen emerges as the locus for exploring discourse on the tension between reality and its simulated representation. This is predominantly observed through the writings of French cultural theorists Jean Baudrillard and Paul Virilio. Acknowledging the shift in the discourse on the screen in the 1990s, this chapter will use their work as a theoretical framework to investigate the evolving role of the screen, specifically its impact on our conception of reality and, more importantly, space. Respectively, the chapter will navigate through Baudrillard and Virilio's theories on the screen, examining both their alignments and misalignments, to unpack how their theories simultaneously address the effects of the screen, namely spatiotemporal re-configurations, as well as their critical observations on how screen technologies distort access to reality.

3.2 Baudrillard and Virilio: Two Conscientious Objectors

The intersection of technology, events, and representation fascinated long-time friends and colleagues, Baudrillard and Virilio. Although the writings of Baudrillard

and Virilio belong to a specific context and generation of French social theory thinkers, including Gilles Deleuze, Jacques Derrida, Jean- François Lyotard, Michael Foucault, and Jacques Lacan, their connections, divergences, and disagreements are worth re-assessing as a duo when exploring the shift in discourse on the screen in the 1990s. These two figures, both philosophers and cultural theorists, with Virilio adding urbanist to his repertoire, collaborated in Paris on the journal *Traverse* between 1975-1990. They were both, separately, professors at the European Graduate School, Saas-Fee, Switzerland at various times in the 2000s. Although they never wrote together, their publishing histories, including substantial translations from French to English by publishing houses Semiotext(e) and Verso Books in the USA and Polity Press in England,¹⁸⁶ present them more as an intellectual pairing.

A decisive moment to begin unpacking the theoretical work of this pairing is through a conversation between Virilio and Semiotext(e)'s Sylvère Lotringer (a long-time friend and publisher of both theorists) that took place three months after Baudrillard's passing.¹⁸⁷ Reflecting on their relationship, Virilio expressed, "On the one hand, we had something in common, which was the uncertainty principle, not believing your own eyes, conscientious objections. This is why he wrote what he did about the Gulf War. There are conscientious objectors who don't want to see the war and those who don't believe in the war, even when it takes place, since the war was created out of its image: Desert screen, desert storm."¹⁸⁸ To not believe their own eyes and operate as conscientious objectors highlights that they were both critical of the effect of technology on reality. There was a desire by both to see technology as a question that necessitates interrogation and speculation. This position is further highlighted in an interview in *Cahiers du Cinema* with Virilio, who states, "that's what I'm concerned with - looking at a technological object as an enigma and not asking myself how it

¹⁸⁶ For an exhaustive list of scholarship by and about the two authors under these publishing houses see, Steve Redhead, "All Things Are Curves: Notes on the Intersecting Lives of Jean Baudrillard and Paul Virilio," *Fusion journal*, no. 2 (2013): 4, <http://fusion-journal.com/issue/002-fusion-the-limits-of-virtuality/all-things-are-curves-notes-on-the-intersecting-lives-of-jean-baudrillard-and-paul-virilio/>.

¹⁸⁷ Redhead, "All Things Are Curves: Notes on the Intersecting Lives of Jean Baudrillard and Paul Virilio," 5.

¹⁸⁸ Paul Virilio and Sylvère Lotringer, *Pure War: Twenty-Five Years Later*, rev. ed., trans. Brian O'Keffe (Los Angeles, Calif: Semiotext(e), 2008), 235.

works; looking at what is hidden, what is unknown in the midst of the known.”¹⁸⁹ Expanding McLuhan’s interests in unveiling the invisible effects of the electronic environment, this, too, was a call to understand that technology is not a neutral tool and to look into the unknown of the technology through its traces, signs, and effects: effects of light, visual transformation, of the transformation of the body itself, of time itself.¹⁹⁰

Although both figures were interested in unpacking the effects of technology beyond their technical or technologically innovative sense or use, once again reflecting a McLuhan-esque inquiry, their backgrounds highlight intellectual nuances. Virilio’s extensive scholarship on war and technology stems from his personal experience growing up in Paris in the 1930s, seeing first-hand the spectacle of World War II, and further, through his direct involvement in the Algerian War of Independence during his military conscription. Virilio’s central claim is that in a culture dominated by war, the military-industrial complex is a dominant force in the spatial organisation of cultural life, foregrounding, unlike Marx, that the transition to capitalism was not an economic but rather a military, spatial, political, and technological transformation.¹⁹¹ Virilio aligns with Gestalt psychology as a result of having studied under phenomenological philosopher Maurice Merleau-Ponty after his military service. However, his phenomenological inquiry into media technologies and the logic of perception goes a step beyond that defined by Merleau-Ponty, pointing out that technologies, such as the screen, not only mediate our perception but also bring into vision things beyond our reach. If, following Merleau-Ponty, Virilio believes that “everything I see is in principle within my reach, at least within reach of my sight, marked on the map of the ‘I can’,”¹⁹² the advent of live broadcast television, for instance, disrupts the logics of the ‘I can,’ as there is a shift in the perception of time and space. Therefore, Virilio’s theoretical project highlights the way technologies

¹⁸⁹ Paul Virilio, “The Third Window: An Interview with Paul Virilio,” in *Global Television*, eds. Cynthia Schneider and Brian Wallis, trans. Yvonne Shafir (Cambridge, MA: MIT Press, 1988), 195.

¹⁹⁰ Paul Virilio, “The Third Window: An Interview with Paul Virilio,” 197.

¹⁹¹ John Armitage, “Beyond Postmodernism? Paul Virilio’s Hypermodern Cultural Theory,” *Ctheory* 23, (2000), <http://www.ctheory.com/article/a90.html>.

¹⁹² Paul Virilio, *The Vision Machine*, trans. Julie Rose (Bloomington: Indiana University Press, 1994), 7.

bring into vision things beyond our reach – what is unknown in the midst of the known.

On the other hand, heavily influenced by Lefebvre and Barthes, Baudrillard associated with a psychoanalytical framework through his studies in the field of social theory and semiology. In his first published book, 'The System of Objects,' in 1968, followed by 'The Consumer Society' in 1970, Baudrillard's political position began to diverge from Marxist thinking. He argued that it was consumption, rather than production, that was the main force in the construction of a capitalist society. A total rejection of Marxism was seen in 'The Mirror of Production' in 1973 and 'Symbolic Exchange and Death' in 1976 when Baudrillard argued that the development of new technologies and production techniques in the era of capitalism has resulted in the proliferation of commodities characterised not only by use-value and exchange value, as presented in Marx's theory of the commodity, but also through sign-value too (an object's value within a system of objects). Using sign-value to analyse value in a consumer society, Baudrillard insisted that social and political status is assigned to the possession of objects – objects signify status and power. Baudrillard's ambivalent relation with Marxism is further provoked as he uses the semiology of the sign to highlight that objects (such as the screen) dominate subjects, where the object world defeats subjectivity. This theory is pushed to its limits in the body of work he develops in the 1980s, specifically through his book 'Simulacra and Simulation' in 1981, where he starts to consider the effect of technology on reality. Taking on a poststructuralist position, Baudrillard introduces concepts such as 'simulacra and simulation' and 'hyperreality' to argue that we live in a simulation age. In a postmodern context, mass communication technologies have produced so many simulations that the original is indistinguishable from the copy, complicating the ability to represent reality.

3.3 Screen Simulation versus Screen Substitution

Virilio and Baudrillard's distinct theoretical backgrounds have impacted their theories on the effects of technology on reality. In another passage concerning their

relationship, Virilio reiterates that they are both conscientious objectors but not the same kind, exclaiming that Baudrillard “didn’t believe in reality, in particular in its acceleration,”¹⁹³ which is where his ideas regarding simulation arose.¹⁹⁴ Baudrillard’s conception of reality is defined in his book ‘Symbolic Exchange and Death’ as “that of which is possible to provide an equivalent reproduction.”¹⁹⁵ Expanding on his critical observations of the emergence of a consumer society that centres on the consumption of signs, Baudrillard claims that simulacra has replaced reality. Baudrillard identifies three orders of simulacra across history. The first order, spanning from the Renaissance up until the Industrial Revolution, is the counterfeit that creates the real as distinguished from representation. In the industrial era, the second order of simulacra begins to blur the distinction between reality and representation as an original loses its meaning (or what Walter Benjamin refers to as its ‘aura’)¹⁹⁶ as imitation masks reality through the process of mechanical reproduction. Finally, the third order of simulacra, the dominant schema in the code-governed postmodern phase, is that of simulation. Simulation, in Baudrillardian terms, is the copy of a real without origin or reality.¹⁹⁷ Simulation differs from representation as it substitutes the signs of the real for the real, whilst representation is an attempt to be the equivalent of the real.¹⁹⁸ Baudrillard claims that simulation precedes and determines the real: “The territory no longer precedes the map, nor does it survive it. It is nevertheless the map that precedes the territory... that engenders the territory.”¹⁹⁹ If the real is constructed through its opposition with representation, simulation collapses the relationship between reality and representation as the copy replaces the original, constructing a hyperreality.²⁰⁰

¹⁹³ Paul Virilio, *Original Accident* (Cambridge: Polity, 2007), 42.

¹⁹⁴ Paul Virilio, *Grey Ecology* (New York: Atropo, 2009), 42.

¹⁹⁵ Jean Baudrillard, *Symbolic Exchange and Death*, trans. Iain Hamilton Grant (London, England: Sage, 1993), 73.

¹⁹⁶ Walter Benjamin, “The Work of Art in the Age of Mechanical Reproduction,” in *Illuminations*, ed. by Hannah Arendt, trans. Harry Zohn (New York: Schocken Books, 1969), 221.

¹⁹⁷ Jean Baudrillard, *Simulacra and Simulation*, trans. Sheila Glaser (Ann Arbor, MI: University of Michigan Press, 1994), 1.

¹⁹⁸ Baudrillard, *Simulacra and Simulation*, 2–4.

¹⁹⁹ Baudrillard, *Simulacra and Simulation*, 1.

²⁰⁰ *Ibid.*

In contrast to Baudrillard's theory of simulation as a complete takeover of reality, where there is only simulation, Virilio implies that in a postmodern media context, mass media technologies construct a *substitute* reality that deranges the logics of perception. For Virilio, substitution has reduced perception to that of the "sighting device,"²⁰¹ which does not necessarily take over reality but rather constructs a new kind of representation and a new mode of perception. Similar to Baudrillard, Virilio sets up the development of this transformation throughout history. In 'The Vision Machine,' he identifies three logics of perception: formal logic, dialectic, and paradoxical logic.²⁰² Ending in the nineteenth century, the formal logic was the age of painting, engraving, etching, and architecture, where objects and images were perceived with one's own eyes and in the same geographical space. The second logic of perception, the dialectic in the nineteenth century, saw the advent of film and photography make reproduction possible and, therefore, the re-presentation of a past reality in another time and space. Finally, the current phase, the age of paradoxical logic, with the invention of video recording, holography, and computer graphics, allows content to be created without ever having existed in a past time.

Virilio's paradoxical logic entails an alteration of time, space, and reality. This logic challenges the concept of reality, as real-time dominates the thing presented, and virtuality prevails over real space.²⁰³ In this case, images on the screen replace the real and construct a substitute reality that deranges older and more stable logics of perception.²⁰⁴ Virilio distinguishes this transformation of perception as the shift from an 'aesthetics of appearance' to an 'aesthetics of disappearance.' Until the nineteenth century, Virilio claims there was only an aesthetics of appearance through stable forms of media, such as photography, while more recent unstable forms of media, such as TV and the computer, herald an aesthetics of disappearance. What differentiates the two is speed. Unstable media create micro-narratives where "space and time splinters into a countless number of visual interpretations."²⁰⁵ This splitting

²⁰¹ Virilio, *The Vision Machine*, 13.

²⁰² Virilio, *The Vision Machine*, 63.

²⁰³ Virilio, *The Vision Machine*, 63.

²⁰⁴ Paul Virilio, *War and Cinema: The Logistics of Perception*, trans. Patrick Camiller (London: Verso, 1989), 72.

²⁰⁵ Paul Virilio, *Lost Dimension*, trans. Daniel Moshenberg (New York: Semiotext(e), 1991), 9.

of perception is the effect of speed on space, or what Virilio calls dromoscopy. In the aesthetics of disappearance, access to the real is fleeting and fugacious.

Consequently, the human eye loses control of space as vision machines, such as the TV screen, substitute a synthetic vision of reality.

3.4 Screens Near and Far

In Baudrillard's era of simulation, the reliance on models, maps, or other cultural modes of representation that simulate reality, such as the TV or computer, suggests that the consumption of reality is "distanced by the communication medium and reduced to signs."²⁰⁶ This has spatial ramifications, as simulation no longer takes place in physical space but, rather, is consumed at a distance through the medium of the screen. The rise of broadcast media, specifically TV, is an important constitution for Baudrillard to translate this concept. Baudrillard suggests that TV presents the world as endlessly visualisable, segmented, and readable in images, yet these images (which are both the signs and messages consumed) represent a distance from the world and physical space – "a distance more comforted by the allusion to the real than compromised by it."²⁰⁷ This distancing between the world and its screen simulations makes distinguishing reality from its simulated representation difficult. This is further exemplified as Baudrillard rhetorically asks, "when we look at images of the world, who can distinguish this brief irruption of reality from the profound pleasure of not being there?"²⁰⁸ This distancing is exacerbated by the proliferation of images which, through their successive sequences, fragment perception, and as Baudrillard claims, give no time for the viewer to contemplate, as reaction time is maximally reduced. They have no time to think about 'not being there.' This can be read as a critical analysis of McLuhan's celebrated simultaneous happening of the 'global village,' consequently marking a deviation from post-war media theory.

²⁰⁶ Jean Baudrillard, *The Consumer Society: Myths and Structures*, rev. ed. (London: SAGE Publications Ltd, 1998), 33–34.

²⁰⁷ Baudrillard, *The Consumer Society*, 34.

²⁰⁸ Ibid.

The idea that the screen distances access to reality is also apparent in Virilio's writing. Although the screen brings into vision things beyond our reach and carries one's gaze across vast geographical expanses, it also sets up a means of viewing the world at a distance or what Virilio calls 'teleobservation.' Viewing at a distance, according to Virilio, has negative connotations as the observer has no immediate contact with the observed reality, and this absence of immediate perception can result in errors in interpretation.²⁰⁹ In 'Open Sky,' Virilio asks, "How can we rationally manage the split, not only between virtual and actual realities but, more to the point, between the apparent horizon and the transparent horizon of a screen that suddenly opens up a kind of temporal window for us to interact elsewhere, often a long way away."²¹⁰ The horizon of the screen replaces the horizon of real space, offering what Virilio coins as a 'real-time perspective.' Real-time sees events unfolding on the screen, preferencing an immediate field of view of the 'now,' where geographic location is irrelevant. Virilio argues that real-time results in the loss of spatial relationships, and the distancing of reality is falsified by immediacy itself. This loss of spatial relationships is also set up in 'Lost Dimension,' where Virilio describes the screen as an 'interface,' which is a kind of distance, a visibility that is 'devoid of spatial dimension' as there is no face-to-face encounter. Advancing Baudrillard's claim that the distancing between the world and its screen simulations fragments perception to the point where one does not have time to think about 'not being there,' Virilio says that distinctions of here and there, or near and far, no longer mean anything²¹¹ as the screen has collapsed space into time.

3.5 Screen Spaces: Real-Time over Real-Space

Virilio's era of paradoxical logic, where real-time dominates the thing presented, privileges the accident and surprise over the message,²¹² or, in other terms, to re-purpose McLuhan's axiom, the medium over the message. This perspective is shared by Baudrillard, who explains that earlier models of simulacra saw

²⁰⁹ Virilio, *Lost Dimension*, 31.

²¹⁰ Paul Virilio, *Open Sky*, trans. Julie Rose (London: Verso, 1997), 37.

²¹¹ Virilio, *Lost Dimension*, 13.

²¹² Virilio, *The Vision Machine*, 65.

representation as a mirror or reflection of reality. However, in the era of simulation, reality becomes subordinate to its representation, abolishing the equal distinction between medium and message. Baudrillard states that the saturation of messages neutralises content to the point where it becomes 'noise' or just pure effect without meaning – the implosion of the message in the medium. Adopting McLuhan's 'the medium is the message' dictum to articulate this theory, Baudrillard claims that each medium imposes itself as a message, and therefore, all content implodes into the medium: "it is no longer a question of imitation, nor duplication, nor even parody: It is a question of substituting the signs of the real for the real, that is to say of an operation of deterring every real process via its operational double."²¹³ From this perspective, it can be claimed that the screen gives material presence to this deterrence as it is the surface eroding the distinction between reality and its simulated representation. Driving McLuhan's theory to its limits, Baudrillard continues to argue that 'the medium is the message' not only signifies the end of the message but also the end of the medium itself: "There are no longer media in the literal sense of the term - that is to say, a power mediating between one reality and another, between one state of the real and another."²¹⁴ The implosion of the message in the medium, as well as the impossibility of mediation, presents, for Baudrillard, a complete takeover of reality by a single model whose efficacy generates the medium and the message all at once.²¹⁵

Virilio and Baudrillard's conceptions of reality generate specific effects on the subject. From Virilio's perspective, it is evident that the ability of vision machines to allow our eyes to see farther and faster results in a disembodied relationship with space. In a more radical approach, Baudrillard contends that technology completely absorbs the subject. In 'The Ecstasy of Communication,' Baudrillard proclaims that today, the scene and the mirror have been replaced by the screen and the network.²¹⁶ He defines the screen as the smooth and functional surface of

²¹³ Baudrillard, *Simulacra and Simulation*, 2.

²¹⁴ Jean Baudrillard, *In the Shadow of the Silent Majorities, or, the End of the Social, and Other Essays*, trans. Paul Foss, Paul Patton and John Johnston (New York, N.Y: Semiotext(e), 1983), 102.

²¹⁵ Baudrillard, *Simulacra and Simulation*, 82.

²¹⁶ Jean Baudrillard, *The Ecstasy of Communication*, ed. Sylvère Lotringer, trans. Bernard and Caroline Schutze (New York: Semiotext(e), 1988), 12.

communications where operations unfold and implicate the subject in the process. Described as 'the ecstasy of communication,' this relationship places the subject in proximity to the proliferation of instantaneous images and information on screens. As a consequence of this hyperreal technological experience, the subject "becomes a pure screen, a pure absorption and re-absorption surface of the influent networks."²¹⁷ This marks an inversion of McLuhan's theory of media as an extension of "man."²¹⁸ In Baudrillard's ecstasy of communication, the screen doesn't enhance human capabilities but rather absorbs the subject and involves them in the very apparatus and network of communication. As Baudrillard exclaims, there is no longer any separation as the subject is not in front of the screen but in the screen, "taken to the other side of the information setup."²¹⁹

The screen also reconfigures the subject's relationship with physical space. Virilio's thesis remains consistent throughout his writings, claiming that space is secondary to time. Describing this relationship as a shift from geography to dromography, he asserts that space is no longer geographical, and real-time has superseded real space. In this context, the geographical difference between being 'here' and 'there' or being 'inside' or 'outside' becomes irrelevant. The screen becomes the locus for this lost dimension of space and the disappearance of material space. In 'The Lost Dimension,' Virilio's largest body of work on this new televisual space, he describes that the "three dimensions of constructed space are translated into the two dimensions of a screen."²²⁰ Virilio further expands on this transition, from the materiality of architectural space to the immateriality of the screen, by describing that the cathode-ray screen has replaced the polis, agora, and forum.²²¹ The cathode-ray screen is what Virilio typifies as the 'third window' (the first window is the door, the second is the window itself, and the third is the screen), where "the new trellis of

²¹⁷ Baudrillard, *The Ecstasy of Communication*, 27.

²¹⁸ See Marshall McLuhan, *Understanding Media: The Extensions of Man* (New York: McGraw-Hill, 1964), 22-24.

²¹⁹ Jean Baudrillard, *The Perfect Crime*, trans. Chris Turner (London: Verso, 1996), 29.

²²⁰ Virilio, *Lost Dimension*, 73.

²²¹ Virilio, *Lost Dimension*, 19.

lines, 625 or 819 lines, of imperceptible subtlety, the pixel replaces the bolt and the rivet”²²² – a dematerialisation of architecture in the physical sense.

The effects of this dematerialisation are more noticeable, as highlighted by both Virilio and Baudrillard, on a scale familiar to us – that of the domestic. As the private home is “conceived of as a receiving and operating area, as a monitoring screen endowed with telematic power, that is to say, with the capacity to regulate everything by remote control,”²²³ distinctions between private and public, and interior and exterior are further blurred. Virilio, describing a TV screen as a “domestic telescope for seeing,” insists that these screen technologies keep subjects under “house arrest,” thereby exiling them from real space.²²⁴ This perspective is also shared by Baudrillard, who states that the multiplying presence of screens in a domestic context has transformed the home into a closed-off cell, a refuge that has produced an isolated and privatised subject, once again distanced from reality. For Baudrillard, this internalisation is exacerbated through screen simulations, where work, leisure, and social relations can be performed from the interior of the home, as “one could conceive of simulating leisure or vacation situations in the same way that flight is simulated for pilots.”²²⁵ An exterior condition is simulated in an internal environment through the screen. As Baudrillard states, the external world unfolds unnecessarily on your home screen.²²⁶ Screen simulations replace the formerly preserved dichotomies between public and private and interior and exterior.

3.6 Liveness: Spectacle Over the Real

In a postmodern mediascape, conversely, the most intimate and private operations of everyday life have the potential to be publicly displayed, and therefore, the private becomes exteriorised through the screen. Anticipating what we now recognise as social media, Virilio, in ‘The Information Bomb,’ writes about the overexposure of

²²² Virilio, *Lost Dimension*, 93.

²²³ Baudrillard, *The Ecstasy of Communications*, 16.

²²⁴ Paul Virilio, *A Landscape of Events*, trans. Julie Rose (Cambridge, Mass: MIT Press, 2000), 63.

²²⁵ Baudrillard, *The Ecstasy of Communications*, 17.

²²⁶ Baudrillard, *The Ecstasy of Communications*, 21.

private life to a virtual community and the emergence of universal voyeurism. He illustrated this with the example of an early live-cam pioneer, June Houston, who, in the mid-1990s, installed live-cams around her house, allowing users on the web to watch, in real-time, her domestic space for signs of ghosts. Similarly, Baudrillard uses the notion of 'reality TV,' specifically referring to the 1971 experimental TV series that filmed the Loud family for seven months, as an example to highlight this fascination for turning the once private into a public affair. Baudrillard argues that the illusion of filming is the most intriguing, as "if the TV weren't there" and the Loud family lived "as if we were not there," watching.²²⁷ The unscripted and unstaged nature of reality TV further obscures the fact that the viewer is actually watching a simulation. Moreover, through reality TV's play on the opposition of seeing and being seen, Baudrillard claims that the panoptic system has ended, heralding a system of deterrence in which the once clear distinctions between the passive and active and the observer and observed are abolished.

This impossibility of distinguishing between reality and its simulated representation, a consequence of the implication of the subject within the ecstasy of communication, results in a preference for the spectacle. The saturation of images and information on screens, ranging from the banality of everyday life, exemplified by the Loud family, to the more explicit content of postmodern warfare, pushes society to an ecstatic state typified by this overexposure. Consequently, there is a demand for wanting to see more – a preference for the spectacle. This is exemplified as Baudrillard observes that in a postmodern mediascape, "Everywhere we find 'cinema-verité,' live reporting. The newsflash, the high-impact photo, the eye-witness report, etc. Everywhere what is sought is the 'heart of the event,' the 'heart of the battle,' the 'live,' and the 'face to face' – the dizzy sense of a total presence at the event, the Great Thrill of Lived Reality."²²⁸ This is where 'liveness' becomes a tool to respond to the demand for the spectacle, for hyper-visibility of the event to make the viewer feel 'there,' creating an experience that seems too real for it not to be true, even though, in reality, we are still watching a simulation.

²²⁷ Baudrillard, *Simulacra and Simulation*, 28.

²²⁸ Baudrillard, *The Consumer Society*, 34.

The simulation that occurs on reality TV plays out in the greatest sense through live coverage and broadcasting of events. The notion of 'liveness,' an effect of the screen, is seen through Baudrillard's most controversial theory on postmodern warfare and its representation, as well as Virilio's observations on the convergence of military and cinematic technologies. Baudrillard begins by questioning the role of liveness in distorting our access to reality. He explains that although the effects of liveness make it seem that we are getting closer to the event through its on-the-ground 24/7 rolling coverage, the more the real is, in fact, "pursued with colour, depth and one technical improvement after the other."²²⁹ By this, he means that the consumption of events is produced through the technical manipulation of the screen, reducing events to signs or pseudo-events with no real experience or cultural and political value.

Similarly, Virilio argues that the representation of events through live coverage has outstripped reality. The spectacle of live events sees the image sway over the object and time over space.²³⁰ As direct vision is now a thing of the past, Virilio argues that the TV screen has transformed into the apparatus that allows everything to be seen and known at every moment and place. Consequently, the emergence of the screen horizon of indirect visibility has encouraged a 'live-coverage society' with no relation to the past or future, as they are implicated in the "intensely present here and there at once."²³¹ To translate these concepts, Virilio charts the advent of technologically driven warfare, emphasising that war has become cinematic. In simple terms, the effects of the screen, such as liveness, impart a cinematic characteristic to war, transforming its representation into a spectacle divorced from the real destruction of objects, bodies, and space. Virilio argues that by making war "intensive" through its instantaneous and mediated representation, these technologies of seeing have "reduced the format of violence to its simplest expression: an image."²³² The war of real objects and real space is replaced by the war of images and sounds, or what he terms an information war.

²²⁹ Baudrillard, *The Consumer Society*, 122.

²³⁰ Virilio, *War and Cinema: The Logistics of Perception*, 1.

²³¹ Virilio, *Open Sky*, 25.

²³² Virilio, *Landscape of Events*, 26.

Both Baudrillard and Virilio have commented extensively on the Gulf War in 1991 to expand on liveness. For Virilio, the Gulf War represented a turning point in history, calling it the last industrial and the first information war or the first electronic war in the form of live broadcasting. Identifying it as a new paradigm of warfare, he declared that alongside the military fronts of land, sea, and air, we are now seeing a fourth front: the power of information.²³³ Virilio draws attention to the spectacle of the Gulf War, describing it as a war that happened in two-dimensions, plus the third dimension of real-time. He continues to depict the war as one that was inseparable from the cathodic framing of the screen. Although the narrative of the war was framed by its live nature, it was too quick for it to be publicly analysed – “now you see it, now you don’t.”²³⁴ The Gulf War, according to Virilio, exemplified a paradoxical logic of perception. Real-time, which reduced and controlled the images of the war, substituted real-space.

While there is a consensus that liveness and real-time prevail over real-space, Baudrillard takes a more radical perspective on the war compared to Virilio, claiming that it did not happen. Operating as a journalist through his live commentary of the event, Baudrillard published a collection of three short essays in the French newspaper *Libération* between January and March 1991: ‘The Gulf War will not take place,’ published two weeks before the US air attacks on Baghdad (4 January); ‘The Gulf War: is it really taking place?,’ published in February during the events (6 February); and ‘The Gulf War did not take place,’ written after the end of the hostilities (28 February). The titles reflect Baudrillard’s argument that the atrocities of the war were masked by its media representation – a war that was masqueraded through simulacra. In ‘The Gulf War did not take place,’ Baudrillard asks, “...how is it that a real war did not generate real images?”²³⁵ He further argues that the Gulf War was a simulated war, one that only took place on the screen. When Baudrillard questions the absence of real images of the war, he also refers to the absence of the Iraqis in the live images of the war, as if they were electrocuted and surrendering to

²³³ Virilio, *Landscape of Events*, 21.

²³⁴ Virilio, *Landscape of Events*, 24.

²³⁵ Jean Baudrillard, *The Gulf War Did Not Take Place*, trans. Paul Patton (Bloomington: Indiana University Press, 1995), 82.

reportage.²³⁶ The absence of real images, Baudrillard describes, was replaced by a technological mystification of the grainy phosphor-green night-vision images of the first days of the attack – “a war of high technological concentration by poor definition”²³⁷ that made it difficult to distinguish between reality and its simulated representation. Baudrillard adds that this poor definition was intensified through the live nature of coverage, where the profusion of vague commentary transformed the event into pure speculation, to the point where Baudrillard coined it as a non-event. Liveness both gave birth to the event and witnessed its death on the screen.

3.7 Conclusion

Using Baudrillard and Virilio as an intellectual pairing throughout this chapter has resulted in a collection of thoughts and theories on the effects of the screen in a postmodern media context. Their theoretical alignments and misalignments produced a shift in discourse on the screen in the 1990s, where the screen became the locus to discuss the tension between reality and its simulated representation. As conscientious objectors, Baudrillard and Virilio’s theories highlight that the screen is not a neutral artifact; rather, its material, spatial, and mediating effects impact our conception of reality and, more importantly, of space. While Baudrillard’s theory of simulation as a complete take-over of reality differs from Virilio’s claim that in a postmodern media context, the screen constructs a substitute reality that deranges the logics of perception, their theories converge around three main effects of the screen: firstly, that access to the real is distanced by the screen; secondly, that the screen contributes to the lost dimension of space, where real-time takes over real-space; and thirdly, the technological and material mystification of ‘liveness’ gives rise to the spectacle over the event. Their theorisation of ‘live’ broadcasting of events through screen simulations, specifically the representation of modern warfare, is of particular interest to this thesis, as it provides a theoretical framework to elucidate a relationship between architecture, media, and conflict since the 1990s.

²³⁶ Baudrillard, *The Gulf War Did Not Take Place*, 67-68.

²³⁷ Baudrillard, *The Gulf War Did Not Take Place*, 44.

4.1 Introduction

This chapter uses the event case study of Cable News Network's (CNN) live coverage of the Gulf War in 1991 to translate and test the logic of Baudrillard and Virilio's postmodern media theories on the effects of the screen, with a focus on the effects of 'liveness' on the representation of modern warfare. CNN's live coverage of the Gulf War – the first 24-hour live reporting of a conflict in the world – saw CRT screens materialise real-time images of Baghdad with a grainy phosphor-green night-vision filter, making it difficult to distinguish between reality and its simulated representation of the city. It also saw the unfiltered, unscripted, and speculative format of 'liveness' conflate the medium and the message through the screen, further exemplifying Baudrillard and Virilio's claims regarding the screen as a distancing device. Here, real-time takes over real-space, and the technological and material mystification of liveness sees the spectacle prevail over the event.

With the aim of providing a more detailed account of the effects of liveness on representations of conflict and, by extension, the simulated representation of the city, the first 24-hours of CNN's coverage of the war has been watched and transcribed as source material for analysis. Excerpts from CNN's journalistic account, along with a study of the visual material of the coverage, will be used to highlight the consequences of liveness on our conception of reality and, more importantly, of space – in this case, our perception of the city of Baghdad through the screen. The chapter commences with a short introduction to the political context of the Gulf War, followed by a foregrounding of the journalistic consequences of 24-hour live reportage and concludes with a focus on the effects of the screen, prompted by Baudrillard and Virilio, through a detailed unpacking and analysis of CNN's live coverage.

4.2 Operation Desert Storm: Journalism History from the Al-Rashid Hotel

Midnight, 16 January, 1991, was the deadline issued by the United Nations Security Council for Iraq to withdraw from Kuwait. Iraqi forces had invaded Kuwait on 2 August, 1990, around 2 a.m. local time. The invasion resulted from various factors, including the controversy over Iraqi debt, with Kuwait insisting on repayment,²³⁸ Iraq's territorial claims over Kuwait, and accusations of oil theft.²³⁹ Iraq's overwhelming debt to the Gulf States resulted from the Iraq-Iran War of 1980-1988. During an interview with US politician Jesse Jackson, Tariq Aziz, Iraqi Deputy Prime Minister (1979-2003) and Foreign Minister (1983-1991), explained that the Gulf States initially supported Iraq's resistance against the Khomeini but were surprised by Kuwaiti's demand for repayment, initially perceived as financial aid.²⁴⁰ Furthermore, on 18 July, 1990, a number of reports presented accusations by Aziz that Kuwait "had stolen \$2.4 billion of Iraqi oil and had built military installations on Iraqi territory."²⁴¹ This provoked the chronic territorial claims Iraq made against Kuwait, presenting the invasion as an opportunity for Iraq to reclaim lost territory. Additionally, they believed the modern state of Iraq, defined by the League of Nations post-WWI, was deprived of a port on the Gulf. These justifications served as Iraq's rationale for the annexation of Kuwait.

Various news channels, including ABC, NBC, CBS, and CNN, attempted to deploy reporters to the potential war zone between Kuwait and Iraq. News executives emphasised that "getting there and getting pictures remained a top priority, if not the only priority."²⁴² The deadline imposed on Iraq was now shared with news organisations vying to be the first to cover the war from the front line. The quest to

²³⁸ Michael T. Klare, "Arms Transfers to Iran and Iraq during the Iran-Iraq War of 1980-88 and the Origins of the Gulf War," in *The Gulf War of 1991 Reconsidered*, eds. Efraim Inbar and Andrew J. Bacevich (London: Routledge, 2002), 5.

²³⁹ Klare, "Arms Transfers to Iran and Iraq during the Iran-Iraq War of 1980-88 and the Origins of the Gulf War," 14.

²⁴⁰ Milton Viorst, "Report from Baghdad," *The New Yorker*, June 24, 1991, <https://archives.newyorker.com/newyorker/1991-06-24/flipbook/054>.

²⁴¹ Hedrick Smith, *The Media and the Gulf War* (Washington, DC: Seven Locks Press, 1992), 424.

²⁴² Jeremy Gerard, "TV Reporting Recalls Radio Day," *The New York Times*, August 9, 1990, <https://www.nytimes.com/1990/08/09/arts/tv-reporting-recalls-radio-days.html?searchResultPosition=1>.

broadcast dominant accounts of the Gulf crisis was an onerous task. Reports presented doubts, stating that despite recent advances in video technology, “viewers will probably not be able to watch live scenes of front-line action.”²⁴³ These speculations were grounded in the news management and censorship rules imposed by the United States, Iraq, Saudi Arabia, Israel, and Great Britain.²⁴⁴ For example, the US military enforced journalists to travel and report in small ‘pools,’ accompanied by a public-affairs officer,²⁴⁵ with reports subject to screening by military censors before dissemination. This process inevitably delayed the time it took for the reporting to reach the public. These news management techniques not only fueled competition among news channels for dominant accounts but also posed a threat to reporting 24-hour live news from the front line, an achievement yet to be realised in journalistic history.

Pentagon officials made it clear that the Gulf War would not be covered like the Vietnam War, as many believed the media was a factor in the United States’ loss in that conflict. This sentiment was reinforced in President George H. W. Bush’s address to the nation when he proclaimed war against Iraq, stating, “I’ve told the American people before that this will not be another Vietnam, and I repeat this here tonight.”²⁴⁶ Coverage of the Vietnam War was uncensored, with journalists reporting liberally from within the conflict zone. In contrast, the Gulf War’s coverage cannot be directly compared due to technological advancements, including the debut of stealth technology, the use of GPS and advanced satellite surveillance systems, and a shift in the role of the journalist. The Vietnam War was the first to be televised, but satellite technology was still in the developmental stages.²⁴⁷ Coverage in Vietnam involved filming, and the films were then shipped to locations like Tokyo, where the

²⁴³ David Gonzalez, “American TV News Networks Prepare for War,” *The New York Times*, January 15, 1991, <https://www.nytimes.com/1991/01/15/arts/american-tv-news-networks-prepare-for-war.html?searchResultPosition=1>.

²⁴⁴ William Finnegan, “The Talk of the Town.”

²⁴⁵ Ibid.

²⁴⁶ “Text of Bush’s Address to Nation: ‘The World Could Wait No Longer.’” *Los Angeles Times*, January 17, 1991, <https://www.latimes.com/archives/la-xpm-1991-01-17-mn-463-story.html>.

²⁴⁷ Tom Shales, “The Day the Global Village Stood Still; TV & the Tension of the Talks,” *The Washington Post*, January 10, 1991, <https://www.washingtonpost.com/archive/lifestyle/1991/01/10/the-day-the-global-village-stood-still/e2cb25f1-e87d-4e40-9a50-8e01a48f2a32/>.

appropriate relay equipment was available, resulting in inevitable communication delays.²⁴⁸ This distinction in journalistic experience between the two conflicts is highlighted by the Gulf War's continuous live coverage. Furthermore, in an article in the Washington Post, communications academic Ted Smith recognises that the role of journalists has undergone a complete redefinition since the Vietnam War.²⁴⁹ Smith believes journalists now see themselves as "autonomous, neutral critics...not as servants of American democracy, but as servants of the truth in some wider sense."²⁵⁰ For this reason, adverse forms of reportage were more likely to be disseminated from the Gulf, with CNN specifically aiming to bring international issues into sharper focus on a global scale – or at least that was the intention.

As the deadline approached, it became evident that all the news networks involved were committed to providing 24-hour coverage of the war. Robert Lichter of the Center for Media and Public Affairs emphasised, "I think this is the biggest story in history for the networks."²⁵¹ Evidently, this event was an opportunity for news organisations to establish themselves. The intensification of coverage leading up to the war surpassed that of the Panama invasion of 1989-90,²⁵² and audiences expanded dramatically in anticipation of the war. CBS News spokesperson Tom Goodman stated that news networks were operating similarly to the Pentagon, strategising, and planning their course of action to secure the first accounts.²⁵³ Learning from preceding events, such as the uninterrupted 4-day-long CBS live coverage of the Kennedy assassination in 1963, it was known that live news coverage was what viewers desired. A day before war broke out, CNN's vice president for news, Ed Turner, distinguished CNN by stating, "...other networks are

²⁴⁸ Philip M. Seib, *Going Live: Getting the News Right in a Real-Time, Online World* (Lanham, Md: Rowman & Littlefields, 2001), 31.

²⁴⁹ E.J. Dionne Jr., "Mainstream Reporting and Middle East Extremities; What is Fair Reporting When it Comes to Saddam?," *The Washington Post*, September 1, 1990, <https://www.washingtonpost.com/archive/lifestyle/1990/09/01/mainstream-reporting-and-middle-east-extremities/7d0fdad6-f4dd-4acc-9d69-3024efacdd59/>.

²⁵⁰ Ibid.

²⁵¹ Howard Kurtz, "The Media, Mobilizing for Conflict," *The Washington Post*, January 16, 1991, <https://www.washingtonpost.com/archive/lifestyle/1991/01/16/the-media-mobilizing-for-conflict/40334e2e-f25d-418f-90de-f4b19f5a4c9d/>.

²⁵² Ibid.

²⁵³ Ibid.

in the entertainment business, and at some point, they have to return to normal programming. We just do one thing.”²⁵⁴ The emerging CNN, established in 1980, was determined to cover the story live on a 24-hour basis and, consequently, make media history.

Midnight on 16 January, 1991, loomed and passed quietly. The United Nations had permitted its member nations to exercise all necessary means to drive Iraqi troops out of Kuwait if they failed to adhere to the deadline. As Iraq did not withdraw from Kuwait, on 17 January, at 2:45 a.m. Baghdad local time, the United States coalition led a military intervention under the code name ‘Operation Desert Storm,’ marking the start of the Gulf War. CNN quickly gained dominance in covering the air raids over Baghdad, providing continuous live audio reports from the Al-Rashid Hotel in Baghdad (see Fig 4.1). Built in 1982 during the Iran-Iraq War as a symbol of Iraq’s stability, the 14-storey hotel was initially intended to host an international Non-Aligned Movement conference at the hotel. However, due to war damage, the conference was relocated to New Delhi. Subsequently, the hotel accommodated foreign press due to its proximity to the city centre. Its reputation was regained during the Gulf War as the CNN correspondents conducted their broadcasts from the hotel.

²⁵⁴ Ibid.

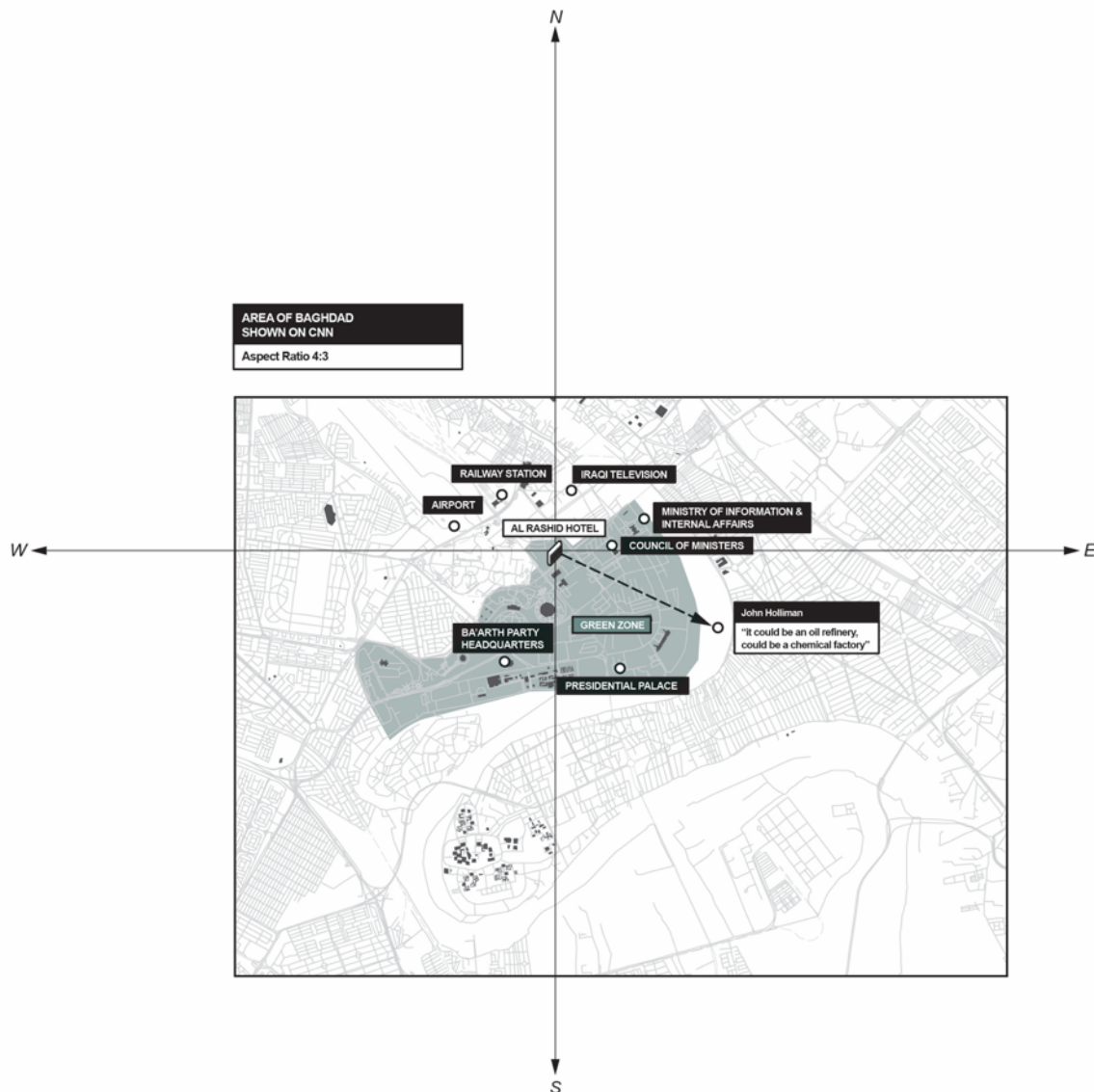


Fig 4.1 Situating Al-Rashid Hotel relative to CNN's area of coverage in Baghdad with specific attention drawn to the directionality and orientation of journalist John Holliman's speculative observation of smoke in the distance. Source: Drawing by Endriana Audisho (author) with assistance from Shuang Wu. Used with permission.

Reporting from the Al-Rashid hotel were CNN journalists Peter Arnett, Bernard Shaw, and John Holliman, accompanied by CNN producers and TV crew. Peter Arnett, a veteran war correspondent renowned for his reporting with the Associated Press in Saigon during the Vietnam War, brought invaluable experience to the team. Instantly labelled the 'Boys of Baghdad,' they made journalism history during the early hours of 17 January, 1991, while occupying the ninth floor of the hotel. Rival news channels, including ABC, NBC, and CBS, were also present at the hotel.

However, these networks faced a significant challenge – they couldn't report live from Baghdad as they relied on hotel phone lines that went dead as soon as war broke out.²⁵⁵ CNN, on the other hand, had the fortunate of being granted a four-wire phone line by the Iraqi Ministry of Information. This line, which operated independently of local systems and didn't require a switchboard, played a crucial role in providing uninterrupted communication.²⁵⁶ While Iraqi authorities confined all correspondents to the air-raid shelters in the basement of the Al-Rashid Hotel, CNN correspondents were allowed to remain on the ninth floor with the secured phone line.²⁵⁷ This privilege was reportedly a result of a key friendship that developed between CNN Producer Robert Weiner and the Iraqi Minister of Information, Naji al-Hadithi.²⁵⁸ The four-wire phone line, along with access to the hotel room during the war, became instrumental, especially in the initial days when coverage was primarily audio, accompanied by maps and diagrams of Baghdad instead of 'real' images of the conflict. The communication system and an exclusive vantage point within the hotel room played a pivotal role in defining journalism history.

4.3 "Something is Happening Outside:" Liveness as an Unfiltered, Unscripted, and Speculative Journalistic Format

Something is happening outside...

-Bernard Shaw, CNN Live, 16 January 1991

CNN did make journalism history. Its coverage of the Gulf War marked the first conflict to be broadcast live,²⁵⁹ presenting a global audience with real-time reports

²⁵⁵ Howard Kurtz, "On Television, Gunfire is Heard, But Not Seen," *The Washington Post*, January 17, 1991, <https://www.washingtonpost.com/archive/politics/1991/01/17/on-television-gunfire-is-heard-but-not-seen/ea2f6235-d298-48e3-a17f-59883c27aae0/>.

²⁵⁶ Edwin Diamond, "CNN's Triumph," *New York 24*, no. 4 (1991): 20.

²⁵⁷ Ibid.

²⁵⁸ Bill Carter, "'Baghdad' Looks Back and Ahead," *The New York Times*, November 18, 2002, <https://www.nytimes.com/2002/11/18/arts/baghdad-looks-back-and-ahead.html>.

²⁵⁹ This prominent moment in media history set the stage for live news coverage, as seen most prominently by the subsequent live helicopter footage of O.J. Simpson's car chase along the Los Angeles freeways on the 17th of June, 1994.

unfolding round the clock on television screens.²⁶⁰ CNN's Ed Turner was quick to state that news is dead if it is not delivered within the same time cycle.²⁶¹ Additionally, he pointed out that news must be continuously broadcast across all time zones to be considered 'live.'²⁶² While reporting 'live' was not a novel concept in the culture of journalism, the ground-breaking shift came with reporting both live and on a continuous 24-hour cycle. This shift transformed journalism, providing viewers worldwide with immediate updates at any time and at the same time – establishing a true global village. Throughout the initial 24 hours of coverage, the prominence of this moment in media history was highlighted by the constant reminder to viewers that the reporting was live. Arnett observed, "it's pretty unique in journalistic history to have a front row seat to one of the great air bombardments in history."²⁶³ The reference to the front-row seat was directed at the audience too. For instance, six and a half hours into the coverage, Susan Rock of CNN Centre in Atlanta pointed out, "...we are seeing this video as you are seeing this video. We are not able to edit it. We are bringing it to you as soon as it is fed in because we feel it is important that you see it immediately."²⁶⁴ This first-hand account positioned the audience with the correspondents, creating a sense that they were experiencing the effects in real-time, as if they were in the room. This exclusivity and alignment between reporter and viewer, sharing the same experience simultaneously with 'front-row seats,' had an instant appeal to the public. The need for constant sensation and rolling news became an integral part of contemporary consumer culture.²⁶⁵

Marking a significant advancement in journalism, CNN's 24-hour live coverage of the Gulf War foregrounded two major journalistic consequences of liveness. Firstly, live

²⁶⁰ Ingrid Formanek, "Operation Desert Storm: 25 years on," *CNN*, January 19, 2016, <https://edition.cnn.com/2016/01/19/middleeast/operation-desert-storm-25-years-later/index.html>.

²⁶¹ Roxanne Roberts, "CNN, On Top of the World," *The Washington Post*, August 1, 1990, <https://www.washingtonpost.com/archive/lifestyle/1990/08/21/cnn-on-top-of-the-world/3058d858-af45-40bc-9a32-586c811b4376/>.

²⁶² *Ibid.*

²⁶³ HDiNDEMAND, "Operation Desert Storm - CNN Live News Coverage - Part 2," YouTube Video, 1:42:49, <https://www.youtube.com/watch?v=7dv7aCudtHk>.

²⁶⁴ HDiNDEMAND, "Operation Desert Storm - CNN Live News Coverage - Part 4," YouTube Video, 1:27:33, <https://www.youtube.com/watch?v=5X-AqZkg10g>.

²⁶⁵ Stephen Cushion and Justin Lewis, *The Rise of 24-Hour News Television: Global Perspectives* (New York: Peter Lang, 2010), 3.

reporting evades traditional editorial processes, resulting in an unfiltered and unscripted format. The second shift of live reporting raises questions regarding objectivity, as the journalist transforms into an eyewitness. As noted by Stephen Cushion and Justin Lewis note, journalists become "...almost like witnesses at the scene of an accident, caught up 'in the action' and forced to speculate on what they could see and relate back to audiences."²⁶⁶ The 'speculative' eyewitness accounts contribute to the unfiltered and unscripted format of liveness. In contrast to Susan Sontag's description of a photographer as "an armed version of the solitary walker reconnoitring, stalking, cruising the urban inferno, the voyeuristic stroller who discovers the city,"²⁶⁷ CNN's correspondents, in this case, were limited to eyewitnessing from the hotel room. The inevitable first-person storytelling associated with 24-hour live reporting from the confines of the hotel room suddenly conflicted with the discipline of objectivity that underpins journalism. The lack of traditional editorial processes, crossed with the eyewitness accounts from the hotel room, presented liveness as an unfiltered, unscripted, and speculative journalistic format.

The first-person storytelling was further complicated because the CNN correspondents, or rather eyewitnesses, were reporting from a conflict zone. The fear attached to reporting from the front-line exposed tension between 'objective' reporting and more subjective, descriptive, and conversational commentary between Arnett, Holliman, and Shaw. For example, when describing the first waves of attacks, Shaw exclaimed, "It has been one hell of a night... When the bombs fell and exploded, it shook you to your soul."²⁶⁸ Nervous jokes were made between the more serious reports describing attacks on the city. Holliman explained that Shaw went down to the hotel's lower floor, which is safer, but "...we like the view higher up,"²⁶⁹ he joked. The split second of laughter disappeared as Holliman returned to reporting, "it's very quiet outside right now, there are a few cars speeding down the main drag

²⁶⁶ Cushion and Lewis, *The Rise of 24-Hour News Television*, 18.

²⁶⁷ Susan Sontag, *On Photography* (New York: Farrar, Straus and Giroux, 1977), 43.

²⁶⁸ HDiNDEMAND, "Operation Desert Storm - CNN Live News Coverage - Part 3," YouTube Video, 15:13, <https://www.youtube.com/watch?v=1DFuV13Z4IQ>.

²⁶⁹ HDiNDEMAND, "Operation Desert Storm - CNN Live News Coverage - Part 1," YouTube Video, 35:49, https://www.youtube.com/watch?v=vn8mfg_oEz4.

of Baghdad in front of our hotel, but there is no more anti-aircraft fire.”²⁷⁰ At a subsequent moment, Shaw began to describe the eerie silence over Baghdad, “The sky over Baghdad is black... There is a cool breeze blowing through the window here, and we are sweating in more ways than one”²⁷¹ then he suddenly juxtaposes this account with, “...it occurs to me that I didn’t get dinner tonight [laughs]”²⁷² to which Arnett responds, “We have tuna fish, crackers and water.”²⁷³ This tension between reports on the conditions of a city in conflict versus the more subjective commentary describing the correspondent’s personal experiences is a clear consequence of having to report both live and on a continuous 24-hour cycle – not every minute could be dedicated to reporting on the conditions of the conflict.

The unfiltered, unscripted, and speculative nature of live reporting was also exacerbated by the fact that CNN’s correspondents were eyewitnessing from the Al Rashid Hotel when air strikes hit Baghdad on 16 January, 1991. This became a highly spatial operation. While the hotel offered prime real estate, providing an exclusive view over the city, its location and the surrounding skyscape affected the ability to report. Eight hours into the coverage, at approximately 2.30 a.m. EST on 17 January, Holliman looked outside an eastern-facing window to report on a cloud of smoke in the distance. He speculatively observed, “it could be an oil refinery, could be a chemical factory.”²⁷⁴ Due to the distant location from the hotel, Holliman could not specify the target but instead described the characteristics of the smoke, “1/4-mile-wide cloud of smoke.”²⁷⁵ This ambiguity in the reporting blurs dichotomies of closeness and distance and near and far. Holliman, situated in Baghdad, was reporting up close but from a distance due to his confinement in the hotel. His audio reportage suggests he was positioned near the attack, but the inability to be specific about the target exposes the distanced vision from the hotel. This commentary is

²⁷⁰ HDiNDEMAND, “Operation Desert Storm - CNN Live News Coverage - Part 1,” 35:53.

²⁷¹ HDiNDEMAND, “Operation Desert Storm - CNN Live News Coverage - Part 1,” 56:43.

²⁷² HDiNDEMAND, “Operation Desert Storm - CNN Live News Coverage - Part 1,” 57:20.

²⁷³ HDiNDEMAND, “Operation Desert Storm - CNN Live News Coverage - Part 1,” 57:27.

²⁷⁴ HDiNDEMAND, “Operation Desert Storm - CNN Live News Coverage - Part 5,” YouTube Video, 1:19:25, https://www.youtube.com/watch?v=G_AGqikQ4wg.

²⁷⁵ Ibid.

speculative as the Baghdad correspondents were forced to report first-hand accounts of what they could see and hear as a consequence of liveness.

When asked about the hotel, Arnett described it as a cocoon, “we can report to you basically what we can see from this hotel... we can actually see a lot, but we can’t look south of the border of Kuwait or Saudi Arabia, so we can’t help you on any operations that may be happening beyond the horizon.”²⁷⁶ The hotel, elongated in proportion, has a north-south orientation with east and west-facing windows, consequently limiting views to the south. Any attack outside the immediate centre could only be speculated on. The immediate skyscape around the hotel also impacted the ability to report clearly. Almost six hours into the coverage, Holliman reported that less than a quarter of a mile away, “there is a huge cloud of white smoke pouring out of a side of a building... it has made it very difficult for us to see outside of our windows.”²⁷⁷ The quality of reportage was, therefore, also determined by the air quality surrounding the hotel. The horizon of the sky was the extent of their viewing plane, and observation became relative to this datum as well as the transparency of the immediate skyscape. Any obstruction to the viewing plane, in this case, via smoke, caused speculative reportage.

Adding to the speculation was the inadequate lighting conditions within the hotel room’s interior and over the city, “lights are going out over the city now”²⁷⁸ as electricity and power were lost.²⁷⁹ The outside explosions were the only form of illumination at night,²⁸⁰ which was reflected in their commentary, “skies lit up again... looks like a million fireflies”²⁸¹ or “the sky is lighting up to the south... we can only presume that there is another attack coming in.”²⁸² Inadequate lighting conditions and the inability to view up close saw the hotel room, once functioning as a temporal form of domesticity, lose its programmatic attachment as it became a generic interior

²⁷⁶ HDiNDEMAND, “Operation Desert Storm - CNN Live News Coverage - Part 7,” YouTube Video, 1:12:44, <https://www.youtube.com/watch?v=21u1bZdqqwc>.

²⁷⁷ HDiNDEMAND, “Operation Desert Storm - CNN Live News Coverage - Part 4,” 36:24.

²⁷⁸ HDiNDEMAND, “Operation Desert Storm - CNN Live News Coverage - Part 1,” 10:18.

²⁷⁹ Andrew Hoskins, *Televising War: From Vietnam to Iraq* (London: Continuum, 2004), 32.

²⁸⁰ Ibid.

²⁸¹ HDiNDEMAND, “Operation Desert Storm - CNN Live News Coverage - Part 1,” 1:14:32.

²⁸² HDiNDEMAND, “Operation Desert Storm - CNN Live News Coverage - Part 1,” 19:49.

that had to be navigated spatially in order to describe an external condition. The interior of the hotel and its archetypes became the reporting instruments (see Fig 4.2). The 1.2m high by 3.8m wide strip window, from which to be an eyewitness, the 4m by 7.5m room that operated as a quasi-broadcasting station, and the 2.5m wide corridor that enabled the correspondents to navigate to other orientations and panoramas of the city became the very instruments that mediated the frame of the screen between the interior of the room and the city of Baghdad.

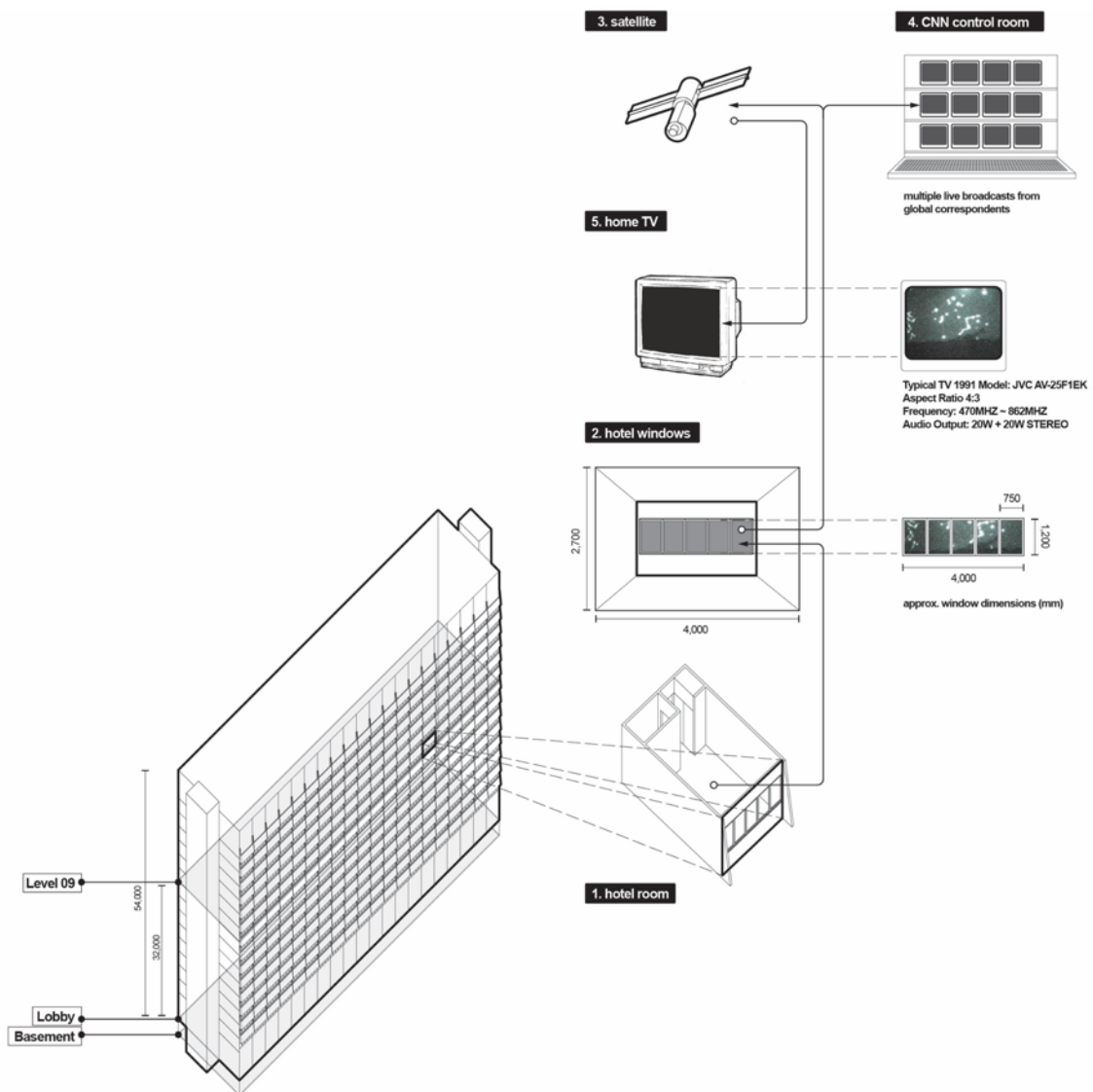


Fig 4.2 Visualising the physical (Al-Rashid Hotel room, and respective window) and technical (control room, satellite, and CRT) instruments of reporting to uncover the spatiality and layers of mediation behind CNN's coverage. Source: Drawing by Endriana Audisho (author) with assistance from Shuang Wu. Used with permission.

The reliance on the spatial elements of the hotel room to simulate some sense of 'ground-truthing' can be demonstrated through their constant reference to the architecture in the commentary (see Fig 4.3). For example, two minutes into the coverage at 6:41 p.m. EST, Holliman states, "we're going over to the [hotel room] window now to see what we can see,"²⁸³ followed by, "I'm getting away from the window here now,"²⁸⁴ as crackling sounds disrupted the audio reportage. The corridor, traditionally defined as a passageway connecting two spaces, usually two interior rooms, facilitated the movement from one viewing window to the other. For instance, Shaw remarked, "I'm going to crawl [via the corridor] to the other side of the hotel."²⁸⁵ At a subsequent point, Holliman said, "I'm going to get a longer microphone cord so I can travel more distance through this place and give you a better outlook from all sides of the hotel."²⁸⁶ By outlook, he meant audio coverage, as the microphone was held outside the window. As a result, the reporting became relative to the hotel, "we don't know how much of the city has been targeted, but nothing near the hotel."²⁸⁷ The extent of the building boundary was used to survey as much of the viewing plane surrounding the hotel as possible, with Holliman at one point looking out of the west side and directing Arnett to go over to the east side. In other cases, where it became unsafe to approach the window, Shaw explained to the viewers, "to paint the picture for you of where we are physically right now, we are in the hall, on the floor, and we can look at open hotel doors to see either side [of the hotel], and it is suddenly fallen quiet again over the skies of Baghdad."²⁸⁸

²⁸³ HDiNDEMAND, "Operation Desert Storm - CNN Live News Coverage - Part 1," 2:20.

²⁸⁴ HDiNDEMAND, "Operation Desert Storm - CNN Live News Coverage - Part 1," 3:18.

²⁸⁵ HDiNDEMAND, "Operation Desert Storm - CNN Live News Coverage - Part 1," 1:17:53.

²⁸⁶ HDiNDEMAND, "Operation Desert Storm - CNN Live News Coverage - Part 5," 51:32.

²⁸⁷ HDiNDEMAND, "Operation Desert Storm - CNN Live News Coverage - Part 1," 26:05.

²⁸⁸ HDiNDEMAND, "Operation Desert Storm - CNN Live News Coverage - Part 1," 1:44:28.

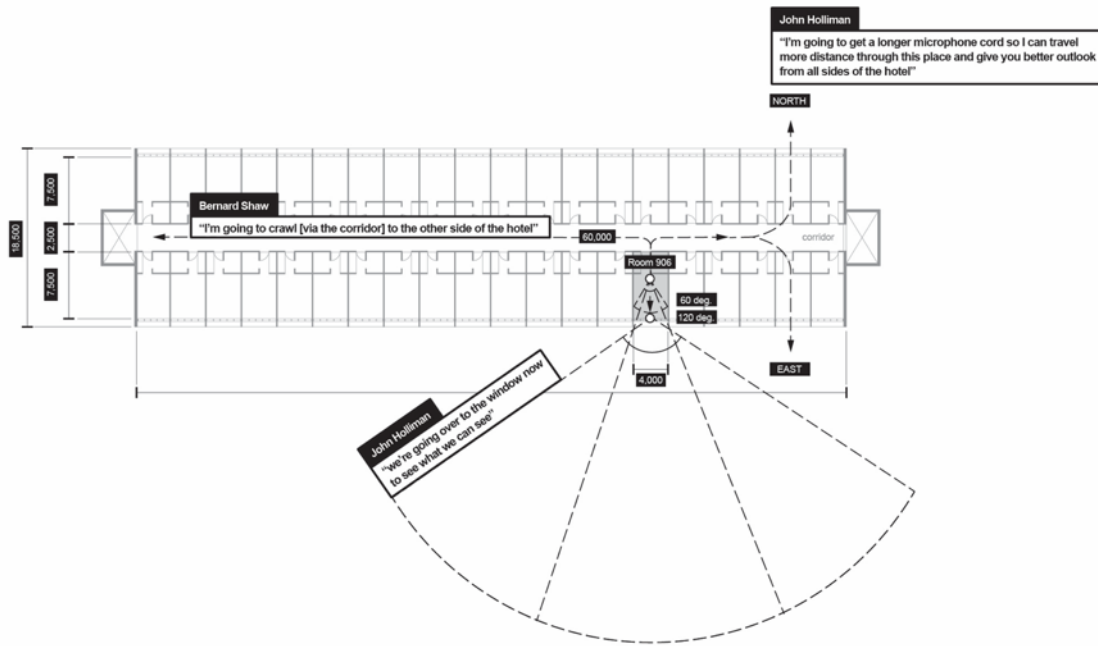


Fig 4.3 A hybrid drawing superimposing CNN correspondents' commentary relative to their reporting locations from Level 9 of the Al-Rashid Hotel. This aims to translate and make visible the constrained spatial operation involved in reporting from the hotel and from a distance. Source: Drawing by Endriana Audisho (author) with assistance from Shuang Wu. Used with permission.

The confined nature of the reporting, a consequence of the spatial constraints and inability to see afar, resulted in a speculative format, as the correspondents were physically constrained from reporting up close. The statement voiced by CNN correspondent Bernard Shaw on 16 January, 1991, the first night of the conflict, is representative of the unfiltered, unscripted, and speculative format of live reportage. Although the statement constructs a spatial relationship by drawing an immediate visual connection between the interior of the hotel and the city of Baghdad, stating that “something is happening outside”²⁸⁹ suggests a speculative and disembodied engagement that anticipates the real. While the nature of a foreign correspondent in the traditional sense would typically involve confirming something through first-hand observation and measurement on-site, or what is formally referred to as ground-truthing, the CNN correspondents impulsively navigated both their actions and words

²⁸⁹ Howard Kurtz, “Bernard Shaw, Under Siege,” *The Washington Post*, January 22, 1991, <https://www.washingtonpost.com/archive/lifestyle/1991/01/22/bernard-shaw-under-siege/339c65c3-ff26-41fa-9ffe-8b274aae2fb0/>.

from the hotel room – waiting for something to happen. Something was indeed happening – viewers, seduced by the spectacle of liveness, of ‘being there’ at any time, all the time, were, in fact, unconsciously witnessing an unscripted, unfiltered, and speculative report of the Gulf War unfolding on their TV screens.

4.4 CNN’s Speculative Coverage Is Both the Medium and the Message

In addition to the journalistic effects of liveness, which were enhanced by the spatial constraints of the hotel, the fragmented medium of the first 24 hours of CNN’s live coverage via the screen also had consequences on the message. This was evident from the start of the coverage. Within the first three minutes of the footage, CNN’s Washington correspondent, David French, stated, “We’re going to Baghdad now because we can.”²⁹⁰ Connection to Baghdad was lost, and the conversation was redirected back to the Pentagon with CNN correspondent Wolf Blitzer. After a few seconds, Holliman came in from Baghdad, “Hello Atlanta. Atlanta, this is Holliman. I don’t know whether you can hear me or not... I’m going to try to talk to you as long as I can,”²⁹¹ and Blitzer was cut before he could string a sentence together. The time in Baghdad was 2:40 a.m. on the 17th of January, 1991, and Holliman was reporting on what was shortly identified as the start of the air raids over Baghdad. Holliman continued, “...we’re going over to the window now to see what we can see...perhaps you can hear the sound of the bombs in the background,”²⁹² and put the microphone outside the window. A crackling sound was heard for roughly 25 seconds, all while an image of Holliman was overlaid on a map of Iraq. The portrait of Holliman superimposed on the map mismatched the audio coverage. The viewer was left to visualise the reportage of the conflict and the city of Baghdad through the audio narration.

Committing to 24-hour live coverage was supported by a communication infrastructure that was of military scale itself (see Fig 4.4). CNN’s reportage was

²⁹⁰ HDiNDEMAND, “Operation Desert Storm - CNN Live News Coverage - Part 1,” 0:44.

²⁹¹ HDiNDEMAND, “Operation Desert Storm - CNN Live News Coverage - Part 1,” 1:09.

²⁹² HDiNDEMAND, “Operation Desert Storm - CNN Live News Coverage - Part 1,” 2:22.

anchored around the action happening in Baghdad, and any loss of connection would result in a re-connection and re-direction of conversation to another CNN correspondent in another city. Within the first 24 hours of coverage, there were approximately 19 CNN correspondent locations²⁹³ and an additional 50 members of the military, political experts, government officials, or members of the public who were interviewed in between the CNN reports to fill in the lengthy nature of rolling news. The constant switching “from place to place, from correspondent to correspondent”²⁹⁴ did generate excitement, but the novelty faded after the first few hours.

²⁹³ Including but not limited to Baghdad, Washington D.C., Dhahran, Riyadh, Jerusalem, Amman, New York, Norfolk, San Diego, Independence, Atlanta, Ankara, Tel Aviv, London, Tokyo, Los Angeles, Moscow, San Francisco, and Hampton.

²⁹⁴ Walter Goodman, “WAR IN THE GULF: TV CRITIC’S NOTEBOOK; On Television, the Theater of War,” *The New York Times*, January 17, 1991, <https://www.nytimes.com/1991/01/17/world/war-in-the-gulf-tv-critic-s-notebook-on-television-the-theater-of-war.html>.

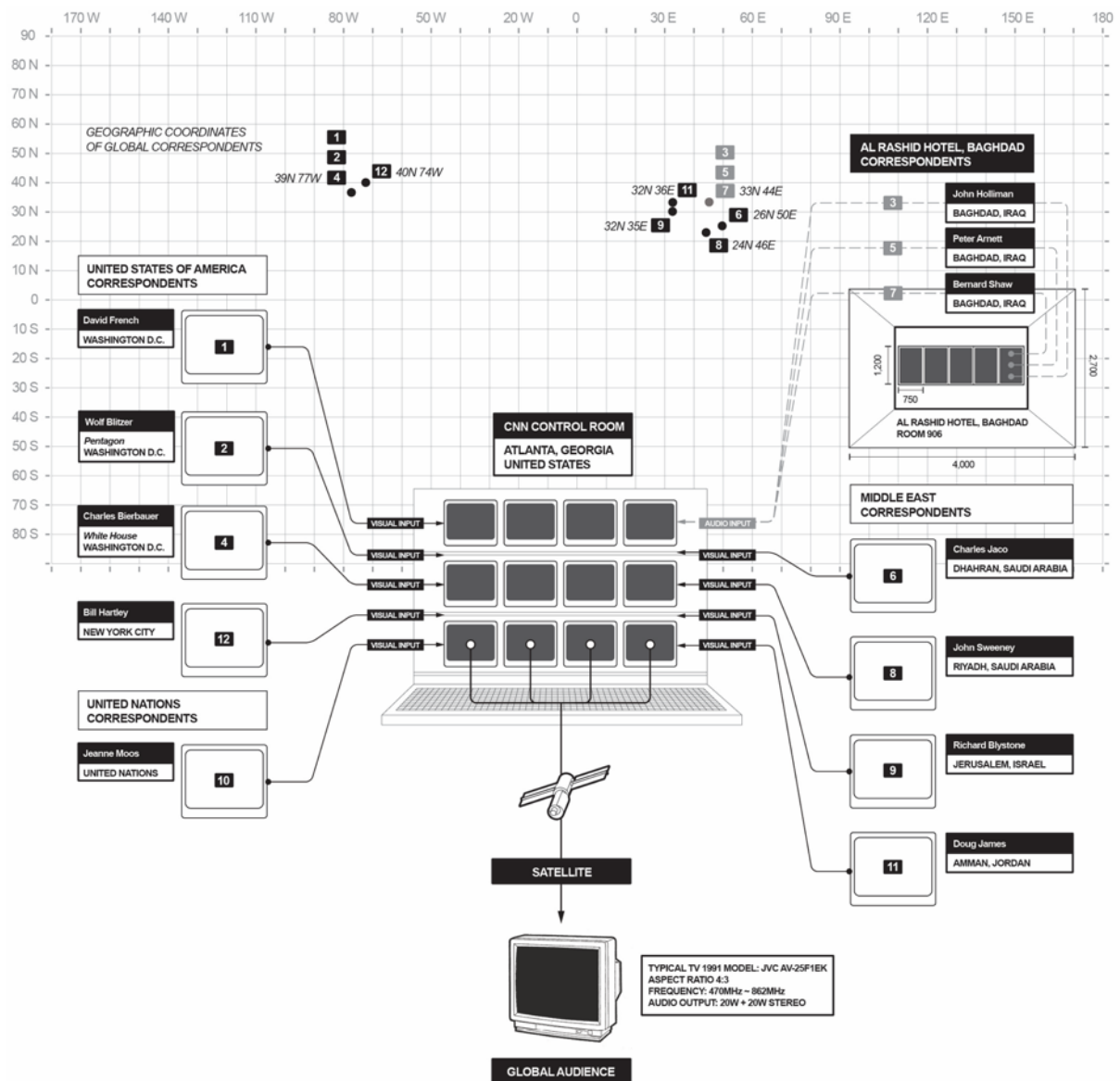


Fig 4.4 Visualising the global network of screens, corresponding locations, and audience to showcase the large-scale communication infrastructure supporting CNN's 24-hour live coverage of the Gulf War. Source: Drawing by Endriana Audisho (author) with assistance from Shuang Wu. Used with permission.

As new information came in and coverage was re-directed, the fast transition between correspondents exacerbated the fragmented medium and message. For example, 40 minutes into the coverage, Shaw explained why the hotel staff asked them to leave the room when he was abruptly cut off by French in Washington D.C., who re-directed the coverage to Charles Jaco in Dhahran, Saudi Arabia. Roughly 26 seconds later, the connection was lost with Jaco, and his report was interrupted with a black and white grainy screen, a familiar symbol of having lost signal. No

substantial piece of news was presented within the period of that rough transition between Baghdad, Washington, and Dhahran. The discontinuity in content was further intensified with the sudden insertion of random satellite footage as it came in. This footage was not edited, nor did it have an explanatory audio commentary – it simply operated autonomously from the preceding report.²⁹⁵ The first unedited pool video was broadcast late into the night, around 6 hours into the war. The pool video started playing, and Holliman, unaware of this, continued to report, “...but anyway, here in Baghdad, the hotel is coming back to normal.”²⁹⁶ After almost one minute of overlapping audio and visuals, CNN Centre’s anchor, Patrick Greenlaw, interrupted Holliman to clarify to the audience that they were looking at pool video of an air force base in Saudi Arabia, which was shot before the attacks. Once again, the misalignment of audio and visual added to the fragmented nature of the medium and message.

Even though CNN’s 24-hour live coverage of the Gulf War presented a fragmented medium and message, this approach was symptomatic of a broader shift in journalistic practices during the 1980s and 1990s. John Caldwell explains that style became a re-theorised subject during this aesthetic and presentational shift that television underwent in the 1990s.²⁹⁷ He highlights that television style at this time “challenged existing formal and presentation hierarchies”²⁹⁸ through a “structural inversion between narrative and discourse, form and content, subject and style.”²⁹⁹ Accordingly, liveness, compared to the well-polished news reports of the nightly network channels,³⁰⁰ presented itself as a disorganised medium and message. CNN’s fragmented medium and message of the Gulf War are representative of this structural inversion. CNN developed an aesthetic agenda, or what Caldwell calls televisual exhibitionism, through “an appreciation for multiple electronic feeds,

²⁹⁵ Hoskins, *Televising War: From Vietnam to Iraq*, 24.

²⁹⁶ HDiNDEMAND, “Operation Desert Storm - CNN Live News Coverage - Part 4,” 57:16.

²⁹⁷ John T. Caldwell, *Televisuality: Style, Crisis, and Authority in American Television* (New Brunswick, NJ: Rutgers University Press, 202), 4-5.

²⁹⁸ Caldwell, *Televisuality: Style, Crisis, and Authority in American Television*, 6.

²⁹⁹ Ibid.

³⁰⁰ Stephen Cushion, “Three Phases of 24-Hour News Television,” in *The Rise of 24-Hour News Television: Global Perspectives*, eds. Stephen Cushion and Justin Lewis (New York: Peter Lang, 2010), 17-18.

image-text combinations, videographics, and studios with banks of monitors that evoked video installations.”³⁰¹ As a result, the global audience tuned into reports from multiple perspectives and locations as they were fed simultaneous, often clashing, layers of information on the screen. This televisual exhibitionism, across multiple scales, defined not only the war's spatiality but also the message. Structural inversion through the constant switching between graphics, maps, and audio across multiple locations was a symptom of liveness that dissolved any clear distinction between medium and message – the effects of liveness, through the medium, is the message the audience received.

4.5 Screen Distance: “We’re Going to Baghdad Now Because We Can”

On the one hand, CNN’s fragmented medium and message was ground-breaking as it challenged traditional forms of reporting through its structural inversion and brought into vision things beyond the global audience reach. However, it also set up a means of viewing the conflict and the city of Baghdad at a distance. CNN’s opening line, “we’re going to Baghdad now because we can,”³⁰² set up a deceptive proposition. The correspondents were, in fact, in Baghdad, but their reportage, void of any ‘real’ images from the war in the first few days, was accompanied by graphics and maps that predated the start of the conflict. The phosphor-green night-vision video clips and images of Baghdad, which became iconic representations of the Gulf War, were transmitted a few days after the start of the war.³⁰³ This delay countered the notion of immediacy attached to liveness and resulted in the ‘image’ of the war and the city of Baghdad being framed through a montage of abstract representations on the screens of the audience. Although the screen brings into vision things beyond our reach and carries one’s gaze across vast geographical expanses, in this case bringing Baghdad into the homes of a global audience, it also sets up a means of viewing the world at a distance or what Virilio calls teleobservation.

³⁰¹ Caldwell, *Televisuality: Style, Crisis, and Authority in American Television*, 13.

³⁰² HDINDEMAND, “Operation Desert Storm - CNN Live News Coverage - Part 1,” 0:44.

³⁰³ Hoskins, *Televising War: From Vietnam to Iraq*, 24.

Distance via the screen was a consequence of the absence of images, which, as previously mentioned, saw the coverage constrained to broken live audio and a transposition between the 19 CNN correspondent locations, television studios, vague maps, and diagrams of Baghdad, as well as the inclusion of unedited pool videos.³⁰⁴ The maps were of a scale that discouraged detail and became sterile representations of the audio commentary. This is because the space of the war was presented at two scales: one that highlighted Iraq and its neighbouring states, and the second one zoomed into downtown Baghdad to locate a key point in the city, including the Al-Rashid Hotel, Saddam International Airport, Ministry of Information and Internal Affairs, Council of Ministers, Baath Party Headquarters, Presidential Palace, International Communications Center and Baghdad Central Railway Station. The maps changed colour or switched from satellite view to illustrative diagrams, but the city was only represented in this abstract scale. There is an obvious security risk posed when providing details of a city under conflict, but these maps, in addition to the multiple electronic feeds and image-text combinations, which misaligned with the audio coverage and operated as placeholders to fill in visual gaps and as decoys to the real images of the conflict, framed the city of Baghdad at a distance. The consumption of the conflict and Baghdad was, therefore, as Baudrillard explains, “distanced by the communication medium and reduced to signs.”³⁰⁵

Viewing the conflict and the city of Baghdad at a distance via the screen, where the message has been reduced to signs, poses political implications as our relationship to the event is constructed through what Baudrillard has theorised as simulation. As discussed in the previous chapter, simulation is to be understood in Baudrillardian terms as the copy of a real without the origin.³⁰⁶ Simulation differs from representation as it substitutes the signs of the real for the real, while representation is an attempt to be the equivalent of the real.³⁰⁷ Simulation collapses the relationship

³⁰⁴ The pool press, which refers to a group of journalists who share their resources in the collection of news, was accompanied by US military officials during the Gulf War.

³⁰⁵ Jean Baudrillard, *The Consumer Society: Myths and Structures*, rev. ed. (London: SAGE Publications Ltd, 1998), 33-34.

³⁰⁶ Jean Baudrillard, *Simulacra and Simulation*, trans. Sheila Glaser (Ann Arbor, MI: University of Michigan Press, 1994), 1.

³⁰⁷ Baudrillard, *Simulacra and Simulation*, 2-4.

between reality and representation as the copy replaces the original, constructing a hyperreality.³⁰⁸ In 'The Gulf War did not take Place,' Baudrillard explains that viewers watching the live coverage were consuming "trickery, hyperreality, simulacra... an entire strategy of deterrence in anticipation of the real by the virtual."³⁰⁹ This has spatial ramifications as simulation no longer takes place in physical space but is consumed at a distance through the medium of the screen.

The anticipation of the real by the virtual makes it difficult to distinguish reality from its simulated representation. This is further exemplified as Baudrillard rhetorically asks, "when we look at images of the world, who can distinguish this brief irruption of reality from the profound pleasure of not being there?"³¹⁰ This distancing is exacerbated by the proliferation of images which, through their successive sequences, fragment perception and, as Baudrillard claims, give no time for the viewer to contemplate, as reaction time is maximally reduced. Viewers have no time to think about 'not being there.' CNN's fragmented medium and message, through its constant switching between content, did just that – it did not give viewers time to think about 'not being there' as access to the realities of the conflict was distanced through the effects of liveness on the screen. Another way to unpack this concept is through Mark Dorrian's notion of transcoded indexicality. Dorrian, who uses former United States Secretary of State Colin Powell's press-conference during the 2003 Iraq War as a case study, explores how the broadcast images of the 2003 Iraq War were "hidden under annotation, the 'evidence,' as it were, being covered up by the graphic screen."³¹¹ The equivalent of the annotations in the context of CNN's coverage of the Gulf War is the transposition between the live audio and vague diagrams and maps of Baghdad, which construct the 'graphic screen.' This form of representation implies that interpretation, rather than the object itself, is delivered as evidence. CNN's simulated coverage of the Gulf War compensates for its lack of visual evidence and, therefore, acts as a deterrence to the real image of the event

³⁰⁸ Baudrillard, *Simulacra and Simulation*, 1.

³⁰⁹ Jean Baudrillard, *The Gulf War Did Not Take Place*, trans. Paul Patton (Bloomington: Indiana University Press, 1995), 67.

³¹⁰ Ibid.

³¹¹ Mark Dorrian, "Transcoded Indexicality," *Log*, no. 12 (2008): 107.

via its double.³¹² This inherently implies that there is no political objective as interpretation dominates the evidential in a live format. Interpretation dominates as real-time presents simulations of all possible futures,³¹³ collapsing the present and future and not allowing time to reflect on the presented evidence. This claim is pushed to its limits as Baudrillard speculates that all evidence was hidden in the Gulf War and, therefore, TV functioned as a medium without a message,³¹⁴ a pure screen that distanced viewers through simulation.

4.6 Real-Time Over Real-Space: “Now You See It, Now You Don’t”

As the TV screen distanced viewers through simulation, the viewer was subjected to the effects of real-time. Real-time has an underlying political problem as simulations of all possible futures are presented.³¹⁵ This differs from historical time, which is “predicated on technical regimes and gestures that continually related present and future to the past [. . .] real-time is the time of statistical thought, in which futures knowable and unknowable are posed simultaneously.”³¹⁶ The speculation and uncertainty attached to real-time information, as Baudrillard claims, “invades our screens” and “loses itself in a completely unreal space, finally furnishing the images of pure, useless, instantaneous television where its primordial function irrupts, namely that of filling a vacuum, blocking up the screen hole through which escapes the substance of events.”³¹⁷ In short, Baudrillard asserts that real-time, as seen through CNN’s coverage of the Gulf War, transforms the physical or ‘real’ war into one of interminable speculation, where viewers are only left with symptomatic readings of the effects of liveness unfolding on their screens.

The effects of real-time on real-space in the Gulf War are also heavily explored by Virilio, who has observed that the merging of military and cinematic technologies has

³¹² Baudrillard, *Simulacra and Simulation*, 2.

³¹³ John May, “Afterword: Architecture in Real Time,” in *Design Technics: Archaeologies of Architectural Practice*, eds. by Alexander Zeynep Çelik and John May (Minneapolis: University of Minnesota Press, 2020), 230.

³¹⁴ Baudrillard, *The Gulf War Did Not Take Place*, 63.

³¹⁵ May, “Afterword: Architecture in Real Time,” 230.

³¹⁶ May, “Afterword: Architecture in Real Time,” 231.

³¹⁷ Baudrillard, *The Gulf War Did Not Take Place*, 30-31.

seen space become secondary to time, and society become entirely a function of time. Describing this relationship as a shift from geography to dromography, Virilio asserts that space is no longer geographical, and real-time has superseded real space. In this context, the geographical difference between being 'here' and 'there' or being 'inside' or 'outside' becomes irrelevant. The screen becomes the locus for this lost dimension of space and the disappearance of material space. This was the case in CNN's live coverage as Virilio describes the Gulf War as one of the two-dimensions – “plus a third, the dimension of time, of the real-time of the televised broadcasts – a world war in miniature perceived via the intermediary of the screen, the Gulf War is inseparable from its cathodic framing.”³¹⁸ As the three-dimensions of the war were translated into the two dimensions of the screen, real-time dominated access to the event to the point where the event and the space of war disappeared on the screen, “now you see it, now you don't.”³¹⁹

The consequence of real-time taking over real-space is further expanded on in 'Negative Horizon: An Essay in Dromoscopy,' where Virilio states, “what happens more and more quickly is perceived less and less,”³²⁰ implying that speed, and in this case, liveness, regulates access to the evidential object. Virilio, through a series of questions, poses the consequences of real-time on our consumption of space, “How can we, in fact, analyse... a total war in which local space disappeared in a global and instantaneous military management operation? Instead of circumscribing the “real space” of battle... they have this time rigorously reduced and controlled the real-time” of confrontation?”³²¹ CNN's fragmented medium and message organised “a narrative of the conflict too quick to be publicly analysed.”³²² Virilio argues that in making war 'intensive' – through its instantaneous and mediated representation – real-time has “reduced the format of violence to its simplest expression: an image.”³²³ The war of real objects and real space is replaced by the war of images

³¹⁸ Paul Virilio, *A Landscape of Events*, trans. Julie Rose (Cambridge, Mass: MIT Press, 2000), 24.

³¹⁹ Ibid.

³²⁰ Paul Virilio, *Negative Horizon: An Essay in Dromoscopy*, trans. Michael Degener (New York: Continuum, 2005), 118.

³²¹ Virilio, *A Landscape of Events*, 25.

³²² Virilio, *A Landscape of Events*, 24.

³²³ Virilio, *Landscape of Events*, 26.

and sounds, or what he coins as an information war. Real-time, which reduced and controlled the images and sounds of the war, substituted real-space. This exemplifies what Virilio refers to as a paradoxical logic of perception. This logic challenges the concept of reality as real-time dominates the thing presented, and virtuality prevails over real space.³²⁴ In the case of the Gulf War, the transposition of abstract maps, sounds, and images replaced the real and constructed a substitute reality that deranged the logics of perception.³²⁵

4.7 Spectacle Over the Real: “How Is It That a Real War Did Not Generate Real Images?”

Although there is a consensus that liveness and real-time prevail over real-space, Baudrillard takes a more radical perspective on the war to Virilio, claiming that it did not happen. In ‘The Gulf War Did Not Take Place,’ Baudrillard asks: “how is it that a real war did not generate real images?”³²⁶ For Baudrillard, the Gulf War was a simulated war that only took place on the screen, with the absence of 'real' images of the atrocities of the war. Baudrillard also questioned the absence of the Iraqis in the live images of the war, as if they were electrocuted and surrendering to reportage.³²⁷ This inquiry into whether the Gulf War happened was also questioned by linguist and philosopher Noam Chomsky, who explains that war involves two sides, which was not present in the Gulf War as one side, the Iraqi, was not visible.³²⁸ Complicating this further was the fact that the evidential object, in this case, the ‘images’ of the war, were transmitted days after the start of the war. Hoskins explains that CNN’s audio was overlaid on ITV’s and ABC’s visual footage, which was transmitted a few days after the start of the war.³²⁹ The absence of real images, Baudrillard describes, was replaced by a technological mystification of the grainy phosphor-green night-

³²⁴ Paul Virilio, *The Vision Machine*, trans. Julie Rose (Bloomington: Indiana University Press, 1994), 63.

³²⁵ Paul Virilio, *War and Cinema: The Logistics of Perception*, trans. Patrick Camiller (London: Verso, 1989), 72.

³²⁶ Baudrillard, *The Gulf War Did Not Take Place*, 82.

³²⁷ Baudrillard, *The Gulf War Did Not Take Place*, 67-8.

³²⁸ Noam Chomsky, “The media and the war: What war?,” in *Triumph Of The Image: The Media’s War In The Persian Gulf, A Global Perspective*, ed. Hamid Mowlana (Boca Raton, FL: Routledge, 2018), 51.

³²⁹ Hoskins, *Televising War: From Vietnam to Iraq*, 30.

vision images of the first days of the attack (see Fig 4.5), “a war of high technological concentration by poor definition.”³³⁰ The images of the war saw the city of Baghdad visualised through the language of pixels and resolution. Veiling the city with a grainy phosphor-green night-vision filter, the images possessed what *The New Yorker* described as an “eerie, remote control quality,”³³¹ making it difficult to distinguish between reality and its simulated representation.



Fig 4.5 Phosphor-green night-vision image of Baghdad in CNN’s live coverage of the Gulf War, 1991. Source: CNN, “Shock & Awe,” still from YouTube video, 3:50, July 17, 2006, <https://www.youtube.com/watch?v=R30cbnkMG3s>.

Baudrillard adds that this poor definition was intensified through the live nature of coverage, where the profusion of vague commentary transformed the event into pure speculation and to the point where Baudrillard coined it as a non-event. In his reading of the Gulf War, Baudrillard argues that the simulated images are exemplary

³³⁰ Baudrillard, *The Gulf War Did Not Take Place*, 44.

³³¹ Finnegan, “The talk of the town.”

of a non-event as the virtual has overtaken the actual,³³² stating that when war “has been turned into information, (it) ceases to be a realistic war and becomes a virtual war... and just as everything physical becomes the object of interminable speculation, so everything which is turned into information becomes the object of endless speculation, the site of total uncertainty.”³³³ The speculation attached to the non-event is a consequence of the involution of the event in real-time, “in the instantaneity of everything at once, and of its vanishing in information itself.”³³⁴ As described by Baudrillard, the disappearance of the event meant that in both the physical space of the war, in the Gulf, and the virtual space of the TV screen, nothing took place,³³⁵ but rather, the event vanished into the virtual through an excess of information.

The overexposure of information attached to real-time coverage draws attention to the spectacle of the Gulf War over the real. Subjected to the spectacle of the simulated, viewers did not witness images of the battlefield but rather images of the technological and material mystification of real-time, in this case, the luminous green light show of night-vision, transposed on the screen. Baudrillard speculates that the screens also offered the spectacle of the powerlessness of viewers. Describing them as hostages forced into a voyeurism of real-time and, therefore, absorbed in the hyperreal technological experience, Baudrillard claims that “we are all hostages of media intoxication, induced to believe in the war... We are already all strategic hostages in situ; our site is the screen on which we are virtually bombarded.”³³⁶ This impossibility to distinguish between reality and its simulated representation, because of the implication of the subject within the ecstasy of communication, sees the spectacle prevail over the real.

In ‘Desert Screen,’ a direct reference to the Gulf War, Virilio states, “we have been living in a theatre of operations, spectators of a theatrical production [mise-en-

³³² Baudrillard, *The Gulf War Did Not Take Place*, 24-27.

³³³ Baudrillard, *The Gulf War Did Not Take Place*, 41.

³³⁴ Baudrillard, *The Gulf War Did Not Take Place*, 47.

³³⁵ Baudrillard, *The Gulf War Did Not Take Place*, 82.

³³⁶ Baudrillard, *The Gulf War Did Not Take Place*, 25.

scène]. We have been living in a complete fiction. Faced with war, we must not only be conscientious objectors but also objectors to the objectivity of its representation. We must not believe our eyes.”³³⁷ Virilio draws attention to the spectacle of the war and continues to problematise this form of representation by claiming that the electronic war is not neutral.³³⁸ Electronic war, in this case, refers to a war of images and sounds, and it has substituted nuclear war.³³⁹ We must not believe our eyes because the real-time images of the Gulf War have produced a synthetic vision and the automation of perception.³⁴⁰ The TV screen is, therefore, a contested site as it not only presents the tension between the simulated and the real, but it is a structure of political power as images circulate – or the absence of images in the case of the Gulf War – to a global audience and influence public opinion. We return to Virilio’s “we must not believe our eyes,” which dismantles the reliance on vision to validate reality and reiterates that the screen has displaced visual perception as the spectacle has taken over the ‘real.’

4.8 Conclusion

This chapter has analysed CNN’s 24-hour live coverage of the Gulf War in 1991 to highlight how the ‘live’ broadcasting of events contributed to a shift in discourse on the screen in the 1990s. Using Baudrillard and Virilio’s postmodern media theories, specifically their claims regarding the effects of ‘liveness’ on the representation of modern warfare, has foregrounded that the 24-hour live coverage contributed to a speculative and distanced account of the Gulf War. With the lack of visual evidence from the event, reporting in real-time and over 24-hours saw unfiltered eyewitness reports from CNN correspondents at the Al-Rashid Hotel and the use of abstract graphics, maps, and disparate audio coverage from international correspondents filled in the temporal (and visual) gaps. Furthermore, the absence of ‘real’ images of the war was replaced by the technological mystification of the grainy phosphor-green

³³⁷ Paul Virilio, *Desert Screen: War at the Speed of Light*, trans. Michael Degener (London: Continuum, 2002), 41.

³³⁸ Virilio, *Desert Screen: War at the Speed of Light*, 53.

³³⁹ Virilio, *The Vision Machine*, 69.

³⁴⁰ Virilio, *The Vision Machine*, 62.

night-vision images of Baghdad, making it difficult to distinguish between reality and the simulated representation of the city.

Seduced by the spectacle of liveness, of being 'there' at any time, all the time, viewers were, in fact, unconsciously witnessing a simulated representation of the Gulf War and the city of Baghdad unfold on their TV screens. Liveness dissolved any clear distinction between the medium and message – the effects of liveness (of being 'there'), and not the content of the war, was being consumed and experienced. The detailed account of the effects of liveness through CNN's live coverage of the Gulf War has evidenced Baudrillard and Virilio's claims regarding the screen as a distancing device, where real-time took over real-space and where the technological and material mystification of liveness saw the spectacle prevail over the event. This event case study also situates the screen at the core of a series of aesthetic and geopolitical concerns and supports the thesis' argument that the screen has material, spatial, and mediating effects that influence, in this case, representations of a city in conflict.

Chapter 05: Screen Theory and Practice: The Emergence of Screen-Based Architecture in the Late 1980s and 1990s

5.1 Introduction

The shift in the discourse on the screen in the 1990s, as examined thus far through postmodern media theory and its translation through the analysis of CNN's live coverage of the Gulf War, marks the beginnings of a more critical inquiry into the material, spatial, and mediating effects of the screen. If the TV screen was once deemed the ultimate 'cool' medium, promoting McLuhan's fantasy of an interconnected 'global village,' the screen was now at the centre of a series of questions regarding its contribution to the lost dimension of space and its influence on simulated representations of space. Within the context of the screen's heightened theoretical, material, and cultural presence, the early 1990s became an opportunity to further theorise and speculate on the effects of the screen in architectural production and representation, giving rise to what this thesis terms 'screen-based architecture.'

This chapter will narrate the emergence of screen-based architectural theory and practice at the turn of the 1990s. It argues that the momentum for experimentation with the screen was not only a direct response to the arrival of CRT screens in architecture schools but also a result of a crisis in the field at the time. This crisis was characterised by architecture's relationship to theory, particularly the reaction towards postmodernism and the ideological battles of the 1970s led by Peter Eisenman. This transitional period saw architecture's disciplinary edges open to other bodies of knowledge, contributing to several versions of the history of the digital in architecture, including the account preoccupied with form and computation. However, the aim of this chapter is to evidence that, parallel to the formal explorations and theories, an alternative relationship to the digital was occupying architectural theory and practice at the turn of the decade.

Respectively, this chapter is structured into three parts. The first section looks at the broader state of affairs in architectural discourse at the turn of the 1990s, including the theoretical re-orientation focused on exploring philosophical concepts in architectural form. The second section follows the consequences of this transitional period in the discipline, briefly re-presenting the established account of the digital to highlight the forces and power structures that have shaped this narrative. Section three then revisits the apparatuses that make discourse possible – journals, events, and architectural projects – during that period, aiming to formulate an alternative account that explores the material presence of the screen and its spatial and mediating effects. Publications such as ‘Semiotext(e) Architecture,’ edited in 1992 by Hraztan Zeitlian, and the architectural works of the then-small, critically engaged screen-based practices, namely Asymptote and Diller Scofidio, will be analysed. Building upon the lineage of video art and installations of the 1960s and 1970s, these practices explored the effects of the screen on the body and space, contributing to the emergence of a screen-based architecture. By revisiting the material evidence of the period, a constellation of screen-based theory and practice will be constructed to make visible the screen’s cultural role in architecture at the turn of the 1990s – a story once rendered invisible by the dominant account of the digital.

5.2 The State of Affairs in Architectural Discourse at the Turn of the 1990s

The resurgence of media theory in the late 1980s and early 1990s, and its uptake within architectural circles, coincided with a particular moment of transition in the discipline. In an essay titled ‘The Future That is Now,’ architect Stan Allen, who both observed and participated in this transitional period, states, “although the 1990s were a period of relative prosperity, the decade began in an atmosphere of uncertainty and transition.”³⁴¹ Charting a chronological timeframe from 1990 to 2010, Allen gives an insight into the early 1990s through a brief listing of the global events and significant technological developments of the time, including the 1987 stock market crash, the fall of the Berlin Wall, the Gulf War, the release of Nelson Mandela from prison, the release of the World Wide Web, the introduction of 2G systems, the

³⁴¹ Stan Allen, “The Future That is Now,” 205.

first digital cellular phone call, and the release of the Mac Classic desktop, to name a few. While these technologies were not easily accessible nor affordable, they prompted a condition first coined by Nicholas Negroponte in 1995 as “being digital.”³⁴² Allen’s snapshot of the turn of the 1990s, through the extensive listing of political and cultural events crossed with technological developments, indicates that a convergence of surrounding forces was shaping the state of affairs in architecture at this particular moment – globalisation, digital technology, and mediatisation, to which the discipline was trying to attune.

This uncertain and transitional period both contributes to and is an outcome of the ongoing tension between the autonomy of architecture as a discipline versus a diversification of architectural knowledge – a debate influenced by the rise of architectural theory in the 1960s. As Michael Hays explains, during this period, architecture began analysing itself through the lens of other philosophical and theoretical fields.³⁴³ Architectural theory reached a peak in the 1970s, marked by various reactions against modern architecture and its pursuit of a universal architectural language. Instead, there was a demand for an articulation of the ‘postmodern.’ Much of this discourse can be traced through ‘Oppositions,’ a journal established under the Institute for Architecture and Urban Studies (IAUS) in New York from 1973-1984. As the title suggests, the journal hosted a series of oppositional positions, primarily the antagonism between the ‘Whites,’ advocating for an autonomy of architecture and an inquiry into pure aesthetics, and the ‘Grays,’ interested in using history in contemporary design.³⁴⁴ This ideological battle was labelled by Gandelsonas as neo-rationalism versus neo-realism. The former, stemming from the ideas of Aldo Rossi, Peter Eisenman, and John Hejduk, sought an autonomous language of architecture. The latter, originating from the thoughts of

³⁴² See Nicholas Negroponte, *Being Digital*, 2nd ed. (New York: Knopf, 1995).

³⁴³ See Michael K. Hays, “Introduction,” in *Architecture Theory Since 1968*, ed. Michael K. Hays (Cambridge, Mass: MIT Press, 1988), x-2.

³⁴⁴ The ‘Whites’ were comprised of five New York architects: Peter Eisenman, Michael Graves, Charles Gwathmey, and John Hejduk, whilst the Grays were a group based in Philadelphia and associated with Yale University and the University of Pennsylvania consisting of Charles Moore, Jaquelin Robertson, Robert Venturi, and Richard Weinstein.

Robert Venturi, embraced historical and cultural forces and their impact on architecture.³⁴⁵

This period of re-examination, often termed as a crisis of meaning in architecture, reached its peak in the early 1980s, showcasing a multitude of theoretical models underpinned by philosophical and literary forms of theory. These ranged from Marxism, semiotics, and phenomenology to the developments of poststructuralism and deconstruction (mainly associated with the work of Jacques Derrida). The purpose of this section of the chapter is not to unpack these theories, which have extensively been covered in several anthologies,³⁴⁶ but rather to situate the 1990s within a trajectory of architectural theory and to understand the state of affairs entering the decade. By the end of the 1980s, which marked two decades of prevailing discourse aimed at reformulating the discipline, the tenor of the times had changed to one of uncertainty. Two factors contributed to this uncertainty. The first was that postmodernism was “beginning to wear thin as an aesthetic fashion,”³⁴⁷ and the second was a general confusion, in the US academic circles at least, as to “whether that which was replacing it was yet one more stage within the revolution (a politicised, 1920s-style modernism) or something fundamentally in opposition to it.”³⁴⁸

What arrived was “deconstructivism,” epitomised through the ‘Deconstructivist Architecture’ exhibition at the New York Museum of Modern Art (MoMA) in 1988. Curated by Philip Johnson, renowned for introducing modernism to the US through his organisation of the ‘Modern Architecture: International Exhibition’ in 1932, and

³⁴⁵ See Mario Gandelsonas, “Neo-Functionalism,” in *Oppositions Reader: Selected Readings from a Journal for Ideas and Criticism in Architecture, 1973-1984*, ed. by Michael K. Hays (New York: Princeton Architectural Press, 1998), 7–8.

³⁴⁶ For an in-depth account of architectural theory during the period spanning the mid-1960s – 1980s, see Michael K. Hays, *Architecture Theory Since 1968* (Cambridge, Mass: MIT Press, 1988); Michael K. Hays, *Oppositions Reader: Selected Readings from a Journal for Ideas and Criticism in Architecture, 1973-1984* (New York: Princeton Architectural Press, 1998); Kate Nesbitt, *Theorizing a New Agenda for Architecture: An Anthology of Architectural Theory 1965-1995* (New York: Princeton Architectural Press, 1996); Henry Francis Mallgrave, and David Goodman, *Introduction to Architectural Theory: 1968 to the Present* (Malden, MA: Wiley-Blackwell, 2012).

³⁴⁷ Mallgrave and Goodman, *An Introduction to Architectural Theory: 1968 to the Present*, 154.

³⁴⁸ *Ibid.*

Mark Wigley, who had just completed his dissertation on 'The Deconstructive Possibilities of Architectural Discourse,' leading to the publication of 'The Architecture of Deconstruction: Derrida's Haunt.'³⁴⁹ Reference to Derrida,³⁵⁰ however, was missing from the press material or exhibition catalogue and was even dismissed by Wigley in his introductory text to the exhibition catalogue, stating that "It is the ability to disturb our thinking about form that makes these projects deconstructive. It is not that they derive from the mode of contemporary philosophy known as 'deconstruction.'"³⁵¹ The exhibition featured projects from seven architects – Frank Gehry, Daniel Libeskind, Rem Koolhaas, Peter Eisenman, Zaha Hadid, Coop Himmelblau, and Bernard Tschumi – alongside a selection of early 20th-century Russian avant-garde art from the museum's collection. The classification of these seven architects as "deconstructivists" has been noted to present several problems, notably that many of them rejected the label. Only Eisenman and Tschumi publicly pronounced their interest in Derrida. However, his theory of deconstruction has been widely used as the philosophical underpinning of the show and the "new" formal trend.³⁵²

The demise of postmodernism and the rise of a "new" movement were prophesied leading up to the exhibition with critics, such as Sylvia Lavin expressing their views. Responding to the media build-up of the show, Lavin stated, "Although there has never been a consensus as to what Post-Modern architecture is, there are a lot of people who think it is no longer: according to them the fad for Post-Modernism has been replaced by a fetish for Deconstructivism. The rise of this new 'ism' is being encouraged by the Museum of Modern Art who is organizing an exhibition dedicated

³⁴⁹ Mark Wigley, *The Architecture of Deconstruction: Derrida's Haunt* (Cambridge, Mass: MIT Press, 1995).

³⁵⁰ The English translations of Derrida's books from the 1960s arrived in the Anglo-American world in the mid-1970s, explaining the influence felt in the coming decade.

³⁵¹ Mark Wigley, "Deconstructivist Architecture," in *Deconstructivist Architecture*, eds. Philip Johnson and Mark Wigley (New York: Museum of Modern Art, 1988), 10.

³⁵² Eisenman and Tschumi have been seen as most responsible for transposing post-structural thoughts into architectural discourse in the context of the US. Tschumi lived in Paris and was actively engaged in the politics of the city during 1968, and thus, was familiar with post-structural debates. For Eisenman, it was his affiliation with Mario Gandelsonas and Diana Agrest, who both had studied in Paris in the late 1960s. See Mallgrave, Harry Francis, and David Goodman, "Eisenman and Tschumi," in *Introduction to Architectural Theory: 1968 to the Present*, ed. Harry Francis Mallgrave and David Goodman (Malden, MA: Wiley-Blackwell, 2012), 131–40.

to this ‘new tendency.’”³⁵³ And yet the curators denied that the exhibition was the beginning of a new “style.” In Johnson’s preface to the exhibition catalogue, he outlines, “Deconstructivist architecture is not a new style. We arrogate to its development none of the messianic fervor of the modern movement, none of the exclusivity of that catholic and Calvinist cause. Deconstructivist architecture represents no movement; it is not a creed. It has no ‘three rules’ of compliance. It is not even ‘seven architects.’”³⁵⁴ Johnson continues to state that it is a confluence of a few important architects since the 1980s who show a similar formal approach involving the “diagonal overlapping rectangular or trapezoidal bars,” reminiscent of the Russian avant-garde of the early twentieth century.³⁵⁵

Employing formal strategies and drawing inspiration from the avant-garde approach of Russian Constructivism, the architecture exhibited was one of “disruption, dislocation, deflection, deviation, and distortion.”³⁵⁶ The projects,³⁵⁷ with their distortion of pure form – typically considered distant from the reality of built form, as Wigley Claims “do not play in the sanctuaries of drawing, or theory, or sculpture. They inhabit the realm of building,”³⁵⁸ and “the object becomes the site of all theoretical inquiry.”³⁵⁹ He further notes that the traditional status of theory has shifted, as “theory is loaded into the object,”³⁶⁰ and “propositions now take the form of objects rather than verbal abstractions.”³⁶¹ In short, this claims that architecture becomes critical theory. It is also a comment on the limits of philosophical discourse and its translation into physical representation, where architecture goes beyond that

³⁵³ Sylvia Lavin, “Viewpoint,” *Interiors* 148, no. 11 (June 1988): 17.

³⁵⁴ Philip Johnson, “Preface,” in *Deconstructivist Architecture*, eds. Philip Johnson and Mark Wigley (New York: Museum of Modern Art, 1988), 7.

³⁵⁵ *Ibid.*

³⁵⁶ Wigley, “Deconstructivist Architecture,” 17.

³⁵⁷ The projects exhibited include: Coop Himmelblau’s Rooftop Remodeling, Vienna (1985), Hamburg Skyline, Vienna (1985) and Apartment Building, Vienna (1986); Peter Eisenman’s Biology Center for the University of Frankfurt, competition (1987); Frank Gehry’s Gehry House, Santa Monica (1977-87) and Familian Residence, Santa Monica (1978); Zaha Hadid’s The Peak competition, Hong Kong (1983); Rem Koolhaas’ Rotterdam Building and Tower commission (1981); Daniel Libeskind’s City Edge Competition, Berlin (1987) and Bernard Tschumi’s Parc de la Villette competition, Paris (1982)

³⁵⁸ Wigley, “Deconstructivist Architecture,” 19.

³⁵⁹ *Ibid.*

³⁶⁰ *Ibid.*

³⁶¹ *Ibid.*

of deconstructive writing but is itself an example of deconstruction – “the formal condition of each object carries its full ideological force.”³⁶²

Ironically, many of the projects exhibited were considered “visionary” or had not yet been completely realised, and the architects behind the projects were mostly known as theoreticians emerging from the theoretical debates of the 1970s rather than practitioners. As Mary McLeod states, the lack of realised projects connotes that “deconstructivism” primarily exists as a theoretical debate and questions whether it warrants the title of a “movement.”³⁶³ Furthermore, in her review of the exhibition and as a response to Wigley’s comments around “buildability,” Catherine Ingraham states, “it is precisely the (failed) aspiration for totality, completion, and objecthood that has given way to the contemporary era in architecture- in some way the unbuildability of all architecture, the “paperless” of all architecture.”³⁶⁴ Implicit in this critique is a debate on the limits of cross-disciplinary theoretical exchange and their influence on architecture as a material practice. For example, a main critique of the show was the growing awareness of the limitations of language and metaphor. As Allen explains, the architects in the Deconstructivist show “did not make buildings that were actually collapsing; they only looked that way.”³⁶⁵ This emphasis on formal properties and the endless deferral of meaning produced a new kind of aestheticisation that refused any reality outside the object.³⁶⁶ The literary metaphors and philosophical references that underpin the Deconstructivist Architecture exhibition could be read as an alternative to the earlier period of postmodernism and its attempts to recover meaning³⁶⁷ – echoing Derrida’s idea that meaning in language is completely unstable.

³⁶² Ibid.

³⁶³ Mary McLeod, “Architecture and Politics in the Reagan Era: From Postmodernism to Deconstructivism,” *Assemblage*, no. 8 (February 1989): 44, <https://doi.org/10.2307/3171013>.

³⁶⁴ Catherine Ingraham, “Milking Deconstruction, or Cow Was the Show? [exhibition Review],” *Inland architect* 32, no. 5 (1988): 65.

³⁶⁵ Allen, “The Future That is Now,” 212.

³⁶⁶ McLeod, “Architecture and Politics in the Reagan Era: From Postmodernism to Deconstructivism,” 47.

³⁶⁷ See McLeod, “Architecture and Politics in the Reagan Era: From Postmodernism to Deconstructivism,” 24: “Postmodern practitioners and critics have tended to seek ideological justification, not in program, function, or structure, but in *meaning*.”

Although rife with criticism, the ‘Deconstructivist Architecture’ exhibition marked an interesting interlude by opening up a debate on the limits of translating philosophical concepts into architecture. For many, like Stan Allen, this moment could be seen to represent the conclusion of a phenomenon that began in the 1970s. As he noted, “while it had proven to be productive for theorists and historians, for architects it increasingly presented an impasse and, as such, could only provoke reassessment.”³⁶⁸ Seen through this perspective, it marked a moment of reclamation and redefinition for the discipline as it began to “digest and negotiate a set of ideas that, like most other ideas in architecture, required translation into... ‘the strictly architectural.’”³⁶⁹ Despite Wigley’s prediction in the conclusion of the exhibition catalogue that this “episode” was destined to be short-lived as each architect would soon go on their own trajectory, which they did (considering the fact that they did not share a common cultural or architectural background, to begin with), the show was a precursor of what was to come – the continual exploration of theoretical and philosophical concepts in architectural form. This exploration coincided with the rise of new digital technologies and software at the turn of the decade, generating the beginnings, as captured by established accounts, of the so-called ‘digital turn in architecture.’

5.3 Towards a So-Called ‘New Architecture’ of the Digital

Deconstructivism, emphasising the formal properties of architecture, opened the gateway for seeking “new” forms. The common thread in the lineage, beginning with Robert Venturi’s ‘Complexity and Contradiction in Architecture,’ and Colin Rowe and Fred Koetter’s ‘Collage City,’ and continuing to Wigley and Johnson’s Deconstructivist Architecture, was the production of heterogeneous, fragmented, and conflicting formal systems.³⁷⁰ After two decades of what Greg Lynn describes as “formal conflicts,” deconstruction marked “the ultimate conclusion of all these

³⁶⁸ Allen, “The Future That is Now,” 212.

³⁶⁹ Catherine Ingraham, “Hospitality,” in *2000+: the Urgencies of Architectural Theory* ed. James Graham (New York, NY: GSAPP Books, 2015), 59.

³⁷⁰ Greg Lynn, “Architectural Curvilinearity – The Folded, the Pliant and the Supple,” in *Folding in Architecture*, ed. Greg Lynn, rev. ed. (Chichester, West Sussex: Wiley-Academy, 2004), 24.

musings and discussions on form – as collaged form was artfully exploded into shards.”³⁷¹ The move away from a Derridean discourse was pronounced in a special issue of *Architectural Design (AD)*, ‘Folding in Architecture,’ edited by Greg Lynn, originally published in 1993 with a revised edition in 2004. Lynn’s introduction set up a shift from “the linguistic and representation focus of both Post-Modernism and Derridean Deconstruction”³⁷² towards the theoretical, spatial, and mathematical models of French philosopher Gilles Deleuze concerning mathematical continuity through the concept and theory of the ‘fold.’

This shift was noted alongside the second emerging tendency he observed among architectural theorists and designers of the time, which concerned interest in scientific models of complexity.³⁷³ If Venturi, Rowe, and Wigley argued for an architecture of contradictions, Lynn asserts that “Neither the reactionary call for unity (as seen in Neo-Modernism or Regionalism) nor the avant-garde dismantling of it through the identification of internal contradictions (deconstruction) seems adequate as a model for contemporary architecture and urbanism.”³⁷⁴ He instead proposes complexity through the continuous variations of the fold and argues that if “there is a single effect produced in architecture by folding, it will be the ability to integrate unrelated elements within a new continuous mixture.”³⁷⁵ Simply put, difference is integrated by an architecture of ‘the folded, the pliant, and the supple’ instead of tensions between formal systems.

An essay that stands out in ‘Folding in Architecture’ is Jeffrey Kipnis’s ‘Towards a New Architecture’ for its attempt to proclaim a contemporary architecture that emerges from postmodernism. Kipnis explains that deconstruction, building on historical pastiches indicative of Postmodernism and the use of collage to create new meanings out of a combination of old forms, is based on the premise of constantly

³⁷¹ Helen Castle, “Preface,” in *Folding in Architecture*, ed. Greg Lynn, rev. ed. (Chichester, West Sussex: Wiley-Academy, 2004), 7.

³⁷² Greg Lynn, “Introduction,” in *Folding in Architecture*, ed. Greg Lynn, rev. ed. (Chichester, West Sussex: Wiley-Academy, 2004), 9.

³⁷³ *Ibid.*

³⁷⁴ Lynn, “Architectural Curvilinearity – The Folded, the Pliant and the Supple,” 24.

³⁷⁵ *Ibid.*

destabilising existing forms. Therefore, the project of the “new” is rejected – “From Rowe to Venturi to Eisenman, from PoMo to the deconstructivists, collage has served as the dominant mode of the architectural graft... Collage is only able to renew itself by constantly identifying and tapping into previously unrostered material. Thus, the collage can never be projective.”³⁷⁶ Kipnis indicates that a ‘New Architecture’ was emerging in the early 1990s, notably with theorists, such as Sanford Kwinter and Greg Lynn, who shifted their focus from post-structural semiotics to a careful consideration of geometry – a shift from Derrida towards a Deleuzian discourse.³⁷⁷ Consequently, ‘Folding in Architecture’ was a turning point as it comprised a series of essays by architects and theoreticians such as Greg Lynn, Peter Eisenman, Jeffrey Kipnis, Frank Gehry, and John Rajchman. Each examined how Deleuze’s theory of the fold could be translated into architectural design with the intention of ushering in a new architecture of the digital era.

The transition from Derrida to Deleuze was neither smooth nor causal. As Karen Burns describes, the rise of Deleuze was not a natural phenomenon but was enabled by the circulation, repetition, and expansion of Deleuzian discourse in architecture’s social and institutional organisation.³⁷⁸ She explains that this shift could be traced through the publication activities of the time, such as those of Any Corporation, where Derrida appeared in the first ANY magazine issue in 1993 and the first two of the ANY conferences but was absent thereafter. Consequently, the move to a Deleuzian discourse can be characterised as an outcome of a series of disparate institutional events and relationships between certain figures that converged in the early 1990s. One crucial moment in this transition was the arrival of English translations of texts critical to post-deconstruction discourse,³⁷⁹ mainly Gilles

³⁷⁶ Jeffrey Kipnis, “Towards a New Architecture,” in *Folding in Architecture*, ed. Greg Lynn, rev. ed. (Chichester, West Sussex: Wiley-Academy, 2004), 58.

³⁷⁷ Ibid.

³⁷⁸ Karen Burns, “Becomings: Architecture, Feminism, Deleuze – Before and After the Fold,” in *Deleuze and Architecture*, ed. Hélène Frichot and Stephen Loo (Edinburgh University Press, 2013), 28.

³⁷⁹ Multiple translators have contributed to making Deleuze’s philosophical ideas accessible to English-speaking audiences and visible in mainstream academic discourse. Notable translations that came out in the late 1980s and 1990s include Charles Stivale’s translation of ‘Negotiations’ and ‘The Logic of Sense’ with Mark Lester, Paul Patton’s translation of ‘Difference and Repetition,’ Tom Conley’s translation of ‘The Fold: Leibniz and the Baroque,’ and Brian Massumi’s translation of ‘A Thousand Plateaus’ (co-authored with Félix Guattari). Beyond translation, Massumi has written

Deleuze's 'Le Pli: Leibniz et la baroque' (The Fold: Leibniz and the Baroque) which influenced Lynn's 'Folding in Architecture.' 'The Fold' was originally published in French in 1988 but failed to gain critical attention in its local context.³⁸⁰ It was resurrected with its English translation in 1993, with an excerpt from the book featuring in Lynn's 'Folding in Architecture.' In 'The Fold,' Deleuze examines the way in which German mathematician and philosopher Gottfried Leibniz challenged a Cartesian view of space and proposes the theory of the fold, moving away from Euclidean geometry to become a system that is 'anexact' and 'pliable.'

Before its feature in 'Folding in Architecture,' the arrival of Deleuze's notion of the fold into architectural design and theory in the early 1990s can be attributed to a key figure – Peter Eisenman, to whom Lynn was a former student of and assistant. In particular, two of Eisenman's essays inaugurated the digital discourse in the 1990s via the Deleuzian fold. In, 'Visions Unfolding: Architecture in the Age of Electronic Media,' first published in AD September-October 1992, Eisenman proclaims that we are witnessing a paradigm shift from the mechanical to the electronic. This shift poses a particular challenge to architecture because it "defines reality in terms of media and simulation,"³⁸¹ thereby destabilising the mechanics of vision that have

extensively on Deleuzian philosophy, extending, and applying concepts related to 'affect,' 'the virtual,' and 'becoming' in various domains, including architecture. Of particular interest to this thesis is Massumi's philosophical exploration of 'the virtual' as a means to explore the impact of digital technologies on architectural design and experience. Massumi references digital approaches in architecture, mainly topological design techniques used by architects such as Greg Lynn, to work through questions of the virtual. In the introduction to 'Architectures of the Unforeseen: Essays in the Occurrent Arts,' Massumi mentions that his interactions with Lynn in the mid-1990s inspired a deeper examination of the relationship between the digital and the virtual. He early on referenced Lynn and topological architecture in an essay for 'Hypersurface Architecture,' a special issue of Architectural Design edited by Stephen Perrella (1998), as well as in his book 'Parables for the Virtual: Movement, Affect, Sensation' (2002), specifically in Chapter 8 titled 'Strange Horizon: Buildings, Biograms, and the Body Topologic.' Massumi was also invited to contribute to the ANY conference 'Anybody' (June 1996) and the ANY magazine 'Any 23 Diagram Work: Data Mechanics for a Topological Age' (June 1998), where he presented alongside figures who were shaping the discourse on the digital in architecture at the time, including Lynn, among others. Through his interactions and contributions to architectural discourse, it can be argued that Massumi played a role in expanding Deleuzian discourse in architecture during the 1990s, while his own philosophical inquiries continue to influence discussions within the field of digital architecture, specifically how the virtual can affect and shape the real.

³⁸⁰ Mario Carpo, "Ten Years of Folding," in *Folding in Architecture*, ed. Greg Lynn, rev. ed. (Chichester, West Sussex: Wiley-Academy, 2004), 14.

³⁸¹ Peter Eisenman, "Visions Unfolding: Architecture in the Age of Electronic Media," in *The Digital Turn in Architecture 1992 – 2012*, ed. Mario Carpo (Somerset: John Wiley & Sons, Incorporated, 2012), 16.

dominated architecture since the 16th century. The fold compliments this paradigm shift, articulating “a new relationship between vertical and horizontal, figure and ground, inside and out – all structures articulated by traditional vision.”³⁸² This thinking is extended in a subsequent essay, ‘Folding in Time: The Singularity of Rebstock,’ which supports his proposal for the Rebstockpark Master Plan in Frankfurt (1990-1991). Expanding on Deleuze, Eisenman states that the fold offers an alternative space to Cartesian order, challenging the dialectic between two static aspects of traditional urban design – the figure and the ground. The fold is “neither figure nor ground, but contains aspects of both,”³⁸³ a concept translated in the ‘Rebstockpark Master Plan’ project.³⁸⁴

The concept of a ‘new architecture’ of the digital, as interpreted by Eisenman and Lynn through Deleuze, continued to circulate within architecture’s social and institutional organisation, undergoing another shift in the mid-1990s. The fold coincided with the rise of new digital software, making it possible for complex forms to be generated. In the revised edition of ‘Folding In Architecture,’ Lynn reflects on the original publication, observing that what is most interesting is that the collection showcased theoretical work of the digital “at the instant they would be completely transformed by the computer.”³⁸⁵ Almost as if anticipating digital tools, the architects included in the publication had “formed their ambitions for a new model of formal and spatial complexity before the advent of inexpensive, ubiquitous, spline modelling software... a claim towards new forms that would only later be facilitated digitally.”³⁸⁶ By the early 1990s, computer-aided design programs were widely used in architectural offices, and most architects were aware that “computers could easily join dots with segments.”³⁸⁷ Nicholas Negroponte’s exploration in the 1970s of a computer-aided design environment, capable of adapting to users’ needs and

³⁸² Eisenman, “Visions Unfolding: Architecture in the Age of Electronic Media,” 19.

³⁸³ Peter Eisenman, “Folding in Time: The Singularity of Rebstock,” in *Folding in Architecture*, ed. by Greg Lynn, rev. ed. (Chichester, West Sussex: Wiley-Academy, 2004), 41.

³⁸⁴ In Rebstockpark Eisenman uses the fold to redefine the typical perimeter block indicative of German cities, which according to him was representative of a static urbanism bound up in object rather than event. Instead, the design uses the fold as a single unit to fold building and topography into each other, and in turn, epitomizes an architecture of the fold as it dissolves figure and ground.

³⁸⁵ Lynn, “Introduction,” 10.

³⁸⁶ *Ibid.*

³⁸⁷ Carpo, “Ten Years of Folding,” 16.

facilitating a more interactive design process, laid the groundwork for subsequent developments in computer-aided design. However, a radical transformation of the architectural design process occurred in the 1990s as there was a greater focus on specific software, in contrast to Negroponte's more conceptual exploration of the human-computer interaction. As this thesis will uncover, this transformation was epitomised through the launch of the Paperless Studios at Columbia in 1994. By the mid-1990s, as computers became more accessible in practice and pedagogy and as the graphic and processing capabilities of CAD software grew and became more affordable, "a new virtuosity emerged as architects borrowed software and digital techniques from the film and aviation industries."³⁸⁸ The theoretical writings by Lynn, and thereafter Bernard Cache's writings of the mid-1990s, including 'Earth Moves,'³⁸⁹ which emphasised the role of calculus and mathematics in generating continuous forms, coincided with the technical development of spline modelling software of the time and, in turn, heralded an architectural formal language of smoothness and continuity. The fold became digital and curvy, marking a trajectory that has continuously been traced when capturing this period.

This translation of tectonic metaphors into the digital was captured in the pages of the then-new critical journals in the United States that had succeeded 'Oppositions,' namely 'ANY' (Architecture New York) and 'Assemblage.' These journals hosted many articles by individuals Mario Carpo referred to as, "the new avant-garde" of the digital, whose work came to be known as "topological."³⁹⁰ In particular, ANY, interestingly co-founded by Peter Eisenman in 1991 alongside editor Cynthia Davidson, Arata Isozaki, and Ignasi de Solà-Morales Rubió, frequently published Lynn's theoretical writings³⁹¹ in its bimonthly magazine, and the proceedings of the

³⁸⁸ Allen, "The Future That is Now," 214.

³⁸⁹ In 'Earth Moves,' first written in 1983, Cache introduced "non-standard architecture," a concept later termed "objectile" by Deleuze in 'The Fold.' See Bernard Cache and Michael Speaks, *Earth Moves: The Furnishing of Territories* (Cambridge, Mass: MIT Press, 1995).

³⁹⁰ Carpo, "Ten Years of Folding," 14.

³⁹¹ Lynn's articles in ANY magazine include 'Probable Geometries: The Architecture of Writing in Bodies' (ANY 0, May/June 1993), 'Differential Gravities' (ANY 5, March/April 1994), 'New Variations on the Rowe Complex' (ANY 7/8, September 1994) and 'Blobs, or Why Tectonics is Square and Topology is Groovy' (May 1996), and his papers that contributed to the ANY conferences include 'From Body to Blob' (Anybody, June 1996), 'Form and Field' (Anywise, June 1995), 'Geometry in

annual ANY conferences. For instance, in the ANYBODY conference proceedings, Lynn suggests that the computer, and specifically contemporary computer-aided design programs, such as Form-Z, have retooled architectural design with new topological techniques.³⁹² He elucidates that topology is introduced by these programs as a consequence of the software defining “coordinates and surfaces in motion-based environments rather than static Cartesian environments.”³⁹³

Expanding on the idea that computers serve as sites for the study of motion, Lynn, in his paper for the ANYHOW conference, puts forward a manifesto stating that “architects must begin by advancing their general knowledge of motion and time in order to design and think in an animate rather than a static space... I would suggest that motion techniques be added to the architect’s toolbox.”³⁹⁴ A time-based geometry is made possible by spline modelling, which is composed of vectors rather than points – “splines are entities defined by flow, direction, and motion and are therefore of modelling time.”³⁹⁵ The effects of time on form led to what Lynn termed as the ‘blob,’ or “many blobs, of all different sizes and shapes and irreducible typological essences.”³⁹⁶ Lynn’s ‘Embryological House’ (1997-2001) is emblematic of a time-based geometry, exhibiting infinite iterations of form and the characteristic ‘blobs’ through its fluid form. Ultimately, a recurring theme in Lynn’s body of work is that formal operations, rooted in time and topology within the computer, challenge static Cartesian environments, giving rise to new spatial and organisational diagrams.

Nowhere else were techniques of continuous form and utopianism of the computer more present than in a number of architectural competitions in the mid-1990s. These competitions saw topological proposals by the “new avant-garde” of the digital, utilising emerging software as a driver of new forms. In an interview with Jesse

Time (Anyhow, June 1997), ‘Bio Time’ (Anytime, June 1998), ‘Surface Effects’ (Anymore, June 1999), and ‘The New Generic’ (Anything, June 2000).

³⁹² Greg Lynn, “From Body to Blob,” in *Anybody*, ed. Cynthia C. Davidson (New York: Anyone Corp, 1997), 164–65.

³⁹³ Lynn, “From Body to Blob,” 165.

³⁹⁴ Greg Lynn, “Geometry in Time,” in *Anyhow*, ed. Cynthia C. Davidson (New York: Anyone Corp, 1998), 165.

³⁹⁵ Lynn, “Geometry in Time,” 173.

³⁹⁶ Greg Lynn, “Blobs, or Why Tectonics Is Square and Topology Is Groovy,” *ANY: Architecture New York*, no. 14 (1996): 58, <http://www.jstor.org/stable/41852143>.

Reiser, he explains that competitions during this time characterised this generation. He states, “We were in that same institution; we were competing in the same competitions and then comparing... You were there with them every day, and then you would take on the same competition, and then also you’d get published.”³⁹⁷ Reiser continues to highlight that this interest is a consequence of the intellectual climate surrounding the competitions. Even if you lost, “you were sharing that material, it would get published because it was current, I guess it was part of the discourse.”³⁹⁸ Reiser marks these competitions as milestones for this generation, who were experimenting with an approach to surface modelling and the topological language emerging in the mid-1990s. Describing these competitions as “transitional projects with the computer,”³⁹⁹ Reiser explains that, unlike Lynn, who would “at least in his rhetoric, celebrate what the computer did as somehow a virtue, and even what it couldn’t do as a virtue,”⁴⁰⁰ craft and physical models were still a priority at Reiser + Umemoto (possibly due to Reiser’s educational background at Cranbrook Academy of Art and The Cooper Union under John Hejduk), and the computer was seen as a tool that could resolve technical details. He adds, “it wasn’t that the computer was sort of on our minds as much as finally being able to do a geodesic structure rigorously in three dimensions. It was very exciting.”⁴⁰¹

Two competitions that stand out from the mid-1990s are the ‘Yokohama International Port Terminal Competition’ (1994) and ‘Cardiff Bay Opera House Competition’ (1994). Entries for the Yokohama terminal by Greg Lynn, Reiser + Umemoto, Ben van Berkel, and competition winners Foreign Office Architects, were topographical in nature, featuring continuous urban surface forms, all reflecting the logic of animation techniques. For some, such as Reiser + Umemoto, the Yokohama Port Terminal competition was the first real use of the computer in their practice. Reiser explains that the projected geometry was drawn manually, and the profiles were then scanned and traced on the computer to make the first laser-cut model in their

³⁹⁷ Jessie Reiser, interview by author, New York City, February 1, 2019.

³⁹⁸ Ibid.

³⁹⁹ Ibid.

⁴⁰⁰ Ibid.

⁴⁰¹ Ibid.

office.⁴⁰² Reviewing Foreign Office Architects' proposal presents a number of drawings with complex linework that represent the planar folds of the undulating landscape. One of the competition panels, dedicated to 'form,' showcases an exploded axonometric of the layers of the folded surface and structural depth of the fold, accompanied by the description, "spatial and programmatic differentiation with a continuous milieu"⁴⁰³ (see Fig 5.1). The form, drawings, and descriptions collectively indicate how the Deleuzian fold went digital as the quest for formal continuity was facilitated by the computer.

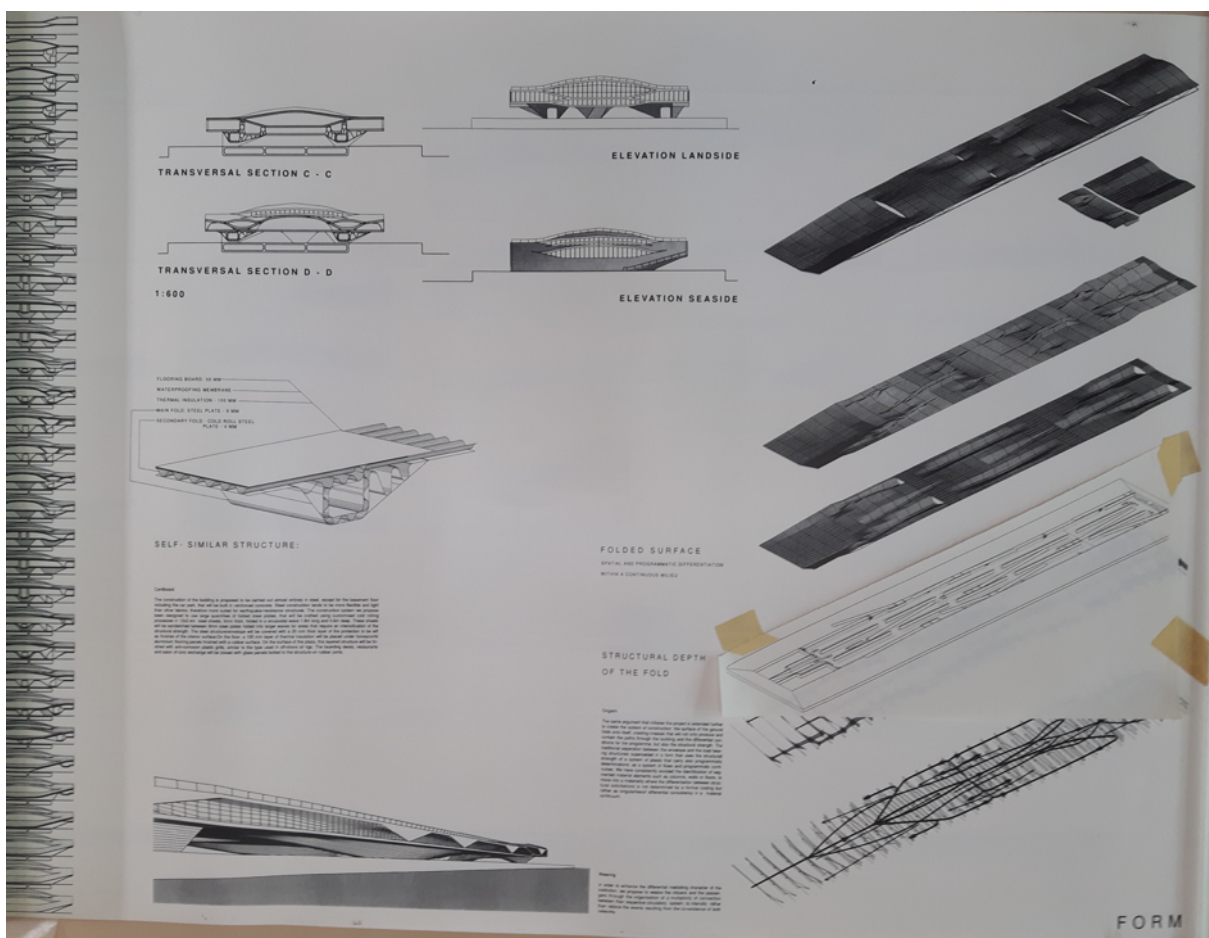


Fig 5.1 Competition panel from Foreign Office Architects' 1994 proposal for the Yokohama Port Terminal. Source: Presentation material for Yokohama International Ferry Port Terminal, Yokohama, Japan, ca.1996, ARCH269714, Foreign Office Architects fonds, Canadian Centre for Architecture, Montreal.

⁴⁰² Ibid.

⁴⁰³ Presentation material for Yokohama International Ferry Port Terminal, Yokohama, Japan, ca.1996, ARCH269714, Foreign Office Architects fonds, Canadian Centre for Architecture, Montreal.

The second prominent competition of the computer revolution of the mid-1990s was the proposed Centre for the Performing Arts in Cardiff Bay, Wales. Featured in *Assemblage* issue no. 26 (April, 1995), in the editorial ‘Computer Animisms (Two Designs for the Cardiff Bay Opera House),’ were proposals by Greg Lynn (with Ed Keller) and Reiser + Umemoto. Comparing the two projects and their relationship to the computer, the editors observe that Reiser and Umemoto use the computer to realise complex curvilinear structures, whilst Lynn and Keller use the computer as a generative tool, employing theories of biological variation.⁴⁰⁴ Despite their differences, both projects – the “metallic bulky pods” of Lynn and Keller and the “crawling mass of geodesic structure” of Reiser + Umemoto – share a distinct “computer look.”⁴⁰⁵ The article concludes on a crucial point, highlighting that although the projects are extremely provocative as they form the basis of a new ‘supple’ architecture, a “fragile criticality of this architecture lies in its own desire to be taken for built work, and this too belongs to the ethos of the computer.”⁴⁰⁶ The critique lies in questioning whether the “computer look” justifies buildability or if these projects remain as formal explorations that only operate at the level of the “computer look” behind the screen.

The intellectual notoriety of the digital “avant-garde” has been facilitated by the circulation of their discourse in architecture’s social and institutional organisations, further solidified by existing anthologies and surveys of the period, as listed in the thesis introduction. These publications have reinstated the lineage from the fold to the blob, making a significant contribution to the ongoing relationship between technology and architecture. However, the overwhelming focus on the role of the computer in the digital design process has limited discourse on the digital in architecture to that of the tool and its formal and organisational capacities. The thesis argues that other engagements with the screen were present but rendered invisible by the implicit power structure (largely patriarchal) dominating the architectural

⁴⁰⁴ Greg Lynn, Jesse Reiser, and Nanako Umemoto, “Computer Animisms (Two Designs for the Cardiff Bay Opera House),” *Assemblage*, no. 26 (1995): 8.

⁴⁰⁵ Greg Lynn, Jesse Reiser, and Nanako Umemoto, “Computer Animisms (Two Designs for the Cardiff Bay Opera House),” 9, <https://doi.org/10.2307/3171415>.

⁴⁰⁶ *Ibid.*

cultural scene of this period. It was not just about the computer but also about the people you knew and the publications in which you were featured, which largely contributed to formulating the dominant account of the digital.

In line with the thesis argument, the next section of the chapter will narrate an alternative account of the digital via what the thesis calls the emergence of a 'screen-based' architecture. It will do this by examining sources and references from the period that privileged the material, spatial, and mediating effects of the screen and its impact on architectural production and representation. This includes material present on the same pages of the ANY conference proceedings and magazines, as well as *Assemblage*, along with a careful selection of other publications such as 'Semiotext(e) Architecture' and the bi-annual journal 'Columbia Documents of Architecture and Theory.' The section will also unpack the architectural work of critically engaged screen-based practices, specifically the installation work produced in the late 1980s and 1990s by Hani Rashid and Lise Anne Couture (Asymptote) and Elizabeth Diller and Ricardo Scofidio (Diller Scofidio). These sources, references, figures, and projects construct a constellation representing a generation of screen-based architects exploring the complex relationship between architecture, theory, and media in the age of the screen, diverging from the blob-centric narrative.

5.4 Towards an Alternative Account of the Digital in Architecture

An alternative account of the digital in architecture does not reject the dominant narrative of the "digital avant-garde," whose work came to be known as "topological." Instead, it reorients the genealogy from deconstruction to folding to blobs to one that traces the rise of media theory in a post-deconstruction architectural context where discourse on the screen, and not software, prevails. The atmosphere of uncertainty and transition present in architectural discourse at the turn of the 1990s, as described by Stan Allen, was indeed an opportunity for architecture to re-examine itself as a discipline. The doubt and uncertainty were unsurprising as "one of the stated aims of the theoretical work of the previous decade had been to destabilise

the certainties of received architecture knowledge.”⁴⁰⁷ Seen from this perspective, deconstruction theory of the 1980s played a critical role in that it “served its purpose, preparing the ground for new inquiries and new directions.”⁴⁰⁸ One of these inquiries was the fold, of course. However, a closer examination of this period reveals that the screen, and its material, spatial, and mediating effects, also became of architectural concern, as it circulated theoretical discussions and was also literally being used as an object in architectural projects.

We begin loosely tracing this lineage in the late 1980s, observing that architecture’s disciplinary edge was opening up to extra-disciplinary concerns. Reflecting upon this transitional period, Wigley highlights that a younger generation of thinkers occupied the institutions, programs, curricula, and publications constructed as an architectural project in the 1970s and, in turn, completely redesigned the space of theory. This generation asked questions of architecture that were “thought to be improper” by their hosts – gender, sexuality, post-coloniality, psychoanalysis, among others – resulting in “quite a lot of blood on the floor – wounded parents and all that.”⁴⁰⁹ In the same publication, Felicity D. Scott echoes a similar description, stating that architectural theory became a project of opening up spaces within architecture, questioning “its assumptions and mandates, even to scrutinise and put pressure on what seemed to be dominant urgencies within architectural practice in the more conventional sense of the term.”⁴¹⁰ What is interesting about these remarks is both the appeal to extra-disciplinary questions and the general suspicion of the “strictly architectural” disciplinary edge.

If the ‘Deconstructivist Architecture’ exhibition opened up a debate on the limits of philosophical discourse and its translation into physical representation, a series of events and consequent publications in the late 1980s questioned what constitutes architecture’s disciplinary edge. In 1988, the same year of the ‘Deconstructivist

⁴⁰⁷ Allen, “The Future That is Now,” 212.

⁴⁰⁸ Ibid.

⁴⁰⁹ Mark Wigley, “Flash Theory,” in *2000+: the Urgencies of Architectural Theory* ed. James Graham, (New York, NY: GSAPP Books, 2015), 265.

⁴¹⁰ Felicity D. Scott, “Taking Time,” in *2000+: the Urgencies of Architectural Theory* ed. James Graham, (New York, NY: GSAPP Books, 2015), 187.

Architecture' exhibition, John Whiteman and Jeffrey Kipnis convened a conference on architectural theory at the Chicago Institute for Architecture and Urbanism, with the proceedings later published in 1992 under the title 'Strategies in Architectural Thinking.' The papers presented at the conference reflected what Whiteman observed as "an emerging tendency to tie and untie architectural theory at the intersection of several issues at once cultural and architectural,"⁴¹¹ consequently questioning architecture's disciplinary edge. A proposition like this dismantles the once-supposed autonomy of architecture that persistently haunted the two decades of architectural discourse leading up to this conference. This is summed up well in John Whiteman's introduction to the conference, who describes the boundary of architecture, or "the line that demarcates that which is intrinsic and extrinsic to architecture,"⁴¹² as the most suspect gesture in architectural theory. While some continued to argue for its stabilisation, others for its complete erasure, Whiteman asserted that no one would argue that it is a gesture that is without trouble or difficulty at that particular point in time.⁴¹³

The dubious disciplinary edge that was being questioned in the late 1980s was a key driver for the transitional period present in architectural discourse at the turn of the 1990s, and therefore, an influential force that allowed other bodies of knowledge, such as media theory, to infiltrate architectural theory and practice. What also facilitated this was the foundation of the then-new critical journals of architectural theory, *Assemblage*, and the *ANY* magazine and conferences. The same journals that disseminated what the thesis identifies as the dominant account of the digital also became the hosts of this extra disciplinarity. *Assemblage* editors Michael Hays and Alicia Kennedy wrote a letter in the final issue stating that the journal never promoted a singular position but rather, "it provided a registration plane for a discourse in the process of finding its legs, developing its skills, suffering its growing pains."⁴¹⁴ Similarly, Anyone Corporation asserts that the publishing house is a think

⁴¹¹ John Whiteman, "Introduction," in *Strategies in Architectural Thinking* eds. John Whiteman, Jeffrey Kipnis, and Richard Burdett (Chicago, Ill: Chicago Institute for Architecture and Urbanism, 1992), 7.

⁴¹² *Ibid.*

⁴¹³ *Ibid.*

⁴¹⁴ Michael K. Hays and Alicia Kennedy, eds., "[Introduction]," *Assemblage*, no. 41 (2000): 3, <http://www.jstor.org/stable/3171266>.

tank that aims to erode boundaries between disciplines and cultures. In a letter to LOTUS issue No 92, editor Cynthia Davidson clarifies that central to the publication house is the question of undecidability that is implied in the “any” of its title.⁴¹⁵ This “undecidability” counters the traditional understanding of architecture as the foundation of decidability and, instead, welcomes other bodies of knowledge into the same space. This is evident through the magazine thematic; for instance, ‘ANY 3’ was dedicated to ‘Electrotecture,’ an issue that solely investigated the relationship between emerging electronic technologies and architecture and hosted figures such as William J Mitchell. In her ‘Dear Reader’ introduction to the issue, Davidson provokes a series of questions that once again destabilise traditional understandings of architecture – What is the architecture of cyberspace? What is materiality in the electronic environment? What happens when the grid becomes the net?

As the instability of this disciplinary line defined the state of affairs in architectural theory at the turn of the decade, the resurgence of postmodern media theory was another factor that contributed to the screen becoming of architectural concern. The “arrival” of postmodern media theory (mainly French philosophical thinking) to US academic circles in the late 1980s and early 1990s, and as we saw with the rise of a Deleuzian discourse, is largely attributed to the substantial English translations of Paul Virilio and Jean Baudrillard’s writings by publishing houses Semiotext(e) and Verso Books. Of significance to this period are the translations of Baudrillard’s ‘The Ecstasy of Communications’ (1987) and the ‘The Gulf War Did Not Take Place’ (1991), and Virilio’s ‘War and Cinema: The Logistics of Perception’ (1989), ‘The Aesthetics of Disappearance’ (1990), and ‘Lost Dimension’ and the ‘The Vision Machine’ (1991). In addition, Baudrillard and Virilio's theories became prominent in architectural discourse as translations of these texts were published in architectural journals, and both figures were invited to contribute to architectural conferences and publications.

⁴¹⁵ Cynthia Davidson, “ANY (story),” *LOTUS International*, 92 (1996): 95.

Virilio consistently appeared in the ANY magazine and conferences. For instance, an annotated list of prospective invitees to the 'Anywhere' conference⁴¹⁶ (see Fig 5.2) included Paul Virilio's name on List 1 (which was followed by List 2 and a list of "Others"). Marked with a small 'n' before his name (which meant that he could not attend the conference), this did not deter the editor from publishing his text, 'Gray Ecology.' It was important to include his text in this issue as the conference theme, as introduced by Arata Isozaki and Akira Asada, was interested in questioning the effects of electronic real-time communications on architecture and the city. Virilio's text discusses the sudden eradication of distance in a society confronted with telepresence. The article preceded and complemented Toyo Ito's 'Architecture in a Simulated City,' which described the 'Visions of Japan' show in London and the floating screens that showered visitors with images and sounds representative of a simulated city where "we are already within the screen."⁴¹⁷ Virilio also contributed to ANY magazine issues 4, 5, and a seminal text titled 'Cybernetics and Society' in issue 19/20, discussing the effects of real-time on space – not the time-based interests of Lynn in geometry but rather the tension between real presence and virtual telepresence as a consequence of teletechnologies.⁴¹⁸

⁴¹⁶ Annotated list of prospective invitees to "Anywhere," ARCH273345, Anyone Corporation Fonds, 1990-2001, Canadian Centre for Architecture, Montreal.

⁴¹⁷Toyo Ito, "Architecture in a Simulated City," in *Anywhere*, ed. by Cynthia C. Davidson (New York: Anyone Corp, 1992), 192.

⁴¹⁸ Paul Virilio and Charles T. Wolfe, "Cybernetics & Society," *ANY: Architecture New York*, no. 19/20 (1997): 7, <http://www.jstor.org/stable/45048857>.

Anywhere

40 West 25th Street, 10th Floor, New York, NY 10010 Telephone 212/645-1400
Fax 212/645-0726

*100,000 a yr.
Japanese - 2 publications a year
10 conf. 10 books
Columbin Documents - (On The Edge of Architecture)*

- Kenyo -

Anyone Re-invitees

✓ Akira Asada (Japan)
✓ Jacques Derrida (France)
✓ Peter Eisenman (USA)
✓ Frank Gehry (USA)
✓ Arata Isozaki (Japan)
Fredric Jameson (USA)
✓ Kojin Karatani (Japan)
✓ Jeffrey Kipnis (USA)
✓ Rem Koolhaas (Neth)
✓ Rosalind Krauss (USA)
Daniel Libeskind (Germ)
Rafael Moneo (Spain)
✓ John Rajchman (USA)
Ignasi de Solà-Morales (Spain)
Robert Somol (USA)
✓ Mark Taylor (USA)
Roberto Unger (USA)

Anywhere Invitees List 1

Dennis Hopper (USA)
David Lynch (USA)
Peter Greenaway (UK)
✓ Mark Wigley (USA)
Tadao Ando (Japan)
Bruce Nauman (USA)
N Paul Virilio (France)
Rebecca Horn (Germ)
Avital Ronell (USA)
Cornel West (USA)
J. G. Ballard (USA)
Donna Haraway (USA)
Roger Penrose (UK)
Toshihiko Izutsu (Japan)
Bin Kimara (Japan)
Shusaku Arakawa (Japan)
Isabelle Stengers (Belgium)
• *Jean Nouvel (France)*

Anywhere Invitees List 2

Peter Lillienthal (Berlin)
Sandy Kwinter (USA)
Jonathan Crary (USA)
Philippe Quéau (France)
Shigehiko Hasumi (Japan)

Others

Gary Hill (USA)
Réne Thom (France)
Ilya Prigogine (UK)
Stephen Hawking (UK)
Giuseppe Sinopoli (Italy)
Hans Kollhof (Germ)
→ Fritz Neumeyer (Germ)
→ Hubert Damisch (France)
Shinohara (Japan)
→ Ito (Japan)
Taki (France)
Susan Buck-Morsø (USA)
Susan Sontag (USA)
Umberto Eco (Italy)
Wim Wenders (Germ)
William Gass (UK)
Manfredo Tafuri (Italy)
→ Aldo Rossi (Italy)
→ John Hejduk (USA)
Peter Sellars (USA)
Ann Bergren (USA)
Jeremy Gilbert-Rolfe (Australia)
Meghan Morris (USA)
Robert Wilson (USA)
Mark Tansey (USA)
Gianni Vattimo (Italy)
Heiner Müller (Germ)
Wolf Prix (Austria)
Anselm Kiefer (Germ)
Sara Saleri (USA)
Susan Stewart (USA)
Julia Kristeva (France)
Peggy Kamuf (USA)
Hélène Cixous (France)
Luce Irigaray (France)

*Andrew Benjamin - England
Christian Girard - France*

*Roz
Should bring
Denis Hollier*

✓: accepted as of 9/29/91

N: Cannot attend

Fig 5.2 List of prospective invitees to *Anywhere* conference. Source: Annotated list of prospective invitees to "Anywhere," ARCH273345, Anyone Corporation Fonds, 1990-2001, Canadian Centre for Architecture, Montreal.

Virilio was also invited to participate in Columbia University's Graduate School of Architecture, Planning and Preservation (GSAPP) 'Afterwords: Architecture and Theory Conference' in 1991. The conference was organised around three after-words – weakness, technologies, and events. In Virilio's absence, his text, 'The Law of Proximity,' was later published in volume two of the 'D: Columbia Documents of Architecture and Theory' (see Fig 5.3). This text provided a critical perspective on the impact of electronic technologies on conceptions of time and space, claiming that we live in over-exposed cities mediated by the screen. In the same volume, the transcription of Baudrillard's lecture, who was invited to speak at GSAPP on the 6th of April, 1992, was also published. Baudrillard claims that the Gulf War represented the epitome of simulation, stating that the question of truth and reality can no longer even be asked. According to Baudrillard, virtuality prevails and takes over real space, as television images, unlike photographic images, lack negatives and, therefore historical reference. Accompanying the article were 14 images of the Gulf War, all captured from a TV playing the coverage, by the then editor of the GSAPP Office of Publications, Stephen Perrella (see Fig 5.4). Despite cropping the images to hide the edge of the TV screen, the curved nature of the CRT screen has distorted the images, making it evident that these photos were taken of a TV – a simulation of a simulation? Nonetheless, the presence of images of a TV screen showing an event such as the Gulf War circulating on the pages of an architecture school publication alongside an article by Baudrillard, who introduced radical thoughts on the consequences of postmodern media, is of interest here. It indicates that media theory and representations of conflict, two forces that this thesis argues were establishing a critical discourse on the screen, were infiltrating architecture schools.

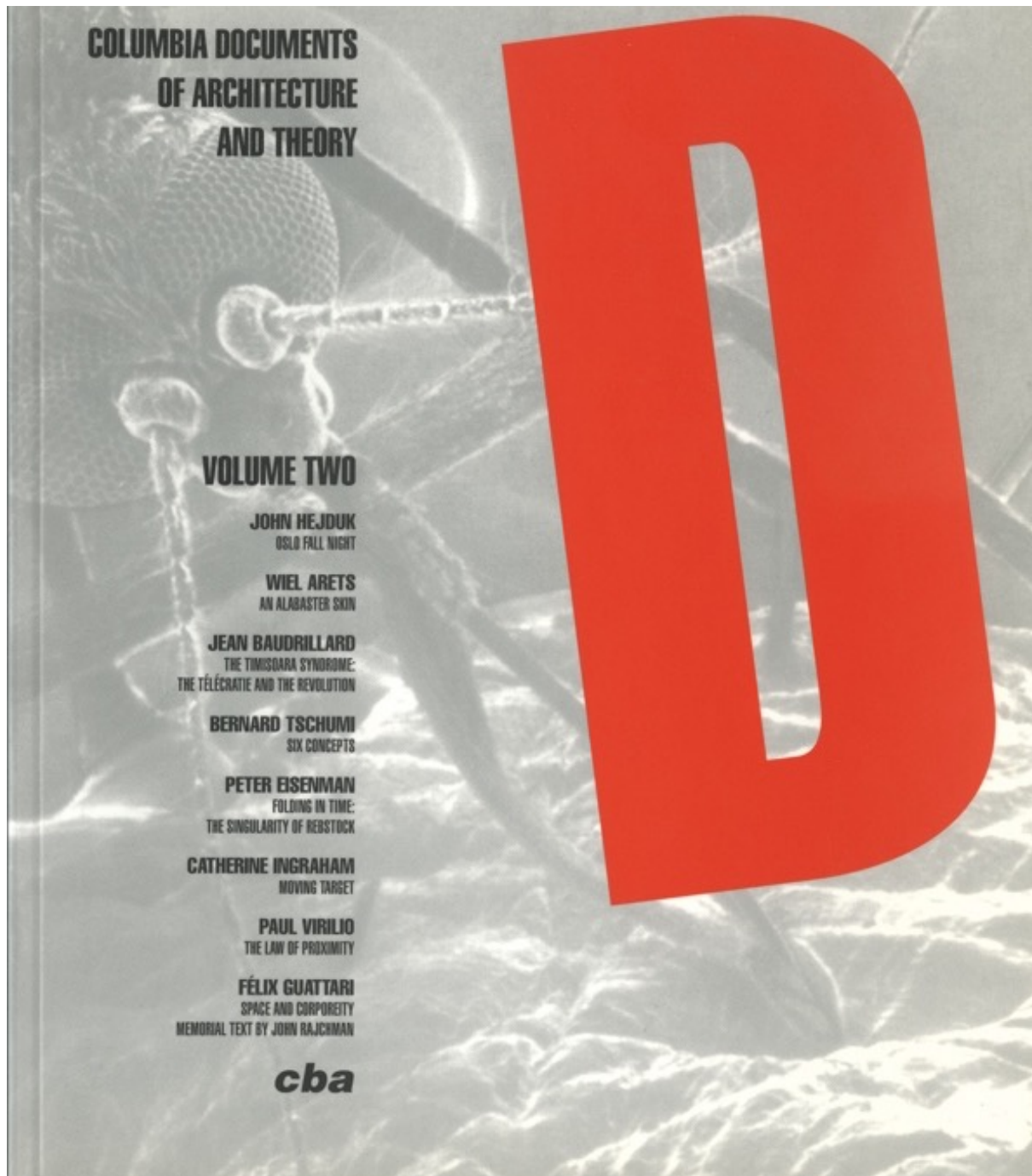


Fig 5.3 Cover of *D: Columbia Documents of Architecture and Theory* (volume 2) published by Columbia Books of Architecture, 1993. Source: Bernard Tschumi, ed., *Columbia Documents of Architecture and Theory: D 2*, (1993).



Fig 5.4 Excerpts from Jean Baudrillard’s article in *D: Columbia Documents of Architecture and Theory* (volume 2), 1993. Source: Jean Baudrillard, “The Timisoara Syndrome: The Telecratie and the Revolution,” *Columbia documents of architecture and theory: D 2* (1993): 61 (left page), 68 and 69 (right spread).

At this time, the prevailing focus on media theory also saw architects themselves discussing events such as CNN's live coverage of the Gulf War. In the same 'D: Columbia Documents of Architecture and Theory' volume that featured Virilio and Baudrillard, a transcription of a lecture by the then dean of GSAPP, Bernard Tschumi, titled 'Six Concepts' also appeared. Just before introducing the first concept, 'Technologies of Defamiliarization,' two images of Gulf War TV excerpts float in isolation on the page (see Fig 5.5). While these images were not explicitly referenced in the six concepts, their inclusion complemented Tschumi's observations that technology is inextricably linked to our contemporary condition and that the mediated world has dismantled reality, constructing the world as a set of "images."⁴¹⁹

⁴¹⁹ Bernard Tschumi, “Six Concepts,” *Columbia documents of architecture and theory: D 2* (1993): 84.

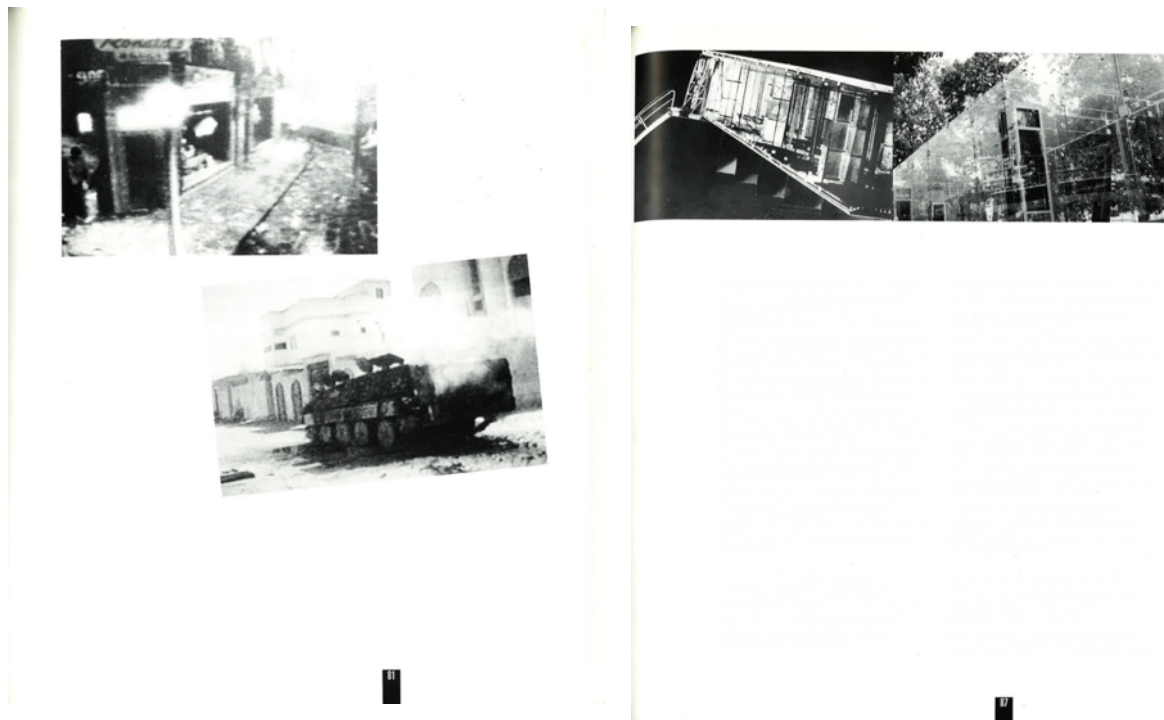
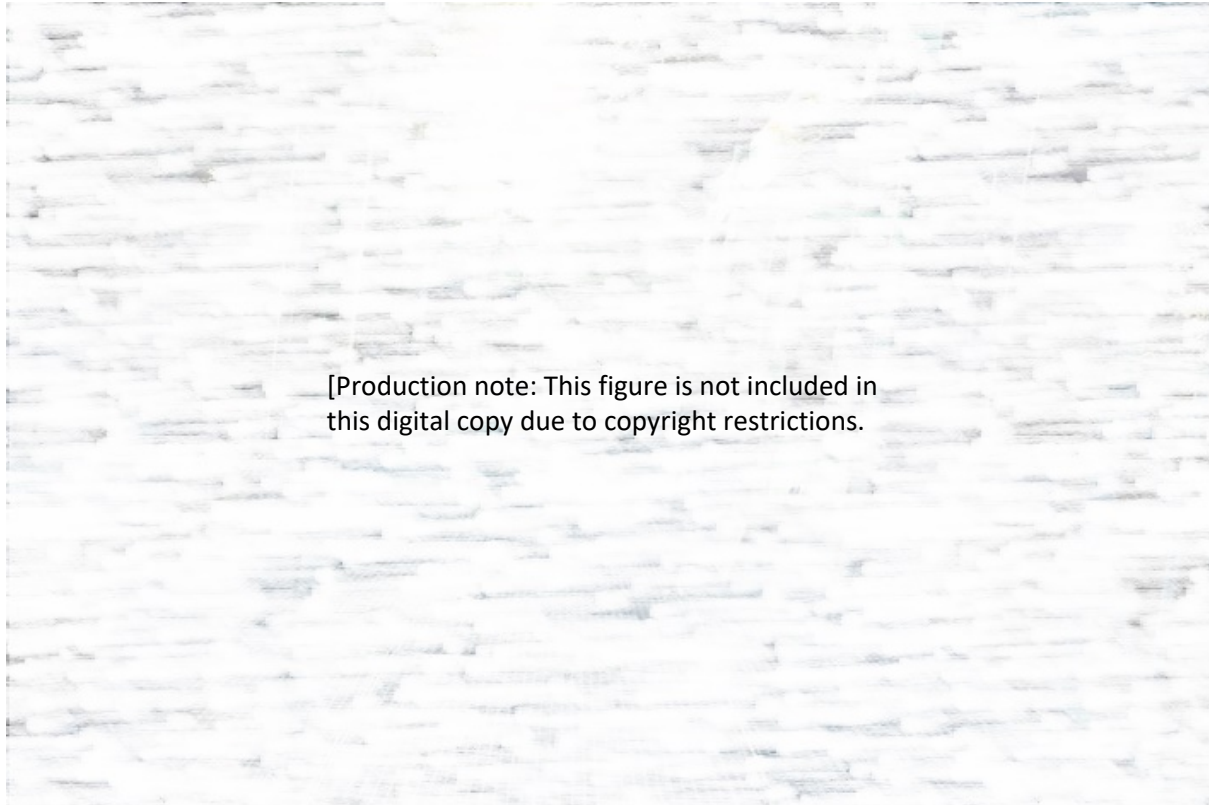


Fig 5.5 Excerpts from Bernard Tschumi's article *Six Concepts in D: Columbia Documents of Architecture and Theory* (volume 2), 1993. Source: Bernard Tschumi, "Six Concepts," *Columbia documents of architecture and theory: D 2* (1993): 81 and 87.

Also absent from explicit reference but included in Tschumi's text were images of 'Glass Video Gallery,' completed in 1990 (see Fig 5.6). This project served as a translation of his observations on mediated images and environments. Originally built as a temporary structure for a music and video festival, the rectangular structure is entirely enveloped with glass and contains six screening stations, each housing four monitors. The structure is rotated in both axes, leaving the installation floating on a series of colonnades, challenging individuals to walk on the oblique floor (see Fig 5.6). The many reflections in the glass panels of the surrounding context added to the sense of instability, creating an illusion of an extension of space. This is further exacerbated at night when the glass walls disappear entirely, leaving only the illuminated video screens and their reflections visible (see Fig 5.7). In 'ANY 5,' Tschumi described, "the endless reflections of the video screens over the vertical and horizontal glass surfaces contradict all assumptions about what is architecture and what is event, what is wall and what is electronic image, what defines and what

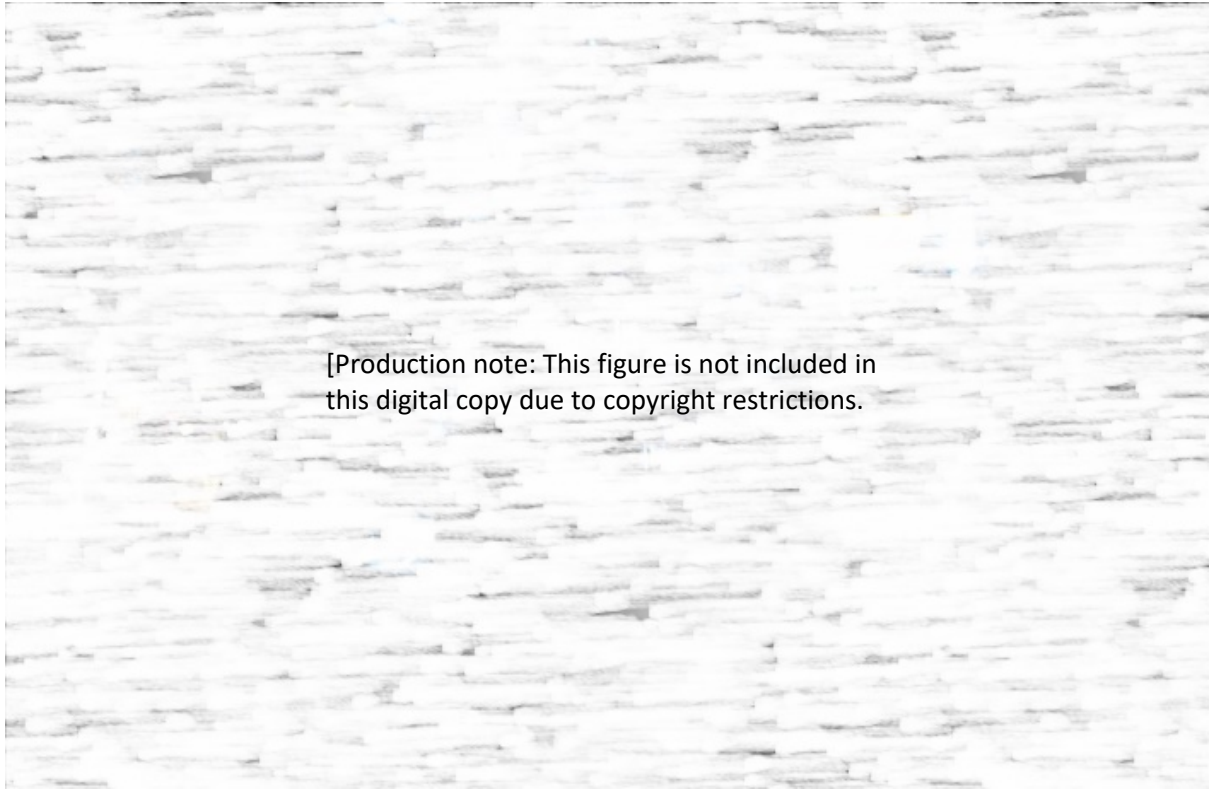
activates.”⁴²⁰ The screens and electronic images materialise the space, making it difficult to distinguish between the interior and the exterior, the real and the virtual, as the image of the context converges with the electronic image – a project that translates, at a 1:1 scale, the material, spatial, and mediating effects of the screen.



[Production note: This figure is not included in this digital copy due to copyright restrictions.]

Fig 5.6 Interior view of Bernard Tschumi Architects’ *Glass Video Gallery*, a structure enveloped in glass and containing six ‘screening’ stations. Source: Bernard Tschumi Architects, *Glass Video Gallery*, 1990, architectural pavilion, Bernard Tschumi Architects, <https://www.tschumi.com/projects/17>.

⁴²⁰ Bernard Tschumi, “Glass Video Gallery,” *ANY: Architecture New York*, no. 5 (1994): 18, <http://www.jstor.org/stable/41845632>.



[Production note: This figure is not included in this digital copy due to copyright restrictions.]

Fig 5.7 Night view of Bernard Tschumi Architects' *Glass Video Gallery*. Source: Bernard Tschumi Architects, *Glass Video Gallery*, 1990, architectural pavilion, Bernard Tschumi Architects, <https://www.tschumi.com/projects/17>.

In a similar line of interest in mediated environments, an essay by Eisenman, 'The Affects of Singularity,' published in *AD* in 1992, describes the mediating effects of the screen with direct reference to the Gulf War. Explaining that "we have all become junkies of a simulated reality to the detriment of the reality of the event itself,"⁴²¹ Eisenman attributes this loss of affect to CNN. This is exemplified through his personal account: "I remember one night at home before dinner two years ago when I was suddenly watching the bombardment of Baghdad. This action was interspersed with soft drink and travel commercials. I remember the grotesque paradox of watching people being annihilated live, as if for television, only to be interrupted by 'normal' life: buy a car; have a beer. Sitting in front of the CNN television news, one is practically anaesthetised to an affect. Does one believe the commercials of the live bombing? It is possible to know what is real in such a situation and, therefore, is it

⁴²¹ Peter Eisenman, "The Affects of Singularity," in *The Digital Turn in Architecture 1992 – 2012*, ed. Mario Carpo (Somerset: John Wiley & Sons, Incorporated, 2012), 23.

possible to have any affective response to such a juxtaposition?”⁴²² Eisenman suggests that if simulation generates uncertainty regarding what is reality, it is also challenging to understand what architecture is, “because architecture has traditionally been seen as the home of reality.”⁴²³ There is a general observation here, even from a figure like Eisenman, often regarded as the godfather of digital design discourse, that permanence, a quality intrinsic to architecture, is increasingly being challenged by the immaterial, non-solid effects of mediated systems such as TV and electronic images.

Extending the discourse on the material, spatial, and mediating effects of the screen is Beatriz Colomina’s article ‘Domesticity at War,’ featured in *Assemblage* issue No.16 (Dec, 1991). The paper begins by noting the deadline issued by the United Nations Security Council for Iraq to withdraw from Kuwait – 16 January, 1991 – and continues to describe the impending deadline: “We are, we seem to be, on the edge of war. At the threshold. A line has been drawn. Literally. Deadline. In crossing that line we got to war.”⁴²⁴ Situating the Gulf War in a trajectory of televised spectacles since the 1960s, including Kennedy’s assassination, the moon landing, and the Vietnam War, Colomina argues that war today takes place without fighting. Instead, the domestic interior, particularly the ‘war cabinet’ housing the TV, becomes the battlefield. Addressing concerns similar to those of Baudrillard and Virilio, primarily that the screen is a distancing device that contributes to the lost dimension of space, Colomina continues to examine how “the public world” was encroaching into the domestic interiors through TV screens. She highlights that CNN advertised itself during the Gulf War with the line “CNN brings the front line to your living room” during the Gulf War, collapsing the boundaries between “outside space” and interior space, making it difficult to establish the limits of domestic space.⁴²⁵ In the notes section, it is specified that the paper was an edited transcript of a lecture delivered at the School of Architecture at the University of Illinois, Chicago, on the evening of 16

⁴²² Eisenman, “The Affects of Singularity,” 24.

⁴²³ Ibid.

⁴²⁴ Beatriz Colomina, “Domesticity at War,” *Assemblage*, no. 16 (1991): 15, <https://doi.org/10.2307/3171160>.

⁴²⁵ Colomina, “Domesticity at War,” 17.

January 1991, coinciding with the onset of the bombing of Baghdad. Discourse on the screen was literally unfolding in architectural circles at the same time that these effects were being played out live on the global audience's TV screens.

This collision between architecture, conflict, theory, and media in the age of the screen is best illustrated in another source from the period – the special issue of *Semiotext(e)* titled 'Semiotext(e) Architecture,' edited by Hraztan Zeitlian in 1992 (see Fig 5.8). Published one year after the Gulf War, this large-format, landscape-oriented publication aimed to dismantle the dichotomy between design and theory, as "experimental/theoretical architects were urged to engage in design."⁴²⁶ It gathered a series of diverse writing and speculative screen-based architectural projects by Elizabeth Diller, Ricardo Scofidio, Hani Rashid, and other figures soon to be associated with the Paperless Studio, including Jesse Reiser and Stan Allen. The projects and writings seem carefully curated to affirm Zeitlian's provocation in the introduction that architecture, technology, and theory are no longer inseparable.

⁴²⁶ Hraztan Zeitlian, *Semiotext(e)/architecture* (Brooklyn, NY: Semiotext(e), 1992), 1.



Fig 5.8 Cover of *Semiotext(e) Architecture*. Source: Hraztan Zeitlian, ed., *Semiotext(e)/architecture* (Brooklyn, NY: Semiotext(e), 1992).

One of the contributions to ‘Semiotext(e) Architecture,’ titled ‘Tourisms: Suitcase Studies’ by Elizabeth Diller and Ricardo Scofidio,⁴²⁷ explores the themes foregrounded by the publication. Initially produced in 1991 and later becoming the main protagonist for their 1994 editorship of ‘Back to the Front: Tourisms of War,’ this installation explores the intersection between representation and technology. Comprising fifty samsonite suitcases suspended in a gallery space, each transforming into a display case showcasing a single tourist attraction in each of the fifty states in the US through official and unofficial artifacts and representations – including postcards, memoirs, and short films – the installation mimics CRT screens in terms of scale, density, and the protruding light bulb used to spotlight the contents (see Fig 5.9). The project ultimately questions whether travel in the electronic age,

⁴²⁷ A project that was circulating architectural media at the time, namely later published in the 1992 “Anywhere” conference proceedings, *Assemblage No.28* in 1995 and in the book ‘Back to the Front: Tourisms of War,’ edited by Elizabeth Diller and Ricardo Scofidio in 1994. See Elizabeth Diller and Ricardo Scofidio, “SuitCase Studies: The Production of a National Past,” in *Back to the Front: Tourisms of War*, eds. Elizabeth Diller and Ricardo Scofidio (New York: Princeton Architectural Press, 1996), 32–105.

characterised by the “unlimited freedom of movement granted by tele-technology,”⁴²⁸ could supersede conventional travel.

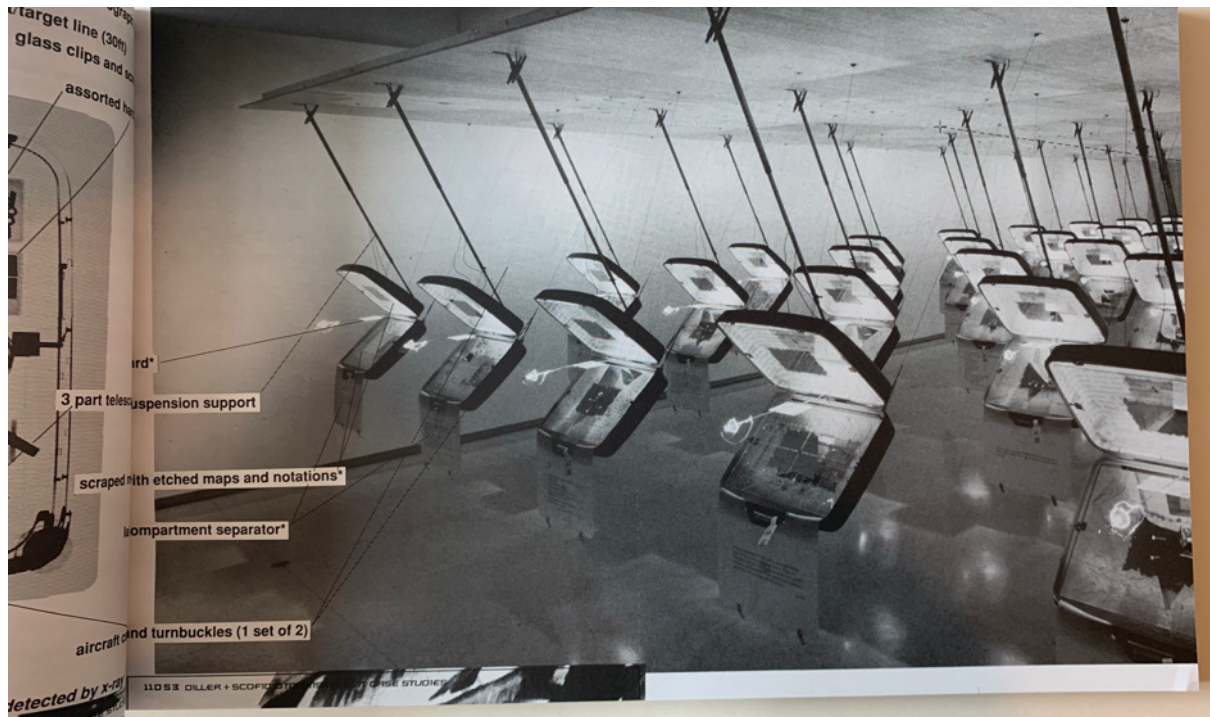


Fig 5.9 Diller Scofidio’s *Tourisms: Suitcase Studies* featured in *Semiotext(e) Architecture*. Source: Diller Scofidio, “suitCase Studies,” in *Semiotext(e)/architecture*, ed. Hraztan Zeitlian (Brooklyn, NY: Semiotext(e), 1992), 9.

Attention should be drawn to the overly complex graphic design of ‘Semiotext(e) Architecture’ as it attempts to translate the entanglement between theory and design. The cover image plays with the illicit as it is “dominated by pills, syringes and alphabet soup”⁴²⁹ (see Fig 5.8), while the journal’s pages have a Xerox graphic design aesthetic. This aesthetic employs overlay photocopy techniques, creating a collision between text and images (see Fig 5.10). In his introductory manifesto, Zeitlian explains that “the architectonics of the projects have been manipulated at times to the point of unrecognizability,”⁴³⁰ rendering the content of the publication illegible at times and difficult for readers to decipher between what is “real” or intentional and what has been manipulated. The deliberately disorienting format, or

⁴²⁸ Elizabeth Diller and Ricardo Scofidio, “SuitCase Studies: The Production of a National Past,” 23.

⁴²⁹ Frichot and Loo, *Deleuze and Architecture*, 45.

⁴³⁰ Zeitlian, *Semiotext(e)/architecture*, 1.

“low speed approach,”⁴³¹ forces readers to engage with the architecture of the page, encouraging them to rotate the publication or draw closer to the page to bring the fragmented and disorienting design into focus. This graphic experimentation, to some degree, simulates the speculative, spatio-temporal, and fragmented media experience generated by CNN’s live coverage one year prior to the publication.



Fig 5.10 Hraztan Zeitlian’s introduction to *Semiotext(e) Architecture*. Source: Hraztan Zeitlian, ed., *Semiotext(e)/architecture* (Brooklyn, NY: Semiotext(e), 1992), 1.

Screens and news clippings seamlessly infiltrate the pages of the publication, with direct references to the Gulf War, mainly the civil dissent surrounding it.⁴³² For instance, James Der Derian’s visual essay, ‘War/Game as Video,’ features a continuous strip of images spanning the top half of two and a half spreads, showcasing various aspects of the Gulf War, from the “grainy, ghostly green images of the beginning”⁴³³ (although the phosphor-green is concealed through the black and white print) to images of military personnel standing in front of TV screens,

⁴³¹ Zeitlian, *Semiotext(e)/architecture*, 2.

⁴³² Frichot and Loo, *Deleuze and Architecture*, 45.

⁴³³ James Der Derian, “War/Game as Video,” in *Semiotext(e)/architecture*, ed. Hraztan Zeitlian (Brooklyn, NY: Semiotext(e), 1992), 146.

substantiating their claims by guiding the audience along the arcs of the bombs on the presented maps (see Fig 5.11).⁴³⁴ Derian’s text, which references Virilio and Baudrillard, claims that what was actually viewed on the screen was a “videographic spectacular, simulations of war.”⁴³⁵

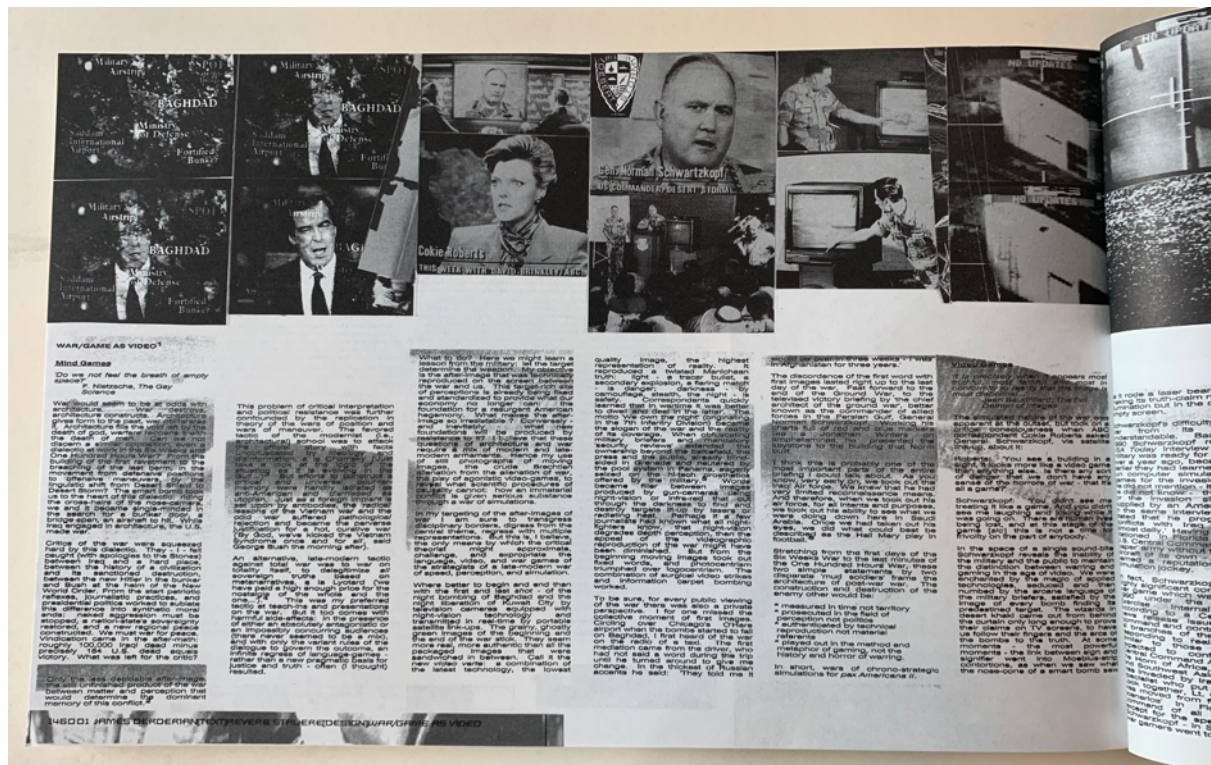


Fig 5.11 James Der Derian’s *War/Game as Video* featured in *Semiotext(e) Architecture*. Source: James Der Derian, “War/Game as Video,” in *Semiotext(e)/architecture*, ed. Hraztan Zeitlian (Brooklyn, NY: Semiotext(e), 1992), 146.

In another visual essay, Bob Somol and Linda Pollari present the ‘Vertical Hold’ installation for the exhibition ‘Oil Works by Architects.’ This installation presents nine television screens displaying images from the Gulf War, replacing the classical architectural nine-square grid (see Fig 5.12). The accompanying endnotes reflect criticism of the war and highlight that the media machine behind the war, as consumed through the TV screen, is just as aggressive as geopolitical and military force. ‘Semiotext(e) Architecture,’ a thought-provoking source from this period, serves as an important archival document when constituting an account of the

434 Ibid.

435 Der Derian, “War/Game as Video,” 148.

screen that is situated in broader cultural entanglements. The combination of the disorienting graphic design and the inclusion of screen-based architectural projects demonstrate an explicit engagement with aesthetic concerns surrounding the tension between reality and its simulation, as prompted by Baudrillard, Virilio, and CNN's live coverage. It materialises a relationship between architecture, conflict, theory, and media in the age of the screen.

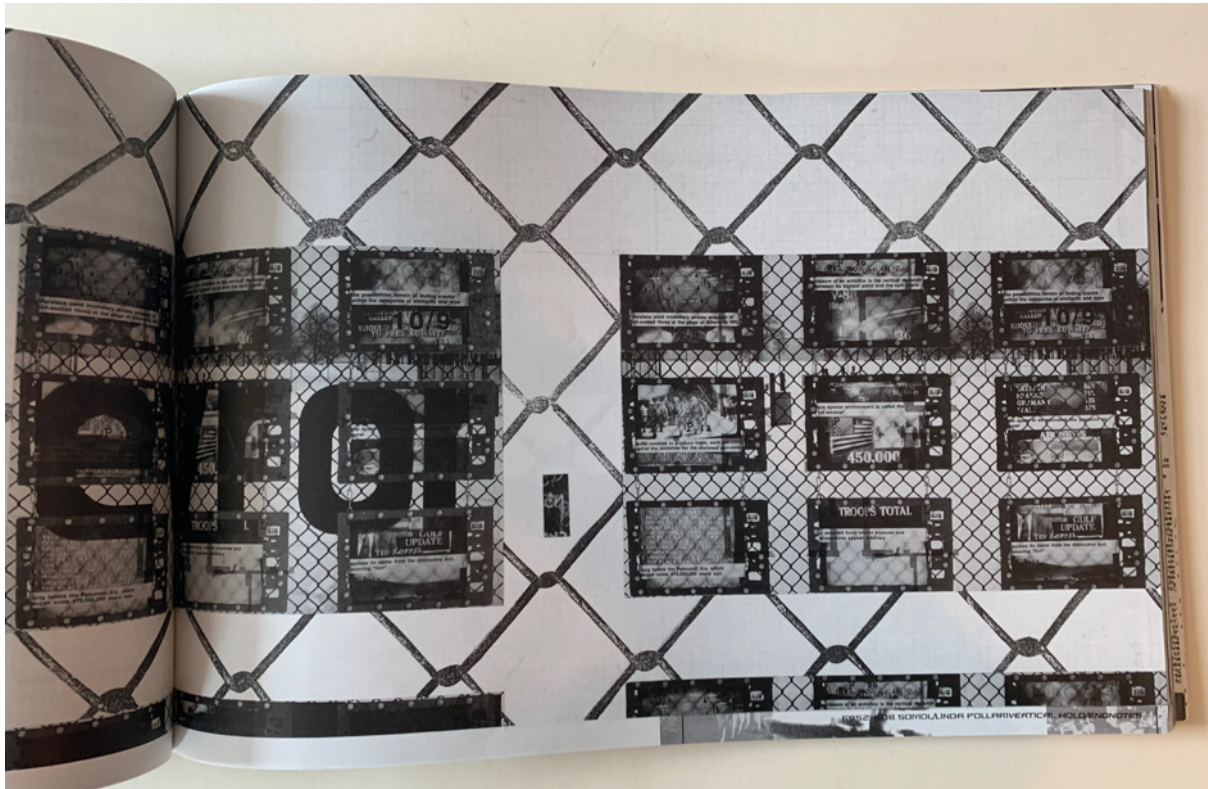


Fig 5.12 Bob Somol and Linda Pollari's *Vertical Hold* featured in *Semiotext(e) Architecture*. Source: Bob Somol and Linda Pollari, "Vertical Hold," in *Semiotext(e)/architecture*, ed. Hraztan Zeitlian (Brooklyn, NY: Semiotext(e), 1992), 69.

In the context of the screen's heightened cultural and architectural presence, the installation work produced in the late 1980s and 1990s by Asymptote and Diller Scofidio continued this explicit engagement and translation of the material, spatial, and mediating effects of the screen. Unlike the topological digital avant-garde, who were interested in what was happening inside the screen through a series of formal operations, the identified screen-based architects were literally using the screen as an object in space to facilitate the translation between immaterial media and material experiences or the convergence of virtual and physical space. Implicit in this

translation are broader questions regarding vision, simulation, and the relationship between liveness (real-time) and mediation. This final section of the chapter will unpack the screen-based architectural projects of Asymptote and Diller Scofidio to reveal that a different engagement with the screen, and a consequent discourse that privileges and foregrounds the effects of the screen, was being constructed at the very same time the topological digital avant-garde came to a rise.

Asymptote, co-founded by Hani Rashid and Lise-Anne Couture in 1989, has worked with a range of media, including photographic techniques, video, and multimedia, and has, from their inception, advocated for “the potential of an architecture that brings together both virtual and real space.”⁴³⁶ Although the practice was heavily influenced by the very same digital design technologies as Lynn, among others, and was literally in the same academic circles (with Hani Rashid later becoming one of the first instructors of the Paperless Studio), what set them apart is this very interest in the translation between the virtual and “real” space, as mediated by the screen. In volume five of ‘Columbia Documents of Architecture and Theory,’ published in 1996, Rashid contributes a short piece titled ‘Ceci N’est Pas Un Building’ (This Is Not A Building). The article clearly articulates Asymptote’s fascination with the relationship between media and architecture in the age of the screen. Stating that the polis is no longer defined solely by geographic means or bound by city walls, Rashid argues that “Today, we willingly inhabit the ethereal territory beyond the cathode-ray tube and find a public space that is strewn across computer screens and networks.”⁴³⁷ This provocation, which begins to spatialise the screen and imagines a virtual and electronic alternate urban space, underscores the strong media-based focus of Asymptote’s early installation works.

This interest in blurring the distinction between virtual and actual is tested in various ways, as seen in the multimedia ‘FluxSpace 1.0’ installation at the CCAC Institute in San Francisco and the ‘FluxSpace 2.0’ pavilion at the Venice Architecture Biennale,

⁴³⁶ Hani Rashid and Lise Anne Couture, eds., *Asymptote: Flux*, (London: Phaidon Press, 2002), 5.

⁴³⁷ Hani Rashid, “Ceci N’est Pas Un Building,” *Columbia documents of architecture and theory: D 5* (1996): 24.

both completed in 2000. In 'Flux 1.0,' 1:1 templates of a computer modelled form were used to construct an installation whose scale sat between that of a large model and a small building. Once built, transformations to the digital model through the manipulation of the virtual surfaces were mapped onto the built work via video projections (see Fig 5.13). These alterations to the original model, occurring both in virtual and built spaces, were further manipulated by surface-embedded sensors designed into the architectural built form. Triggered by the gallery occupants' proximity to the built form, the data from these sensors were collected and visualised as another projection onto the surface. Physical, real-time movement is virtually translated into data, which is then, again, visualised through the projection on the surface. Consequently, the installation was in "a constant state of mutation and distortion in real time and real space."⁴³⁸

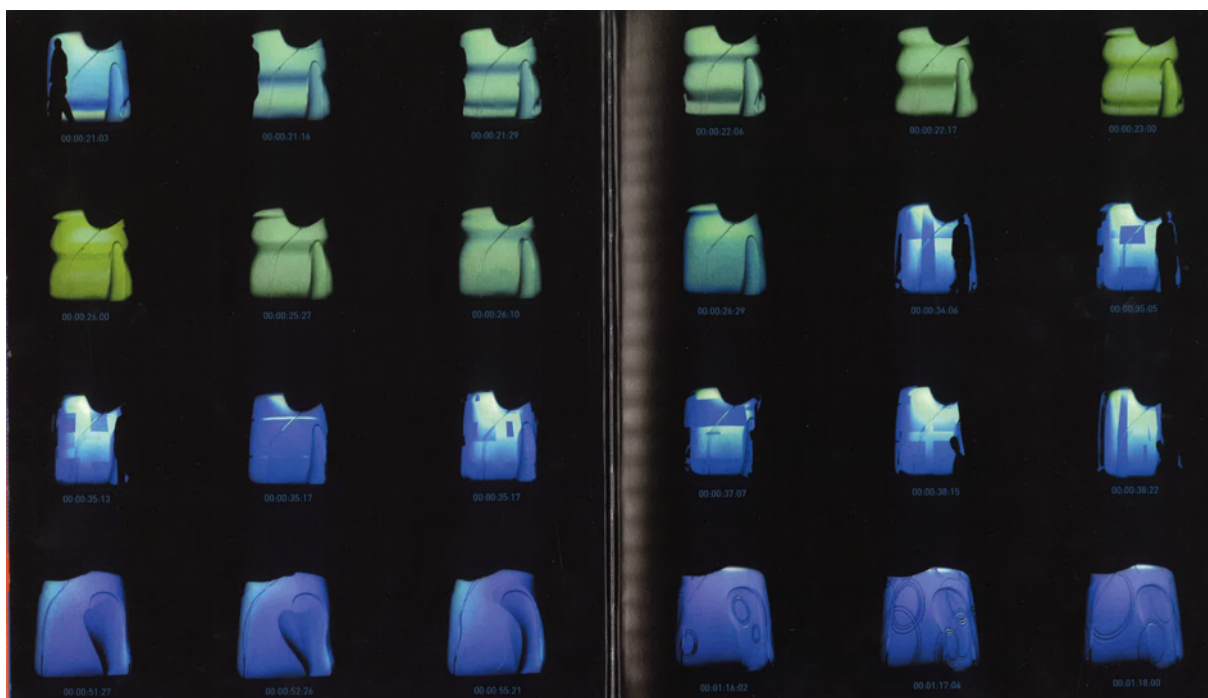


Fig 5.13 Timestamps from Asymptote's *FluxSpace 1.0* installation at the CCAC Institute in San Francisco, 2000. Source: Hani Rashid and Lise Anne Couture, eds., *Asymptote: Flux*, (London: Phaidon Press, 2002), 6-7.

This feedback loop between virtual and physical space, curated by the screen, is also seen in 'FluxSpace 2.0.' The pavilion, located in the Giardini, comprised of a

⁴³⁸ Rashid and Couture, *Asymptote: Flux*, 8.

steel framework wrapped with a red pneumatic skin, housing an interior with two 180-degree webcams set within two rotating one-way mirrors at opposing ends of the pavilion (see Fig 5.14). The interior is experienced in a constant state of flux as the rotating mirrors capture changing perspectives of the inside and outside throughout the day. The webcam, positioned at the centre point of these large circular mirrors, recorded images at thirty-second intervals, simultaneously broadcasting to a virtual audience in real-time, resulting in 1.6 million distinct variations of the interior over the five-month duration of the Biennale (see Fig 5.15).⁴³⁹ Providing a simultaneous spatial experience for a “live” physical audience as well as a virtual one was an opportunity, as Asymptote describe, to highlight that our conception of time and space (as well as interactivity) has been dramatically shifted and mediated by the screen.



Fig 5.14 Asymptote's *FluxSpace 2.0* pavilion at the Venice Architecture Biennale, 2000. Source: Asymptote, *FluxSpace 2.0*, 2000, multi-media installation, Bohem Foundation, <https://bohen.org/project/asymptote-architecture-fluxspace-2.0>.

⁴³⁹ Rashid and Couture, *Asymptote: Flux*, 17.

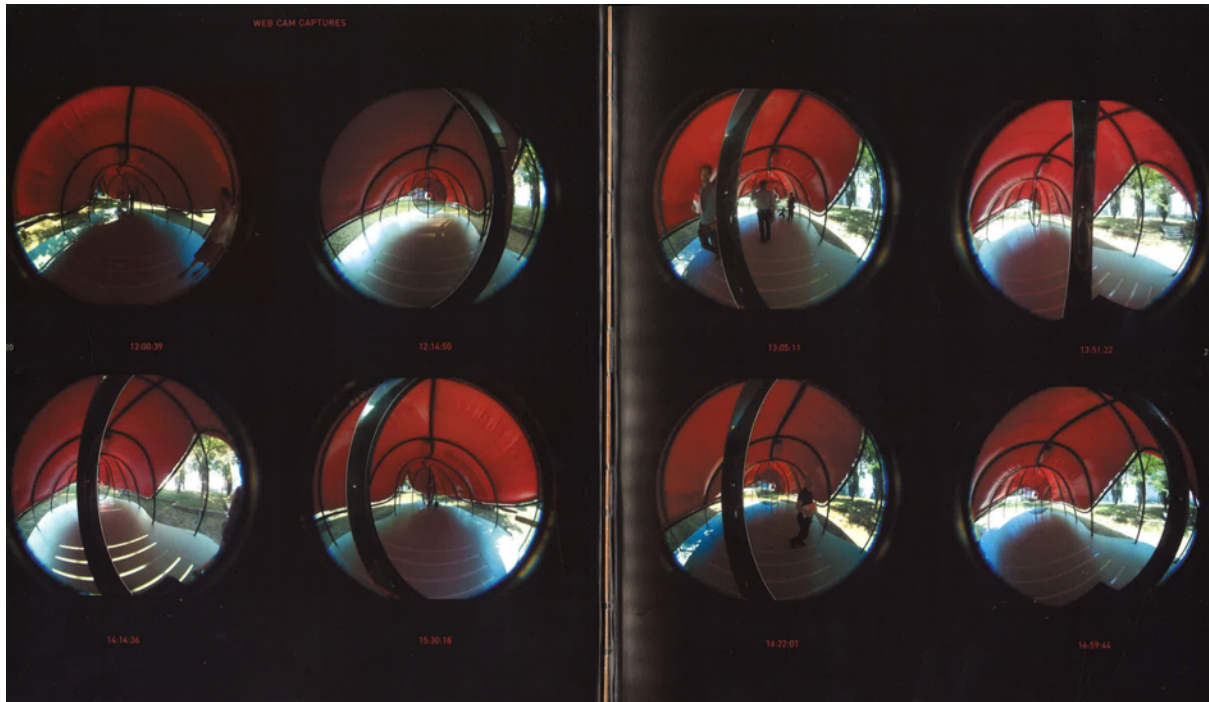


Fig 5.15 Webcam captures from Asymptote's *FluxSpace 2.0* pavilion at the Venice Architecture Biennale, 2000. Source: Hani Rashid and Lise Anne Couture, eds., *Asymptote: Flux*, (London: Phaidon Press, 2002), 20-21.

The simultaneous interplay between virtual and physical space through temporal manipulations by and on the screen has been a consistent thread through Asymptote's work. For example, Rashid's prologue in the book 'Architectural Laboratories' points out, "If we comprehend the world today to be one of fluctuating and mediated circumstance, whether through constant surveillance, instant replays or real-time event structures, then the body is very much implicated by virtue of either its presence or, more profoundly, its absence."⁴⁴⁰ This spatio-temporality, and its implication on the body in space, was explored in Asymptote's collaboration with fashion designer Claudia Hill. Completed in 2000 at the Eyebeam Atelier, the 'TimeSpace' installation, as a part of the fashion runway, consisted of three single occupancy change room "vitrines."⁴⁴¹ The glass change rooms, lined with a one-way mirror, each had a video camera suspended above it that captured a top view of both the models getting changed and the many reflections of the interior walls. Large rear-projection video screens were set up in between each change room and

⁴⁴⁰ Hani Rashid, "Prologue," in *Architectural Laboratories*, ed. Véronique Patteeuw (New York: NAI Publishers, 2002), 93.

⁴⁴¹ Rashid and Couture, *Asymptote: Flux*, 225.

incorporated a time delay of a re-play of the models getting changed. The audience, sitting in front of the stage and able to see their own reflections on the exterior of the vitrines, observed and experienced multiple speeds of time synchronously – real-time of the models getting changed and walking the runway and delayed time of a recent past of a model getting changed on the screens (see Fig 5.16). The overall spatial experience was one in which “the physical presence of the audience and the actual models was doubled, replayed, augmented, and seemingly virtualized in real time and space.”⁴⁴² The effects of the screen, including access to the “real,” the lost dimension of space where real-time takes over real-space, and the technological and material mystification of real-time, which gives rise to the spectacle over the event, are precisely what these installations provoke.



Fig 5.16 Asymptote’s *TimeSpace* installation, 2000. Source: Hani Rashid and Lise Anne Couture, eds., *Asymptote: Flux*, (London: Phaidon Press, 2002), 224.

⁴⁴² Rashid and Couture, *Asymptote: Flux*, 225.

Speculation on the effects of the screen in architectural production and representation was also a central theme across Diller Scofidio's early installation work. The context in which the pair, before being joined by Charles Renfro in 1997, founded their practice significantly impacted their thinking, way of working, and general interest in screen-based architecture. In an extensive overview of their work, cultural historian Edward Dimendberg explains that there was "an inclination to "blur" traditional genres and media pervaded much of the most ambitious culture produced during the 1970s and 1980s in New York City."⁴⁴³ Consequently, Diller Scofidio, working and living in New York City and therefore, deeply embedded in this culture, saw video, performance, and installation art as a significant frame of reference (specifically art by their screen-based contemporaries, including Bruce Nauman, Vito Acconci, Nam June Paik, and Dan Graham). Living across the street from Cooper Union in their home-studio, which was located above the office of the Village Voice newspaper and attending numerous events at the Kitchen⁴⁴⁴ (the leading avant-garde performance and experimental video art institution) provided the perfect cultural mix for the production of a screen-based architecture.

Just as Operation Desert Storm was underway, and we were about to witness a first-hand experience of the effects of the screen, Diller Scofidio's 'Slow House,' featuring a video monitor simulating a waterfront view for a house, was on the cover of January 1991 issue of 'Progressive Architecture' magazine (see Fig 5.17). Operating between art practice and architecture and relying on the funding structure of public art competitions and art biennales in the first two decades of their practice,⁴⁴⁵ their projects blurred disciplinary boundaries (a common thread between all screen-based theory and practice). In many ways, Diller Scofidio was more invested in the screen as a material object than Asymptote. The most literal representation of this is seen in their 1988 piece 'Disemboweled Television,' exhibited at the Institute of Contemporary Art, University of Pennsylvania. As the project name suggested, a TV monitor was dissected, leaving only a cathode-ray tube on display with the screen

⁴⁴³ Edward Dimendberg, ed., *Diller Scofidio + Renfro: Architecture after Images* (Chicago: University of Chicago Press, 2013), 13.

⁴⁴⁴ Dimendberg, *Diller Scofidio + Renfro: Architecture After Images*, 15.

⁴⁴⁵ Dimendberg, *Diller Scofidio + Renfro: Architecture After Images*, 6.

facing up and attached to wheels. A mirror, angled at 45 degrees and attached to one side of the trolley, reflected what was projected from the tube, constituting a portable viewing machine that constantly prefigured the observers and, in turn, the space both were housed in (see Fig 5.18).

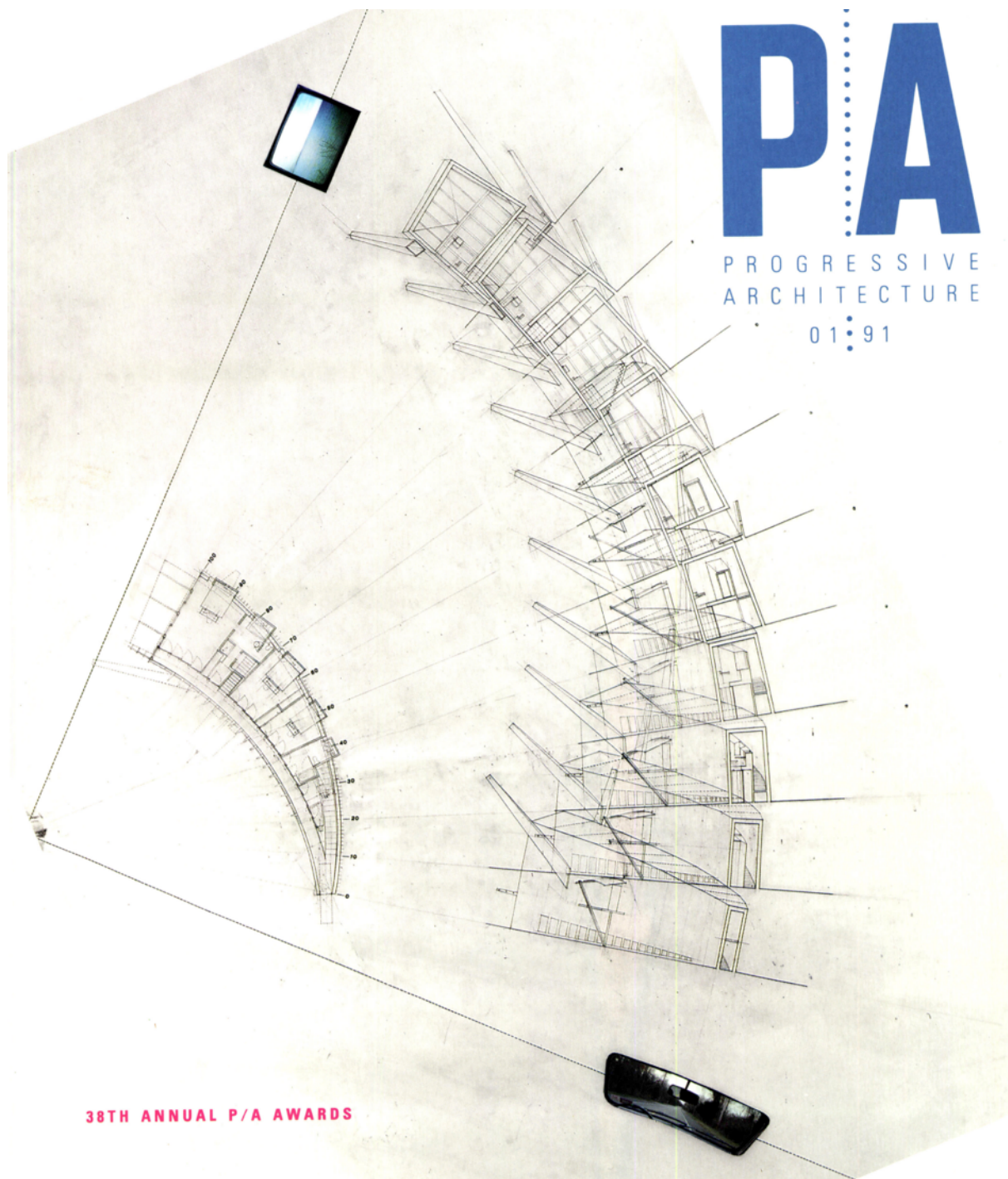


Fig 5.17 Diller Scofidio's *Slow House* featured on the cover of *Progressive Architecture*, January 1991. Source: John Morris Dixon, ed., *Progressive Architecture*, January, 1991, <https://usmodernist.org/index-pa.htm>.

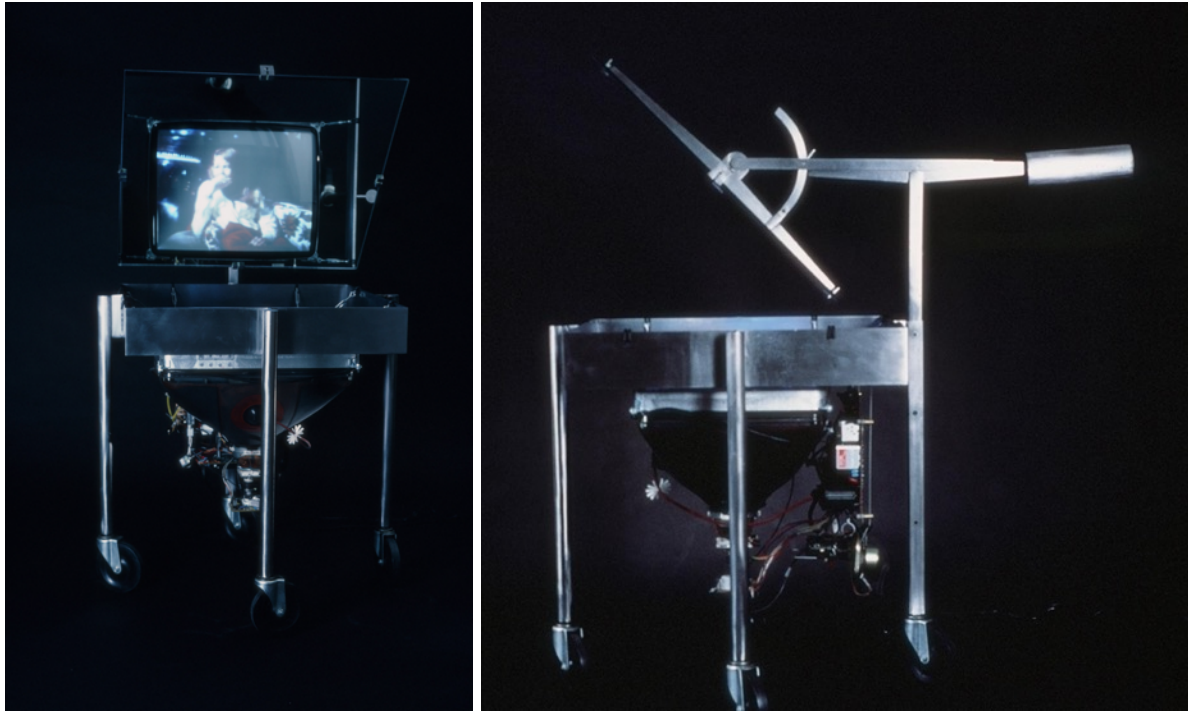


Fig 5.18 Front (left) and side (right) view of Diller Scofidio's installation *Disemboweled Television*, 1988. Source: Diller Scofidio, *Disemboweled Television*, 1988, installation, Diller Scofidio + Renfro, <https://dsrny.com/project/disemboweled-television?section=projects>.

The screen, the frame, and the position of the observer or the observed became the tools they employed to engage with larger questions of vision and space. For instance, in 'Para-site,' an installation for MOMA completed in 1989, Diller Scofidio mounted seven "parasite-like" surveillance cameras around the museum. The recorded footage of three locations across the gallery was projected on seven twenty-inch TV screens in the ground floor projects room using live video feeds (see Fig 5.19). Voyeuristic tactics were at play, as one was being watched in a space where they would usually watch. A similar voyeuristic logic was applied to the 'Jump Cuts' installation in 1995. The project consisted of twelve liquid crystal panels hung on the façade of the United Artists Cineplex Theatre (see Fig 5.20). Internally, a series of live cameras were fixed along the escalators that pierced the main lobby, recording viewers as they ascended the building. This footage was then broadcast on the very public multi-screens, each representing a field of vision within the building. The façade transformed into a performative space, and the occupants, who came to the theatre to view it, were the very subjects on display. Advancing these relationships by introducing an overlaid narrative saw Diller Scofidio's projects, such

as 'Overexposed' and 'Refresh,' further challenge our conceptions of time and space through the screen. In 'Overexposed' (1995), a video camera recorded 24 minutes of a continuous pan across the curtain wall façade of Gordon Bunshaft's Pepsi-Cola building. Critiquing the "transparency" of modernist glass buildings, Diller Scofidio believed they created an overexposed reality with the fear of being watched. The camera pauses at each office window with a voice-over narrating observations of the office worker who is unaware they are being watched in their space (see Fig 5.21). All three projects emphasise relations between spatial interiority and exteriority, reconfigure conceptions of space and time, and create new realities through real-time inversions mediated by the screen.

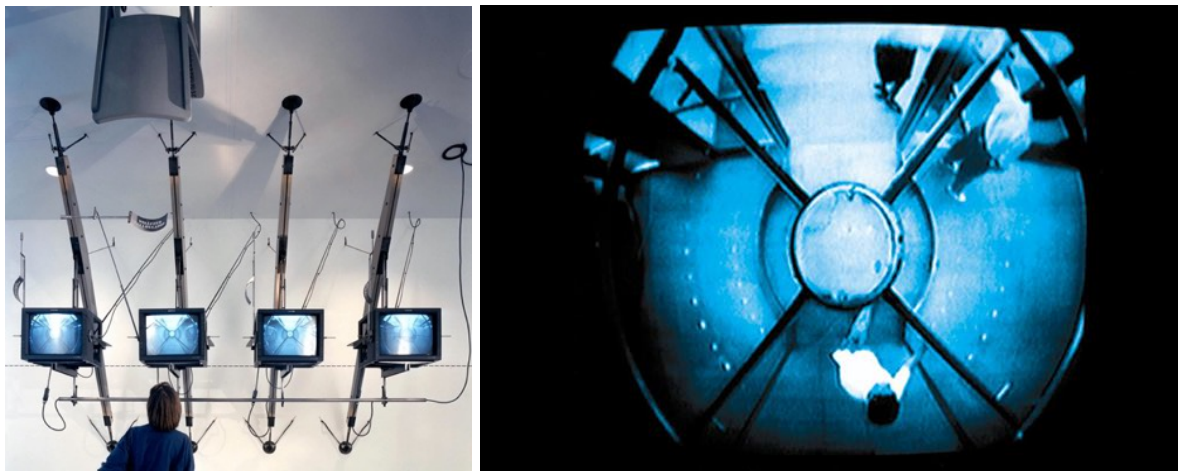


Fig 5.19 Installation view (left) of Diller Scofidio's *Para-site*, where live footage from surveillance cameras (right) positioned above the Museum of Modern Art's entranceways and escalators are displayed on the CRTs. Source: Diller Scofidio, *Para-site*, 1989, multi-media site-specific installation, Diller Scofidio + Renfro, <https://dsrny.com/project/para-site>.

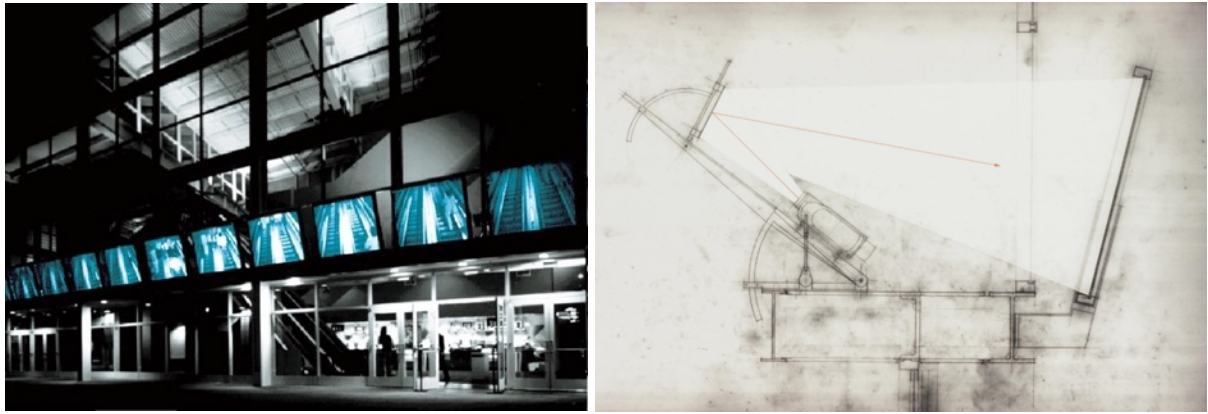


Fig 5.20 View (left) and sectional drawing (right) of Diller Scofidio’s installation *Jump Cuts*, where live footage from cameras placed above the escalators of United Artists Cineplex Theatre is projected on the twelve liquid crystal panels lining the façade of the theatre. Source: Diller Scofidio, *Jump Cuts*, 1995, multi-media site-specific installation, Diller Scofidio + Renfro, <https://dsrny.com/project/jump-cuts>.



Fig 5.21 Still from Diller Scofidio’s video narrative *Overexposed*. Source: Diller Scofidio, *Overexposed*, 1995, video, Diller Scofidio + Renfro, <https://dsrny.com/project/overexposed>.

5.5 Conclusion

This chapter has begun to carve out the beginnings of an alternative account of the digital in architecture at the turn of the 1990s. It has presented the emergence of a screen-based architecture that is deeply invested in exploring the material, spatial,

and mediating effects of the screen. The prevalent discourse on the screen during this period, typically portrayed as a genealogy from deconstruction to folding to blobs, has been challenged. Through the exploration of underrepresented sources and architectural projects within the same academic institutions, circles, and publications, this chapter offers evidence of a different trajectory of engagements with the screen. The methodology of sifting through the very discourse and material culture that contributed to the dominant account has made it possible for this other interpretation of the digital in architecture to be made visible. This approach supports the thesis' argument that, alongside formal explorations and digital design theories on the screen, an alternative relationship to the digital existed in architectural theory and practice at the turn of the decade.

The examined alternative engagements with the screen, as analysed through publications such as 'Semiotext(e) Architecture' and the early screen-based installations of Asymptote and Diller Scofidio, involve experimentation and speculation on the effects of the screen, particularly through concepts of liveness and simulation. As media theory permeated the discipline and figures like Baudrillard and Virilio gained prominence, screen-based architecture extended the critical line of inquiry into the screen's ability to reconfigure conceptions of space and time. Rather than accepting the techno-solutionist narrative associated with the dominant account of the computer, these projects used the screen both as both a material object and a mediating device to interrogate broader questions regarding vision and space.

Themes such as the blurred distinction between real-space versus virtual-space, the subversion of the hierarchy between observer and observed, the electronic linking of space, and the resulting collapse of distance were materialised through the displays of screen-based architecture. This body of work unequivocally demonstrates that an alternative relationship was unfolding in architectural theory and practice at the turn of the decade, one that foregrounds the material presence of the digital – the screen itself.

Chapter 06: Screen Pedagogy: The Paperless Studio, 1994

6.1 Introduction

An alternative account of the digital in architecture, through the emergence of a screen-based architecture, has thus far been narrated by revisiting theoretical discourse and experimental practice at the turn of the 1990s. Deeply enmeshed in this narrative is the screen's role in architectural pedagogy. The introduction of the computer through the 1994 Paperless Studios at Columbia University's Graduate School of Architecture, Planning and Preservation (GSAPP) marked a defining moment. It allowed architecture to further experiment with the computer, mainly through then-new digital software, and interrogate its relationship with the screen. The re-orientation of theoretical concerns in the early 1990s crossed with the arrival of CRT screens connected to Silicon Graphics computers at GSAPP, nurturing an environment of experimentation in architectural pedagogy focused on the screen.

This chapter draws on interviews conducted with key figures such as Bernard Tschumi (former Dean of GSAPP, Columbia University 1988-2003), the first Paperless Studio teachers: Greg Lynn and his digital assistant Ed Keller, Hani Rashid, Jesse Reiser, and Keller Easterling. It also incorporates a review of GSAPP's faculty newsletter, 'Newslines,' the annual publication of faculty-selected student work, 'Abstract,' and the 'School Self Study' from Columbia University archives. The aim is to unpack this pivotal moment in architecture's relationship to the digital and highlight how this pedagogical experiment prompted heterogeneous engagements with the screen, countering the narrative established around the generation of architectural form. Furthermore, the chapter will illustrate how an educational institution constructed itself and shifted its pedagogical practices to integrate screens into design studios. This involves aspects ranging from sourcing and securing funding for equipment to the spatial reorganisation of studio spaces. The emphasis will be on the thesis' argument that the materiality of the screen had to be navigated and negotiated within this context.

6.2 The Computer in the US Academic Context

It has been thirty years since computers became integrated into the space where design is taught – the design studio – and considered a core component of the pedagogical strategy in architecture schools, as presented in this chapter through the Paperless Studios. It is important to note that the establishment of the Paperless Studios was not the absolute first instance of computers being used in architectural education. However, it marked an influential moment, both through its integration of computers into design studio spaces and the design of an entire program and pedagogy centred around the screen (a computer-based studio). The Paperless Studio is often associated with the transformation of architectural education to reflect the then-increasing prevalence of digital tools and software; however, it sits in a longer trajectory of explorations involving the integration of computers and technology in architecture – each presenting a different approach shaped by contextual forces of the time.

Before the advent of the Paperless Studio, explorations into the relationship between computers and architecture date back to the 1960s, when advancements in computing saw various institutions and individuals use the computer as an educational and research model. In contrast to the Paperless Studio, these earlier post-war explorations often saw computers situated in the laboratories of computer science departments, generally isolated from the space of the design studio, thereby encouraging collaboration between architects and computer scientists. While it is outside the scope of this chapter to unpack the developments in computing and its implementation within architecture schools across different contexts, a brief contextualisation of the introduction of the computer in architecture within the US academic context is necessary. This aims to illustrate the shift from its pioneering development in labs in the 1960s to its inclusion as a medium of exploration within design studio, as exemplified by the Paperless Studio (GSAPP) in the mid-1990s.

Since the invention of the first electronic general-purpose digital computer, the Electronic Numerical Integrator and Computer (ENIAC), also known as the "Giant

Brain," at the University of Pennsylvania in 1945, extensive investigations have occurred within academia to understand how computers influence architectural production and representation. ENIAC and its progenies, including the first electronic stored-program computer, 'The Manchester Baby' in 1948, the first commercially successful portable computer, 'The IBM 5100' in 1975, and the first 'Macintosh' in 1984, to name a few, all follow the same logic of being programmable to perform desired operations.⁴⁴⁶ Early modern computers, such as ENIAC, were primarily used by scientists and mathematicians as a tool for automation. Most of these first-generation (1947-1959) large-scale electronic computers were built under university projects⁴⁴⁷ sponsored by government military and research organisations.⁴⁴⁸ Their primary purpose was to facilitate precise calculation of firing tables or missiles – tasks that could be performed faster and more reliably than a human counterpart. The idea of the computer as a tool for automation significantly underpinned the research and development of early modern computers.

In the context of architecture, Molly Wright Steenson identifies six areas of technological developments that held particular importance for architects during the post-war period: computer-aided design, computer graphic, symbiosis, problem solving, cybernetics, and artificial intelligence. Architects turned to computers during this period because they recognised the increasing complexity of architectural problems.⁴⁴⁹ This work often resulted in the design of processes and tools, computer programs, and interfaces for use in architecture.⁴⁵⁰ Interestingly, "just as architects turned to computers, engineers and programmers also turned to architecture,"⁴⁵¹ as

⁴⁴⁶ Teresa Fankhänel, "Introduction: Computers and Architecture," in *The Architecture Machine: The Role of Computers in Architecture*, ed. Teresa Fankhänel and Andres Lepik (Basel: Birkhäuser, 2020), 15.

⁴⁴⁷ For instance, ENIAC was built at the University of Pennsylvania for the Ballistic Research Laboratories of the United States Army Ordnance Corps, Whirlwind I was built through the Servomechanisms Laboratory at the Massachusetts Institute of Technology, the IAS computer was started at the Institute for Advanced Study at Princeton, New Jersey, to name a few.

⁴⁴⁸ Sal Rosen, "Electronic Computers: A Historical Survey," *ACM Computing Surveys* 1, no.1 (1969): 7, <https://doi.org/10.1145/356540.356543>.

⁴⁴⁹ Steenson, *Architectural Intelligence: How Designers and Architects Created the Digital Landscape*, 9.

⁴⁵⁰ Steenson, *Architectural Intelligence: How Designers and Architects Created the Digital Landscape*, 3.

⁴⁵¹ Steenson, *Architectural Intelligence: How Designers and Architects Created the Digital Landscape*, 10.

they saw the potential to apply their work to tangible results through architecture.⁴⁵² These collaborations not only influenced research trajectories in architecture but also marked an intense epoch of university research projects. Most notable are the projects led by Nicholas Negroponte and Leon Groisser's 'Architecture Machine Group' (AMG), and Ivan Sutherland's pioneering computer program, 'Sketchpad.' Both research projects began to explore the "man-machine" interface, challenging the uni-directional model of interaction seen in the 1960s, where the computer was solely a portal for incoming and outgoing information. In contrast, the exploration into the "man-machine" interface aimed to construct a reciprocal relationship between the two, often closely examining how the computer could contribute to an architect's design process, commonly referred to as computer-aided design.

Negroponte and Groisser's AMG, founded in 1967 and later folded into the MIT Media Lab in 1985, often collaborated with MIT's Artificial Intelligence Lab to explore the dichotomy and interface between "man" and machine. This collaboration was influenced by Negroponte's positioning of "architectural research as a technical and scientific interest at MIT,"⁴⁵³ likely in response to the directive from the then MIT President Howard Johnson for all MIT departments to cultivate a "science-based learning environment."⁴⁵⁴ AMG was controversially initiated through MIT's School of Architecture and Planning, rather than the typical computer science department. As interest in the relationship between computers and architecture grew, the School of Architecture and Planning began to transform its curriculum. This shift moved away from the traditional Beaux-Arts studio model to one that, as called for by Lawrence Anderson, the then Dean of Architecture and Planning, fostered new research models and methodologies for problem solving.⁴⁵⁵ The hybrid classroom-lab model emerged, combining lab research projects with "classroom assignments in programming for the Department of Architecture and undergraduate and master's

⁴⁵² Ibid.

⁴⁵³ Steenson, *Architectural Intelligence: How Designers and Architects Created the Digital Landscape*, 5.

⁴⁵⁴ Steenson, *Architectural Intelligence: How Designers and Architects Created the Digital Landscape*, 167-68.

⁴⁵⁵ Steenson, *Architectural Intelligence: How Designers and Architects Created the Digital Landscape*, 168.

student research,⁴⁵⁶ which often supported the research projects.⁴⁵⁷ The classroom-lab also operated in a multi-disciplinary format, with architecture students collaborating with MIT's Electrical Engineering students on most research projects, once again emphasising new approaches for architectural research revolving around the computer.

The explorations in the classroom-lab were underscored by AMG's consideration of the computer as an equal counterpart to humans. By ascribing intelligence to the machine, AMG sought to ask the machine "not only to problem-solve but also to problem worry."⁴⁵⁸ Negroponete advocated for the design process to be considered as an intimate association between two dissimilar species (human and machine), two dissimilar processes (design and computation), and two intelligent systems (the architect and the architectural machine).⁴⁵⁹ AMG's focus on exploring the human-computer interface led to their first classroom-lab projects, URBAN2 and URBAN5 computer-aided design systems. URBAN2 was the initial version of the system, resulting from the class project for Groisser and Negroponete's 1967 course, 'Special Problems in Computer Aided Urban Design.'⁴⁶⁰ In the same year, it informed the next version of the system, URBAN5, which marked AMG's first research project.

URBAN5 was initially programmed in FORTRAN and ran on an IBM2250 computer. Seen as an urban design partner that would assist in the conception of a design, URBAN5 consisted of a graphic language of cubes that could be manipulated in three-dimensions and explicitly given characteristics, such as transparency, by the user. Text inputted by the user (mainly verbs) in English would be translated into a

⁴⁵⁶ Steenson, *Architectural Intelligence: How Designers and Architects Created the Digital Landscape*, 169.

⁴⁵⁷ In his book, 'Soft Architecture Machines,' Negroponete states that in response to the standard approach of introducing computer technology into architectural curriculum – often through an introductory course offered by another department as a pre-requisite – departments of architecture, like that of MIT, began to internally introduce this content. The aim was to generate a more hands-on approach with the computer and to "bring the concepts and metaphors into more direct contact with other design activities." See Nicholas Negroponete, "Appendix 3: Aspects of Teaching and Research," in *Soft Architecture Machines* (Cambridge, Mass: MIT Press, 1975), 191-197.

⁴⁵⁸ Negroponete, *Architecture Machine: Towards a More Human Environment*, 7.

⁴⁵⁹ Negroponete, *Architecture Machine: Toward a More Human Environment*, preface.

⁴⁶⁰ Steenson, *Architectural Intelligence: How Designers and Architects Created the Digital Landscape*, 179.

graphic language by generating a form on the screen. An important component of the program was its ability to simulate urban growth scenarios based on its observations of the user's design methodology.⁴⁶¹ The software aimed to "democratise" design and urban planning by testing the feasibility of language input in the design process. The computer's "intelligence" and its ability to "converse" and aid the user during the design process aimed to make it more accessible to a broader design audience, at least that was the intention.

Sutherland's 'Sketchpad' had similar intentions for human-machine interaction. Developed in 1963 at the Lincoln Laboratory at MIT as part of his dissertation titled 'Sketchpad: A man-machine graphical communication system,' Sketchpad became the first interactive computer graphics program. It ran on a Lincoln TX-2 computer at MIT, an innovative machine initially designed in 1956, known for its role in advancing artificial intelligence due to its large memory capacity. A key feature of this digital computer was the user's ability to interact with it through a graphical display. This interaction was mediated by the-then recently invented 'light-pen,' a predecessor to the mouse. In contrast to previous human-machine communication, which relied on written statements,⁴⁶² Sketchpad interpreted information drawn directly on the CRT computer screen using the light-pen, enabling "a man and a computer to converse rapidly through the medium of line drawings."⁴⁶³ The light-pen, in combination with a set of push buttons, with commands such as "draw," "move," or "erase," controlled any intended changes in the drawing.

A unique feature of Sketchpad was its ability to store information about the topology of a drawing. Highlighting the difference from the "trail of carbon left on a piece of

⁴⁶¹ Teresa Fankhänel and Andres Lepik, "Urban 5: Nicholas Negroponte, Architecture Machine Group" in *The Architecture Machine: The Role of Computers in Architecture*, ed. Teresa Fankhänel and Andres Lepik (Basel: Birkhäuser, 2020), 180.

⁴⁶² Ivan Sutherland, "*Sketchpad: A Man-Machine Graphical Communication System*" (PhD diss., Massachusetts Institute of Technology, 1963), 17: "Heretofore, most interaction between men and computers has been slowed down by the need to reduce all communication to written statements that can be typed; in the past, we have been writing letters to rather than conferring with our computers. For many types of communication, such as describing the shape of a mechanical part or the connections of an electrical circuit, typed statements can prove cumbersome."

⁴⁶³ Ivan Sutherland, "Looking Back: The TX-2 Computer and Sketchpad," *Lincoln Laboratory Journal* 19, no. 1 (2012): 83.

paper,” Sutherland explains that Sketchpad stores information about how the drawing is tied together and, therefore, “will keep a useful appearance even when parts of it are moved.”⁴⁶⁴ Simply put, the program allowed parts of the drawing to move around without the need to erase them, as you would conventionally do when drawing on paper. For instance, if the user moved one vertex of a shape, its adjacent sides would also move. Furthermore, due to the snapping feature of the program, a “sloppy” corporeal gesture when drawing a shape, such as a circle, would be “automatically satisfied by the computer to make the drawing take the exact shape desired.”⁴⁶⁵ This topological intelligence embedded into the program meant that Sketchpad predicted and interpreted the user’s intention without them “precisely” drawing it on the screen.

While the investigations of AMG and Sutherland laid the foundation for future developments in computer-aided design and interactive computer graphics, the emphasis on the computer to “assist” design processes contributed to the formation of a techno-solutionist approach, wherein the computer is seen as a problem-solving tool. As Steenson explains, architects during this period “explored architecture as a problem-solving discipline and used heuristic processes to that end in their work,” as seen in projects like Negroponte’s URBAN5, where the system “would learn from its user through question-and-answer dialogue.”⁴⁶⁶ Heavily contributing to this techno-solutionist approach was the funding sources of these projects, specifically funding from military organisations. Military funding supported the establishment of AMG at MIT, particularly from Department of Defense agencies, such as the Advanced Research Projects Agency (ARPA) and the Office for Naval Research (ONR),⁴⁶⁷ and supported the development of software applications such as Sutherland’s Sketchpad under the funding of the United States Air Force and ARPA. ARPA was a key player

⁴⁶⁴ Sutherland, “*Sketchpad: A Man-Machine Graphical Communication System*,” 25.

⁴⁶⁵ Sutherland, “*Sketchpad: A Man-Machine Graphical Communication System*,” 93.

⁴⁶⁶ Steenson, *Architectural Intelligence: How Designers and Architects Created the Digital Landscape*, 16.

⁴⁶⁷ Steenson explains that, although this line of funding was strategic for acquiring more funding and research opportunities, AMG tailored most of its projects to meet the needs of these agencies, primarily the focus on battlefield command and control. See Steenson, *Architectural Intelligence: How Designers and Architects Created the Digital Landscape*, 165.

in funding research projects in computer science and technology during the Cold War era, contributing to what Paul Edwards has referred to as a “closed-world.”

Military funding played a central role in shaping not only the direction of technological advancements but also research priorities. As Steenson pointedly describes, these projects manifested the logic and agendas of these funding models⁴⁶⁸ to not only satisfy the military’s needs but also to sustain future funding. Military funding shaped the work of groups such as AMG by influencing its research priorities, encouraging problem-solving approaches, and aligning projects with the strategic goals of the military, such as the focus on better human-computer interaction to improve command and control systems, the development of computer-aided design for designing military infrastructure, and simulations for strategic planning.

This relationship is further exemplified in Arindam Dutta’s ‘A Second Modernism,’ which examines MIT’s School of Architecture and Planning and traces the links between the research-industrial complex and its influence on the “techno-social” turn in architecture. Dutta explains, “the primacy of funded research would thematize and reorganize academic work towards a “problem-solving” and relevance-seeking mentality, transforming the very sense of their discipline.”⁴⁶⁹ Highlighting this is crucial as it reflects the historical context in which early computer research in architecture took place, where defence and security concerns drove engagements with the screen – a concern that, as will be shortly presented, was absent from the funding model that supported the Paperless Studio, consequently fostering a more experimental engagement.

Alongside the influences of military funding on early explorations with computers in architecture, the-then emerging field of ‘Design Methods’ also significantly impacted the formation of a techno-solutionist approach. This influence was particularly

⁴⁶⁸ Steenson, *Architectural Intelligence: How Designers and Architects Created the Digital Landscape*, 177.

⁴⁶⁹ Arindam Dutta, “Introduction: Linguistics, Not Grammatology: Architecture’s *A Prioris* and Architecture’s Priorities,” in *A Second Modernism: MIT, Architecture, and the “Techno-Social” Moment*, ed. Arindam Dutta (Cambridge, Massachusetts: SA+Press, Department of Architecture, MIT, 2013), 6.

evident through the advocating for developing problem-solving design methodologies and the need for more efficient design processes. The Design Methods movement,⁴⁷⁰ which emerged in the 1950s and 1960s, represented the first substantial body of discourse on the computer's role in architecture (and, more broadly, design) within an academic context. It was a product of post-war optimism and the belief in applying science-based methods to design as a form of progress. Negroponte's 'Architecture Machine' was celebrated alongside architect Christopher Alexander's theory of 'Misfit Variables'⁴⁷¹ and design researcher Nigel Cross' 'The Automated Architect.'⁴⁷² These academic endeavours, among others, generated the basis for many of the first architectural software. For instance, Alexander, who was primarily concerned with designing with hundreds of variables, wrote a program for the IBM 7090 that decomposed a given problem into subsystems before diagramming those subsystems back into a singular form.

Recent scholarship has delved into the post-war period, exploring architecture's inquiry into the computer within the institutional context of that time and tracing the influence of these early explorations on contemporary architectural practice. For example, in Sean Keller's 'Automatic Architecture,' he provides a historical backdrop to architecture's contemporary interest in computational design, specifically algorithmic and parametric design, by analysing the shift to automatic design methods in the 1960s and 1970s fostered by the computer and its processes.⁴⁷³ In addition, Molly Wright Steenson uses the work of four architects who all engaged with cybernetics, artificial intelligence, and computer sciences in the post-war period,

⁴⁷⁰ The Design Methods movement is commonly attributed to the work of four figures – Christopher Alexander, Bruce Archer, Horst Rittel, and John Chris Jones, and was formalised through the 1962 'Conference on Design Methods: papers presented at the conference on systematic and intuitive methods in engineering, industrial design, architecture and communications,' in London. See Jones, J. Christopher, and D. G. Thornley, eds. *Conference on Design Methods*. Oxford: Pergamon Press, 1963. The proceedings from the 2016 Design Research Society conference, which celebrated the 50th anniversary of Design Methods, may also be of interest to learn more about the movement. The proceedings have been published online in a ten-volume set. See "DRS2016 PROCEEDINGS," DRS 2016, accessed February 17, 2024, <https://www.drs2016.org/proceedings>.

⁴⁷¹ See Christopher Alexander, *Notes on the Synthesis of Form: Christopher Alexander* (Cambridge: Harvard University Press, 1964).

⁴⁷² See Nigel Cross, *The Automated Architect*, Vol. 4. (London: Pion, 1977).

⁴⁷³ See Sean Keller, *Automatic Architecture: Motivating Form after Modernism* (Chicago: University of Chicago Press, 2018).

including Christopher Alexander, Nicholas Negroponte, Richard Saul Wurman, and Cedric Price, to demonstrate that their architectural concepts have shaped contemporary “interactive” practices, such as information architecture, machine learning, and smart cities.⁴⁷⁴ This scholarship underscores how the legacies of these early developments and methods have greatly impacted the role digital technology has played in architecture's contemporary interests in computational design.

Scholarship on the influence of these post-war developments on architectural education has also grown in recent years. For instance, Anna-Maria Meister has delved into the materiality of digital production and its pedagogical paper trail in the institutional setting of HFg Ulm and TU Munich.⁴⁷⁵ Attention should also be drawn to Nathalie Bredella's ‘The Architectural Imagination at the Digital Turn’ (2022), which constructs a recent and alternative history of the digital turn by unpacking the material and social context of a series of case studies, including universities (such as Columbia University and its Paperless Studio), new media institutions, and forms of fabrication, among others.⁴⁷⁶ Both have made significant contributions as they unpack the complexity behind the introduction of computers into architectural education and in Meister's case, also highlight a specific case of resistance towards it. However, the impact of computers on architectural education still requires interrogation and attention, especially as narratives, besides those that have been referenced here, have focused on the rise of digital design processes as a consequence of the introduction of computers in architecture school.

This could be a consequence of the establishment of labs and centres at universities across the US, such as Nicholas Negroponte's AMG at MIT, Horst Rittel and Christopher Alexander's Environmental Simulation Laboratory at the University of California, Berkeley, and William Mitchell and George Stiny's Computer Graphics Lab at the University of California, Los Angeles, to name a few, that not only generated the basis for many of the first architectural software but also marked the

⁴⁷⁴ See Molly Wright Steenson, *Architectural Intelligence: How Designers and Architects Created the Digital Landscape* (Cambridge, Massachusetts: The MIT Press, 2017).

⁴⁷⁵ See Meister, “Paper(less) Architecture: Medial and Institutional Superimpositions,” 20-27.

⁴⁷⁶ See Bredella, *The Architectural Imagination at the Digital Turn*.

“the period when CAAD⁴⁷⁷ became a recognizable area”⁴⁷⁸ and field of inquiry in academia. Computer-Aided Architectural Design (CAAD) emerged concurrently with the rise of commercial CAD software. The impetus and bias of these commercial CAD software applications, focused on accommodating project documentation in architectural practice, slowly took over the three-decade-long research on the reciprocal nature of the “man-machine” interface.

Researchers and academics aligned with the Design Methods movement considered commercial CAD as “a frivolous instrument, one that ignored the informational potential of software design,”⁴⁷⁹ prompting the need to create and revive discourse focused on the role of computers in architectural design, commonly referred to as computer-aided architectural design. The growing interest in CAAD encouraged the establishment of international forums and organisations to support local academic discussions. Notable examples include the ‘Association for CAD in Architecture’ (ACADIA), founded in North America in 1981; ‘Education and Research in Computer Aided Architectural Design’ in Europe (eCAADe), established in 1983; ‘CAAD Futures’ founded in the Netherlands in 1985, and more recently, ‘The Association for CAAD Research in Asia’ (CAADRIA) in 1996. While these forums operate independently, they remain closely connected to universities. Their associated conferences and journals have, since the 1980s, driven discourse on the computer’s role in architecture to one focused on research and teaching developments in digital design techniques.

As computers and CAD became more widespread in the early 1990s, a significant number of accredited schools of architecture in the US began to commit to CAD literacy. However, this was not without struggle. In the Afterword to ‘The Electronic

⁴⁷⁷ The acronyms CAD and CAAD refer to different things. Computer-Aided Design (CAD) refers to vector-based graphic software for drafting, whilst Computer-Aided Architectural Design (CAAD) has been used to describe a wide body of work that has looked into how the computer has influenced architectural design.

⁴⁷⁸ Alexander Koutamanis, “A biased history of CAAD,” in *Ecaade 23: Digital Design: The Quest for New Paradigms*, ed. José Pinto Duarte, Gonçalo Ducla-Soares and A. Zita Sampaio (Lisbon: Education in Computer Aided Architectural Design in Europe, 2005), 629.

⁴⁷⁹ Alfredo Andia, “Reconstructing the Effects of Computers on Practice and Education During the Past Three Decades,” *Journal of architectural education* 56, no. 2 (2002): 8.

Design Studio,' William J. Mitchell explains that although CAD systems had developed by this time, running sophisticated operation systems that allowed memory costs to drop and higher resolution displays to replace storage tubes, only a handful of schools of architecture managed to obtain these systems.⁴⁸⁰ Moreover, for those that did, it was often regarded as a peripheral activity not occurring in the studio space and, therefore, minimally integrated into the general design curriculum of the school.⁴⁸¹ Publications from the time, such as 'Pioneers of CAD in Architecture'⁴⁸² (1985), captured the pedagogical activities of these schools. Examples include the University of California at Los Angeles (UCLA), Carnegie-Mellon University, Harvard University, University of Houston, Iowa State University, the University of Michigan, SUNY Buffalo, North Carolina State University, Ohio State University, Rensselaer Polytechnic Institute, Virginia Tech, and Cornell University.

Ten years after the publication of 'Pioneers of CAD in Architecture,' an article titled 'Wiring the Academy'⁴⁸³ (1995) looked at how computers were transforming architectural education across four case study schools. Among these, the School of Architecture and Planning at MIT and Harvard University's Graduate School of Design (GSD) had recently attempted to integrate computers within design studios. In contrast, the Department of Architecture and Urban Design at UCLA and the School of Architecture at the University of Texas had focused on specialised research programs that were entirely separate from design studios. The study explained that during this time, the School of Architecture and Planning at MIT, under the deanship of Mitchell, encouraged students to use electronic networks and design software to supplement traditional design techniques and studio space, rather than replacing them. Similarly, the GSD, following the introduction of its instructional computing curriculum in 1987, began furnishing its design studios with hardware and

⁴⁸⁰ William J. Mitchell, "Afterword: The Design Studio of the Future," in *The Electronic Design Studio: Architectural Knowledge and Media in the Computer Era*, ed. Malcolm McCullough, William J. Mitchell, and Patrick Purcell (Cambridge, Mass: MIT Press, 1990), 481–82.

⁴⁸¹ Mitchell, "Afterword: The Design Studio of the Future," 482.

⁴⁸² See Alfred M. Kemper, *Pioneers of CAD in Architecture*, 1st ed. (Pacifica, CA: Hurland/Swenson, 1985).

⁴⁸³ See Douglas MacLeod, "Wiring the Academy," *Architecture* 84, no. 2 (1995): 133–7.

wired them for “connections to global networks such as the Internet, as well as Harvard’s own local area network, called Daedalus, thus eliminating the self-contained computer labs.”⁴⁸⁴ On the other hand, UCLA’s approach exposed students to various CAD systems but focused, through its M.Arch and PhD programs, on the research and development of CAD software and applications. A similar focus on research and theoretical exploration was also seen at the School of Architecture at the University of Texas, where the focus was not solely on CAD but rather on the effects of digital technology on the future of design, including critical investigations into the possibilities of cyberspace. These theoretical inquiries were undertaken in the school’s Advanced Design Research Program, a lab separate from design studio. Professor of Architecture Michael Benedikt emphasised that they “actively discoursed students from becoming computer junkies... in fact, at times students [were] forbidden to use the computers in the CAD studios. [They] widely [agreed] that the computer is just another tool that has to be worked in with other media.”⁴⁸⁵

Although ‘Wiring the Academy’ was published one year after GSAPP introduced the computer through the Paperless Studio, Columbia University was notably absent from the pages of a study investigating recent transformations the computer had made in architectural education. In fact, there has not been a thorough investigation into how GSAPP, as part of an educational institution, constructed an identity for itself by shifting its pedagogical practices to integrate screens into design studios. Some attention has been drawn to this moment through the Canadian Center for Architecture’s (CCA) interest in reconstructing the digital in architecture. In 2013, as part of a two-week summer seminar at the CCA for PhD candidates and Masters students titled ‘Toolkit for Today,’ three key figures to the foundation of the Paperless Studio – Bernard Tschumi, Stan Allen, and Hani Rashid – each gave a lecture on their account, or a personal history, of the experiments conducted in the Paperless Studio. More recently, as a part of CCA’s interest in the origins of the digital, the Paperless Studio is represented through two essays by Bernard Tschumi and Stan Allen in the publication ‘When is the Digital in Architecture?’

⁴⁸⁴ McLeod, “Wiring the Academy,” 135.

⁴⁸⁵ McLeod, “Wiring the Academy,” 137.

In his introduction to 'When is the Digital in Architecture?' Mirko Zardini claims that the Paperless Studios were "incubators of the avant-garde in relation to digital tools in architectural production."⁴⁸⁶ Supporting this argument, Tschumi retells his genesis story of the Paperless Studio and advocates that the studios allowed a younger generation to steer a discourse of the digital. On the other hand, Allen's article is more interested in situating the Paperless Studio in a broader cultural context and explains that intellectual interest in the computer was influenced by a shift in theoretical emphasis "from Derrida's deconstruction and ruptures to Deleuze's difference through continuity."⁴⁸⁷ As the history of the digital in architecture is just now being written, there is an opportunity to explore this pivotal moment in education, which has influenced ways of teaching and practising architecture. This chapter sees an opportunity to make an academic contribution to filling the gap by pausing to unpack the Paperless Studio, from its genesis to its construction of an environment of experimentation in architectural pedagogy focused on the screen. More importantly, in doing so, it will destabilise the established account, which focuses on how the school, through its use of the then-new digital software, fostered new architectural design techniques and a "new" architectural formal language. As this chapter will highlight, other engagements with the screen were present and contributed to the alternative account of the digital that this thesis has set out to construct.

6.3 Generating a New Language for GSAPP

GSAPP's launch of the Paperless Studios in 1994 marked a moment of experimentation with the screen and, consequently, influenced a significant shift in architectural pedagogy. The introduction of the computer in the very same space where design studio was taught was a complex endeavour. It involved the re-definition of the school's vision, an expansion of the program through curriculum restructure, securing adequate funding for its Digital Design Infrastructure proposal,

⁴⁸⁶ Mirko Zardini, "Eight Million Stories," in *When Is the Digital in Architecture?* ed. Andrew Goodhouse (Montréal: Canadian Center for Architecture, 2017), 15.

⁴⁸⁷ Allen, "The Paperless Studios in Context," 383.

and a renovation of the physical space that housed this new model of learning. Before delving into the intricacies of the re-design of the curriculum and physical space, it is key to first situate the Paperless Studio within the broader pedagogical objectives of the school at the time, as steered by the then dean, Bernard Tschumi.

The pedagogical objectives behind the Paperless Studios can be primarily attributed to Tschumi. He was appointed Dean of GSAPP in 1988, coinciding with the launch of the ‘Deconstructivist Architecture’ exhibition at New York’s Museum of Modern Art (MoMA). In an interview with Tschumi, he explains the late 1980s and early 1990s as an “interesting junction,” marked by a dichotomy between mainstream architecture or historicist Post-Modernism and those interested in expanding the field to reclaim the legacy of the avant-garde.⁴⁸⁸ For Tschumi, a certain depth of questioning was taking place during this period, as reflected in the Deconstructivist show, opposing Post-Modernism. He believed it was appropriate to translate this line of questioning into the school. One way was to explore how engagement with digital technology could further expand the discipline.⁴⁸⁹ This interest coalesced with the resurgence of media theory, making the relationship between architecture, theory, and media in the age of the screen a core concern for GSAPP under his deanship.

Tschumi’s interest in expanding the discipline was intertwined with his personal story. After studying at ETH Zurich, Tschumi moved to Paris in 1967 to work in the office of Candilis Josic and Woods as part of his practical year of study. Although he had to return to complete his studies, his time in Paris coincided with the student protests at the École de Beaux-Arts in May 1967,⁴⁹⁰ advocating for reform in the French education system, among other cultural and political demands. This event exposed him to an intellectual, political, and cultural atmosphere that would influence his conception of space. Having started his practice and teaching shortly after, in the 1970s, Tschumi understood architecture not merely as a study of space and form but also as an exploration of events, actions, and what unfolds within space. The

⁴⁸⁸ Bernard Tschumi, interview by author, New York City, February 6, 2019.

⁴⁸⁹ Ibid.

⁴⁹⁰ For more on Tschumi’s involvement with the student protest, see Joan Ockman, and Bernard Tschumi, “Talking with Bernard Tschumi,” *Log*, no. 13/14 (2008): 159–70.

experience of May 1968 played a crucial role in shaping his pedagogical framing at the Architectural Association in London during the 1970s. Combining architecture with film and literary theory and drawing influence from thinkers such as Roland Barthes, Michel Foucault, and the Russian cinematographer Sergei Eisenstein, Tschumi's teaching and practice, exemplified in projects such as 'Screenplays' (1977) and 'The Manhattan Transcripts' (1981), delved into the use of montage techniques to invent new relationships between space and events.

The logic of the computer, specifically an interest in the conceptual processes of permutation and transformation of space, was also embedded in Tschumi's early theoretical projects, predating the use of computers in the office. For example, 'Parc de la Villette in Paris' (1982-1998) was conceived with the logic of CAD in mind. Tschumi explains that the hand drawings for the project were purposely made to look like computer drawings (see Fig 6.1).⁴⁹¹ The follies proposed for the park were based on the "decomposition and the deconstruction of the cube."⁴⁹² The language of the computer, such as layering, was evident in the drawings, notably through the exploded axonometric. Tschumi recalls that when the drawings for 'Parc de la Villette' were published, "we would receive calls from computer conferences asking us what software we were using and inviting us to come and talk when in reality they were done by hand. So we pretended."⁴⁹³ When they began drawing using the computers, specifically with the 'Lerner Hall Student Centre' (1994-1999), Tschumi amusingly describes that the client "objected to the computer images and asked us to produce water colours...and so we buy a software that produces watercolours."⁴⁹⁴ This simulation and interplay between the virtual and physical was also seen in the 'Les Fresnoy Art Center' (1991-1997). A project that sits in between the timeline of 'Parc de La Villette' and 'Lerner Hall,' Tschumi describes it as a "transitional project" as the drawings had a render quality, but they were all airbrushed by hand.⁴⁹⁵

⁴⁹¹ Matthew Barhydt, "Tools of the Stars," *Progressive Architecture* 73, no. 11 (1992): 111.

⁴⁹² Ibid.

⁴⁹³ Tschumi, interview.

⁴⁹⁴ Ibid.

⁴⁹⁵ Ibid.



Fig 6.1 Bernard Tschumi explaining the ‘computer logic’ embedded in the drawings of *Parc de la Villette* in an interview by author, New York City, 2019. Photograph by Endriana Audisho (author). Used with permission.

After ten years of teaching at the Architectural Association in London, Tschumi moved to New York. He recalls this move as a consequence of his unwavering interest in the art world, and during the 1970s, New York was at the centre of this scene. Commenting on the architectural context at the time as rigid and conservative, Tschumi stated that he had “more friends among artists than among architects”⁴⁹⁶ and that “he was the first architect in New York to exhibit projects in art galleries.”⁴⁹⁷ This was a reaction to his observations at the time of the battle between commerce and culture in New York, with large commercial offices like SOM on one side and intellectuals like the New York Five, among others affiliated with universities, on the other side of this spectrum. Tschumi, who was surrounded at this

⁴⁹⁶ Vladimir Belogolovsky, “Bernard Tschumi: I believe in placing architecture in the realm of ideas and invention,” *Intercontinental Curatorial Project Inc.*, January, 2004, <http://curatorialproject.com/interviews/bernarntschumi.html>.

⁴⁹⁷ *Ibid.*

time by a discourse on 'autonomy' in architecture, was more interested in breaking disciplinary boundaries and welcoming other fields into architecture. This emphasis is reflected in his statement, "I was teaching at the Institute for Architecture and Urban Studies, but I was very uncomfortable there, and therefore I was spending more time with my artist friends."⁴⁹⁸ It became clear to Tschumi that at the turn of the 1990s, or what he refers to as an "interesting junction," new ideas would emerge not from large commercial offices but within architecture schools. What made the pedagogical experiment of the Paperless Studio at Columbia so powerful was the fact that it was situated in New York, or as simply put by Tschumi, "everybody comes through New York,"⁴⁹⁹ ensuring inherent publicity for the city.

Before Tschumi took over in 1988, the school was under the deanship of James Stewart Polshek from 1971-1986, with Kenneth Frampton serving as the department chair during the transitional period from 1986 to 1988. Under both chairs and their faculty, specifically Frampton and Robert A.M Stern, Columbia was a key player in the post-modernist debate. During this period, there was an initial provocation for a 'new image' for the school. In the 'Report on the GSAPP 1987-88' a section dedicated to 'A New Image' outlined that nearly ten years had passed since the closure of the Institute of Architecture and Urban Studies, noting that "there has not been a single space devoted to architectural and cultural debates, an identifiable place where the spirit of architectural enterprise could be constantly under scrutiny... there is no reason we cannot succeed in making architecture and planning at Columbia a key focus: A part of the City and its cultural institutions."⁵⁰⁰ The pursuit of constructing a new identity for the school and making it a focal point in the city was a concern for Tschumi too. However, what alarmed him even more were the observations made in the 'Visiting Team Report' in 1983. The visiting team noted that the "technological program is weak and notes the lack of its integration in the design studios... the quality of technical sequence must be noted as an area of

⁴⁹⁸ Ibid.

⁴⁹⁹ Ibid.

⁵⁰⁰ Report on the GSAPP 1987-88, Box 438, Folder 2, Office of the Provost Records 1953-2006, Columbia University Archives, New York City.

concern.”⁵⁰¹ Furthermore, they pointed out the “lack of tools for instruction in technology such as computers.”⁵⁰² The lack of attention to this dimension led to a recommendation to secure significant funding to provide accessibility for students and faculty of the program.

The very pragmatic pedagogical objectives outlined in that report, crossed with Tschumi’s desire to position the school as the catalyst of disciplinary transformation, became one of the strategies he employed to redefine the vision of the school he inherited. In a lecture for the ‘Toolkit 2013’ seminar at the CCA, Tschumi explained that one of his main ambitions for the school, in response to the conservatism he saw upon his arrival, was to generate its own language and discourse. He immediately set out a series of intentions for the school for the next decade, as outlined in the school’s self-study document. Subsection IV.1 of the report, titled ‘Objectives for the Next Decade,’ states that the future direction of the school strives to be “contemporary, urban and interdisciplinary”⁵⁰³ and the school will be well prepared to meet the challenges of the future “by maintaining close contact with contemporary issues and developments in the fields of culture, social thought and technology.”⁵⁰⁴

To achieve this, the school identified three primary areas of focus: (1) “First, enhancing the integration of technology and structures into design work; (2) Second, the school intends to develop a high level of research and discourse in theory and history, and; (3) the third objective is to enhance interaction with the professional community and other institutions in the New York City region.”⁵⁰⁵ The first area of focus is integral in contextualising the Paperless Studios as it was addressing the school’s commitment to exploring “the impact of new technologies in both design methodologies and in construction techniques.”⁵⁰⁶ It outlines a firm position that the

⁵⁰¹ Visiting Team Report, 1983, Box 438, Folder 4, Office of the Provost Records 1953-2006, Columbia University Archives, New York City.

⁵⁰² Ibid.

⁵⁰³ Columbia University GSAPP School Self Study, Box 570, Folders 20-22, Office of the Provost Records 1953-2006, Columbia University Archives, New York City.

⁵⁰⁴ Ibid.

⁵⁰⁵ Ibid.

⁵⁰⁶ Ibid.

school must “go beyond simply assuring its graduates are familiar with the most up to date technology”⁵⁰⁷ and instead advocates for experimentation by exploring the computer as a design tool. This approach aims to foster the development of new techniques and conventions, thereby generating a new language for the school.

6.4 GSAPP’s Curriculum Re-Structure and Digital Technology Capital Grant

To realise this vision, GSAPP went through a curriculum restructure. Recognising that to “teach with computers is academically and pedagogically very different,”⁵⁰⁸ Tschumi initiated a macro-level revision of the school's administrative structure in 1989. The previous structure had two divisions, Architecture and Urban Planning, and each was headed by a department chair. Critiquing the lack of efficiency, administrative overlap, and mainly the compartmentalisation of the departmental divisions, Tschumi introduced a new structure comprising six degree programs,⁵⁰⁹ each led by a director. This allowed increased vitality while maintaining control over the overall image and coherence of the school. In terms of the design studio sequence restructuring, the architecture program description in Columbia University’s ‘Visiting Team Report’⁵¹⁰ (April 1998) stated that Dean Tschumi implemented a new structure to facilitate experimentation with digital technologies. This structure involved “three semesters of core studios with a strict curriculum in which faculty give common problems to their students, followed by three semesters of advanced studios, where the projects assigned by individual critics differ substantially”⁵¹¹ and “during the final two semesters of the M.Arch program, the studios are merged with those of second professional degree Advanced Architectural Design studios,”⁵¹² allowing for twelve rather than six design studios to be offered in

⁵⁰⁷ Ibid.

⁵⁰⁸ Belogolovsky, “Bernard Tschumi: I believe in placing architecture in the realm of ideas and invention.”

⁵⁰⁹ These include Master of Architecture (M. Arch), Master of Science in Advanced Architectural Design, Master of Science in Architecture and Urban Design, Master of Science in Real Estate Development, Master of Science in Historic Preservation, and Master of Science in Urban Planning.

⁵¹⁰ Visiting Team Report April 4-8, 1998, Box 587, Folder 14, Office of the Provost Records 1953-2006, Columbia University Archives, New York City. Note: This material is restricted for reproduction until 2030.

⁵¹¹ Ibid.

⁵¹² Ibid.

the final two semesters. Additionally, this restructuring integrated the Paperless Studios into the 3rd-year M.Arch (and AAD and UD) design studios, allowing for the execution of “experimental work” in upper-level studios.

Before the advent of the Paperless Studios, computers were confined to the school’s basement, primarily designated for the teaching of CAD courses. According to Hani Rashid, “The CAD courses were one-credit courses and not a lot of people were interested in them. If you were sort of techie minded, you would maybe go to the basement where the courses were taught and take CAD.”⁵¹³ The introduction of the Paperless Studios didn’t seek to replace existing CAD courses but aimed to broaden their pedagogical framework, aligning with the evolving ethos of the school. As identified in the ‘Architectural Program Report’ (1997) to the national architectural accreditation board, the CAD classes transformed by “welcoming the potential of the computer as a representational tool, and exploring its integration with traditional methods while becoming less focused on technique and process and more concerned with products and ideas.”⁵¹⁴ To prepare students for the Paperless Studios, ‘The Introduction to Computer-Aided Design’ (A4535) subject was expanded in 1994 to be offered in the Summer and Spring semesters, incorporating rendering, Internet authoring, and multimedia presentations.⁵¹⁵ The accreditation report also noted that the Advanced CAD (A4534) class also expanded in size, which, as an extension of the Introduction to CAD, introduced “time-based computer issues, exploring animation as a form of representation and as a means to explore and express the experience of architecture.”⁵¹⁶ Students moved beyond mere 3D modelling to create short animation videos.⁵¹⁷ This mirrored Tschumi’s intent to move beyond viewing the computer as a drafting machine, stating “there were machines at the school, but we wanted much more.”⁵¹⁸ He emphasised the need for

⁵¹³ “Columbia Interactive - Subjects: Architecture,” Columbia University, accessed December 9, 2017, http://ci.columbia.edu/ci/subjects/profiles/arch_profile0.html.

⁵¹⁴ Architectural Program Report to the National Accreditation Board, 1997, Box 570, Folders 23-25, Office of the Provost Records 1953-2006, Columbia University Archives, New York City. Note: This material is restricted for reproduction until 2024.

⁵¹⁵ Ibid.

⁵¹⁶ Ibid.

⁵¹⁷ Ibid.

⁵¹⁸ Tschumi, interview.

the school to consider borrowing software from other disciplines, such as Alias, Form Z, Softimage, and Maya, to foster experimentation, ultimately leading to the development of the distinct architectural language he had initially envisioned.

Concurrent with the curriculum restructuring, the school undertook efforts to secure adequate funding for the development of its digital design infrastructure. On the 7th of May, 1993, Tschumi addressed a letter to Provost Jonathan R. Cole, stating that “in your budget review memo of April 5, 1993, you requested that we formulate a capital budget request for the purchase of computers.”⁵¹⁹ The attached budget outlined the school’s plans to expand its CAD Facility. The proposal estimated costs relative to academic discount-price information from Columbia/Apple Consortium as of 3/15/1993 and requested a total of \$100,000 from the Provost funds. This budget allocation covered 5 high-end Quadra Macintosh workstations (\$30,000), 20 mid-range Centris Macintosh workstations (\$60,000), additional furniture, including tables, chairs, and shelves, security devices (\$2,000), network infrastructure, tape back-up systems, printers, and other peripherals (\$8,000).⁵²⁰ The justification for the proposal highlighted that “more than 100 students enrol in the school’s computer courses each year,”⁵²¹ requiring specialised software and hardware not available elsewhere on campus. This was a direct response to a letter from the Provost to Dean Tschumi on the 5th of April, 1993, which posed the question, “Are there other schools (such as Engineering) which might have already invested in equipment capable of supporting Computer-Aided Design?”⁵²² The project justification also addressed the fact that the existing CAD facilities were outdated, with “monochrome terminals networked to obsolete Unix workstations”⁵²³ that could not handle advanced graphics computers.

⁵¹⁹ Letter to Jonathan R. Cole, Provost from Bernard Tschumi, 1993, Box 570, Folders 20-22, Office of the Provost Records 1953-2006, Columbia University Archives, New York City.

⁵²⁰ Section III: Capital Budget GSAP Capital Project: Expanded Computer-Aided Design Facility, 1993, Box 570, Folders 20-22, Office of the Provost Records 1953-2006, Columbia University Archives, New York City.

⁵²¹ Ibid.

⁵²² 1993-1994 Budget Review, 1993, Box 570, Folders 20-22, Office of the Provost Records 1953-2006, Columbia University Archives, New York City.

⁵²³ Section III: Capital Budget GSAP Capital Project: Expanded Computer-Aided Design Facility, Office of the Provost Records 1953-2006.

GSAPP eventually secured a \$1.4 million digital technology capital grant and loan from the University, a crucial facilitator for establishing the digital design infrastructure. With the help of this grant, the school began planning three initiatives: (1) the Paperless Design Studio, (2) the Multimedia/CAD Lab, and (3) the Digital Design Lab (DDL) as a dedicated research facility. These facilities were described as “physically separate but electronically linked environments.”⁵²⁴ While the Paperless Studio was a new program, the Multimedia/CAD Lab and the Digital Design Lab were existing facilities set to be expanded. For instance, the Multimedia/CAD Lab was initiated as a response to the growing imperative to package and deliver skills and knowledge in digital format. The proposal wanted to enhance the existing facility, situated in 202 Fayerweather, with Power Macintoshes and new multimedia capabilities such as slide scanning and video editing to facilitate new courses such as ‘Architectural Animation.’ The University’s grant and loan played a vital role in supporting the school’s vision and the aspiration to “generate a new language.” In an interview with Tschumi, he emphasised the importance of phased funding, considering the rapidly evolving pace of technology, stating that “technology was moving so fast that every year we would need to update the software and programming.”⁵²⁵ While the majority of the multi-year project was in place by September 1994, the school’s self-study report envisioned the future expansion of the Paperless Studio through the acquisition of advanced SGI equipment.⁵²⁶

6.5 Hardware and Software: A Proposal for a Digital Design Studio

It’s important to acknowledge that credit for the success of the grant shouldn’t solely be attributed to Dean Tschumi. A team of key figures and events also contributed to the initiation of the Paperless Studio, as highlighted in an interview with Ed Keller. The first point raised by Keller outlines that in 1991, there was student dissatisfaction among students with the school’s existing digital pedagogy. These concerns were raised in the student union curriculum committee, where there was a lot of

⁵²⁴ Columbia University GSAPP School Self Study, Office of the Provost Records 1953-2006.

⁵²⁵ Tschumi, interview.

⁵²⁶ Ibid.

discontent, confusion, and very little knowledge about what to do.⁵²⁷ Keller recalls informing the cohort of the options available and mentioned that he was researching upgrade possibilities to propose to Tschumi. At the time, Keller, then a graduate, had met another graduate, Sean Daly, through the introduction to architecture course in the summer at GSAPP. The two initiated visualisation work, eventually starting an office together. Keller had personally invested in a small office set up in his studio apartment by acquiring an academic discount on an SGI machine and the Softimage software. In March 1993, he submitted a proposal to Tschumi, describing it as “a vision proposal for what a digital design studio would look like.”⁵²⁸ Keller recalls being encouraged to write the proposal by Stephen Perrella, whom Tschumi hired as the editor of the GSAPP Office of Publications and whom Keller was doing some competition work with at the time. In an interview with Greg Lynn, he also stated that we can’t underestimate the role of Stephen Perrella in promoting the Paperless Studios. He was a “total digital junkie”⁵²⁹ and would always highlight the Paperless Studios in the school’s publications.

The proposal compiled by Keller listed hardware requirements, including 1 x Silicon Graphics IRIS Indigo Extreme R4400 machine, 1 x Silicon Graphics IRIS Indigo XS24 R4400 machine, 4 x Apple Quadro 800 machines, 16 x Apple Macintosh Centris 650 machines, and software for the SGI platform including Softimage, XAOS Pandemonium, Mathematica, Photoshop, and Form Z, Stratavision, Photoshop, to name a few, for the Macintosh platform. The bulk of the budget proposal was for the Silicon Graphics IRIS Indigo Extreme R4400 machine (\$25,000), highlighted by Keller as crucial for rendering, video editing, walkthroughs, and animations, along with the Softimage software (\$9000). Both this machine and software were proposed as alternatives to traditional systems. As Keller advocates, “this flexible, expanded toolbox lets one project oneself into the space depicted... the speed of this spatial interrogation gives us designers the ability to judge more quickly whether a space will achieve the intended effects, by moving ‘through’ that space.”⁵³⁰ Despite Keller’s

⁵²⁷ Ed Keller, interview by author, New York City, February 27, 2019.

⁵²⁸ Keller, interview.

⁵²⁹ Greg Lynn, interview by author, Los Angeles, February 13, 2019.

⁵³⁰ Keller, interview.

proposal being considered “too much money” by Tschumi, similarities can be drawn between this document and the budget proposal Tschumi sent to the provost in April 1993, specifically the hardware list.

The second point raised by Keller underscores the significant contributions of Eden Muir and Rory O’Neil, who were running the CAD courses in the basement of Avery. As emphasised by Lynn, Muir and O’Neil had already started acquiring high-end computers and software in the basement pre-Paperless Studio and ended up producing the final funding proposal. Hani Rashid also contributed to the Paperless Studio genesis story by recounting an incident where two of his students, using Macs at home, asked to bring their own computers into the school. He recalls walking into Bernard’s office and asking him if his students could bring the computers into the school to which Bernard responded come back tomorrow and let’s talk about it then.⁵³¹ The following day, Tschumi deemed it an interesting idea and permitted the students to bring their computers in. Between Eden Muir and Rory O’Neil, as well as the numerous conversations that Tschumi had with the student union curriculum committee and those who were monitoring technology, such as Ed Keller, Sean Daly, Greg Lynn, and Hani Rashid, it is evident that the introduction of computers at GSAPP was a complex endeavour sparked by several key figures and events.

6.6 Going Paperless: The Introduction of the Computer in Architectural Design Studio

The final hurdle in launching the Paperless Studios involved grappling with the physical and spatial consequences of introducing computers into the design studio. The physical integration of computers into architectural studio saw a radical reversal of the “standard notion of the student’s homebase as a manual drafting table in a walled cubicle.”⁵³² The 1994 Summer/September/October issue of GSAPP’s faculty newsletter ‘Newline’ outlined that the Paperless Studios would be housed in a dedicated space on the seventh-floor mezzanine/loft area of Avery Hall (see Fig

⁵³¹ Hani Rashid, interview by author, New York City, February 8, 2019.

⁵³² Columbia University GSAPP School Self Study, Office of the Provost Records 1953-2006.

6.2).⁵³³ This location allowed for a “separation between the air-conditioned central computer zone and the smaller, adjacent “exterior” balconies that will serve as communal workshop areas for traditional media”⁵³⁴ (see Fig 6.4). It further explained that each of the 33 students received “his or her dedicated workstation (Silicon Graphics’ Indy or Apple Computer’s Power Macintosh) with the advanced software and network capabilities.”⁵³⁵ Situating computers in studio had spatial implications, requiring a transformation of the existing space to convert it into a digital “paperless” workplace.

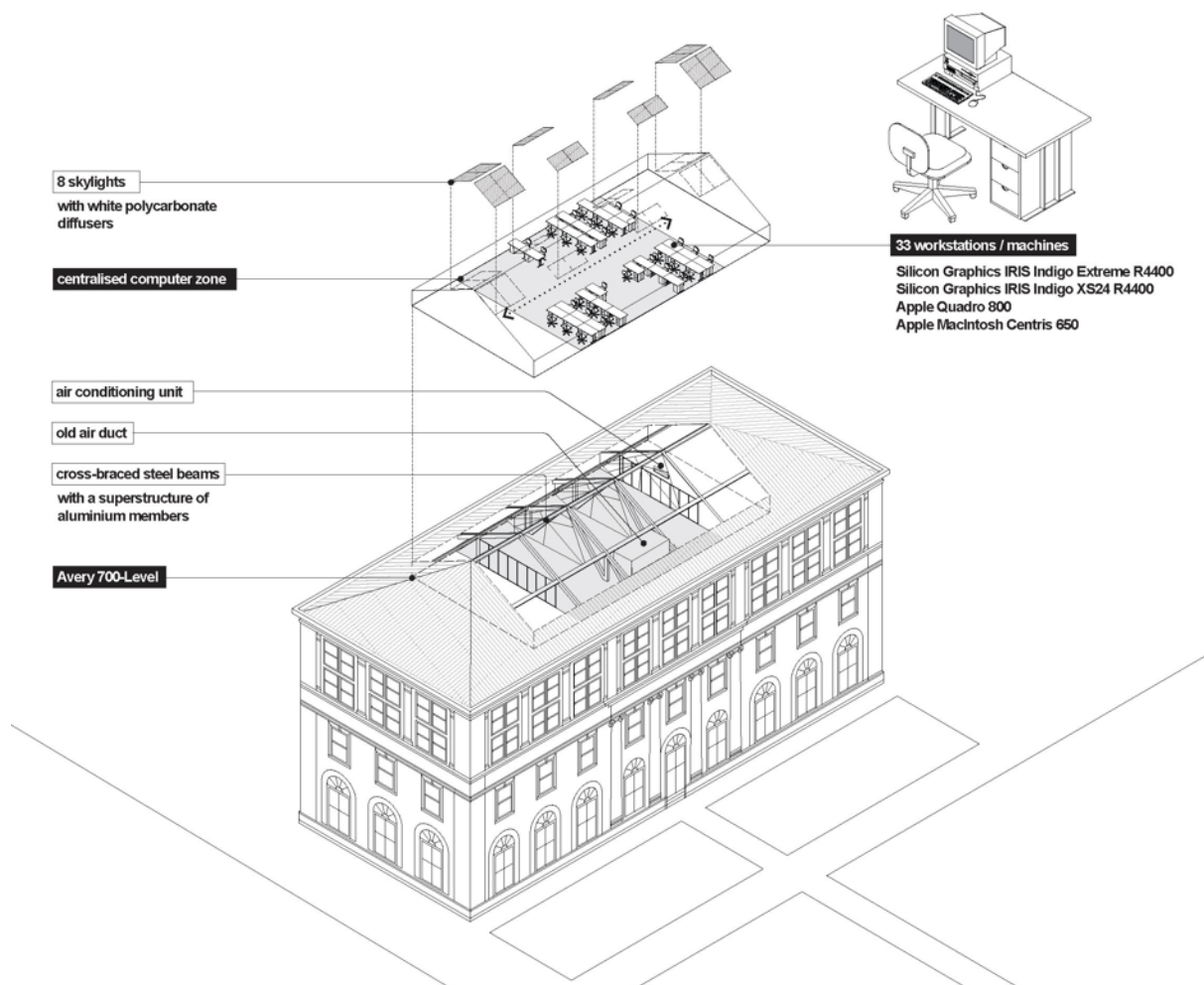


Fig 6.2 Isometric view of Avery Hall, Columbia University, identifying the allocated space for the *Paperless Studio* on the seventh-floor mezzanine. The exploded ghosted drawing provides insight into the spatial configuration of the centralised shared computer zone and the 33 dedicated workstations that line the studio, constructing the digital 'paperless' workplace. Source: Drawing by Endriana Audisho (author) with assistance from Shuang Wu. Used with permission.

⁵³³ Bernard Tschumi, “1,2,3, Jump!,” *Newsline* (Summer/Sept/Oct, 1994): 9.

⁵³⁴ GSAPP Columbia University, “Paperless Studios 1994-1995,” *Abstract*, (1994-1995): 64.

⁵³⁵ *Ibid.*

Stan Allen Architects⁵³⁶ was commissioned to complete the renovation of Avery 700-Level. An x-ray 3D view of the proposal was showcased in the 1994 summer issue of 'Newsline' (see Fig 6.3), accompanied by a plan of the renovations and details of the ceiling, along with a short text by Allen (see Fig 6.6). Allen begins his text provocatively, stating, "conventional wisdom has it that the simulated space of the screen challenges the physicality of architectural space."⁵³⁷ He reinforces this assumption by pointing out that spaces typically allocated for computer labs in schools are usually "featureless basement spaces, badly lit and tightly closed for security reasons,"⁵³⁸ which to him reflected the anxieties around new technologies but also a reminder that "the computer is a latecomer to the architecture studio and has been treated with indifference."⁵³⁹ Juxtaposing this, he pronounces that "to integrate the computers directly in the design studio implies that the computer is not an adjunct resource but an everyday working tool."⁵⁴⁰ Integrating computers into the design studio, a space that mind you is a naturally well-lit space, prompts a reimagining of the computer workspace and encourages a familiarity that may allow "some myths to be dismantled."⁵⁴¹ This challenges the traditional configuration of a studio space, replacing segmented cubicles and drafting desks with generous horizontal surfaces, evoking an "atelier" atmosphere (see Fig 6.4). Another detail that challenged the perception of a computer workspace was the "operable aluminium jalousie windows that reduce air-conditioning loads and help dispel the hermetically sealed sensation of computer rooms."⁵⁴²

⁵³⁶ They were assisted by Lyn Rice with additional help from Kathy Kim and Anna Mueller.

⁵³⁷ Stan Allen, "Avery 700-Level Computer Studios," *Newsline* (Summer/Sept/Oct, 1994): 9.

⁵³⁸ *Ibid.*

⁵³⁹ *Ibid.*

⁵⁴⁰ *Ibid.*

⁵⁴¹ *Ibid.*

⁵⁴² *Ibid.*

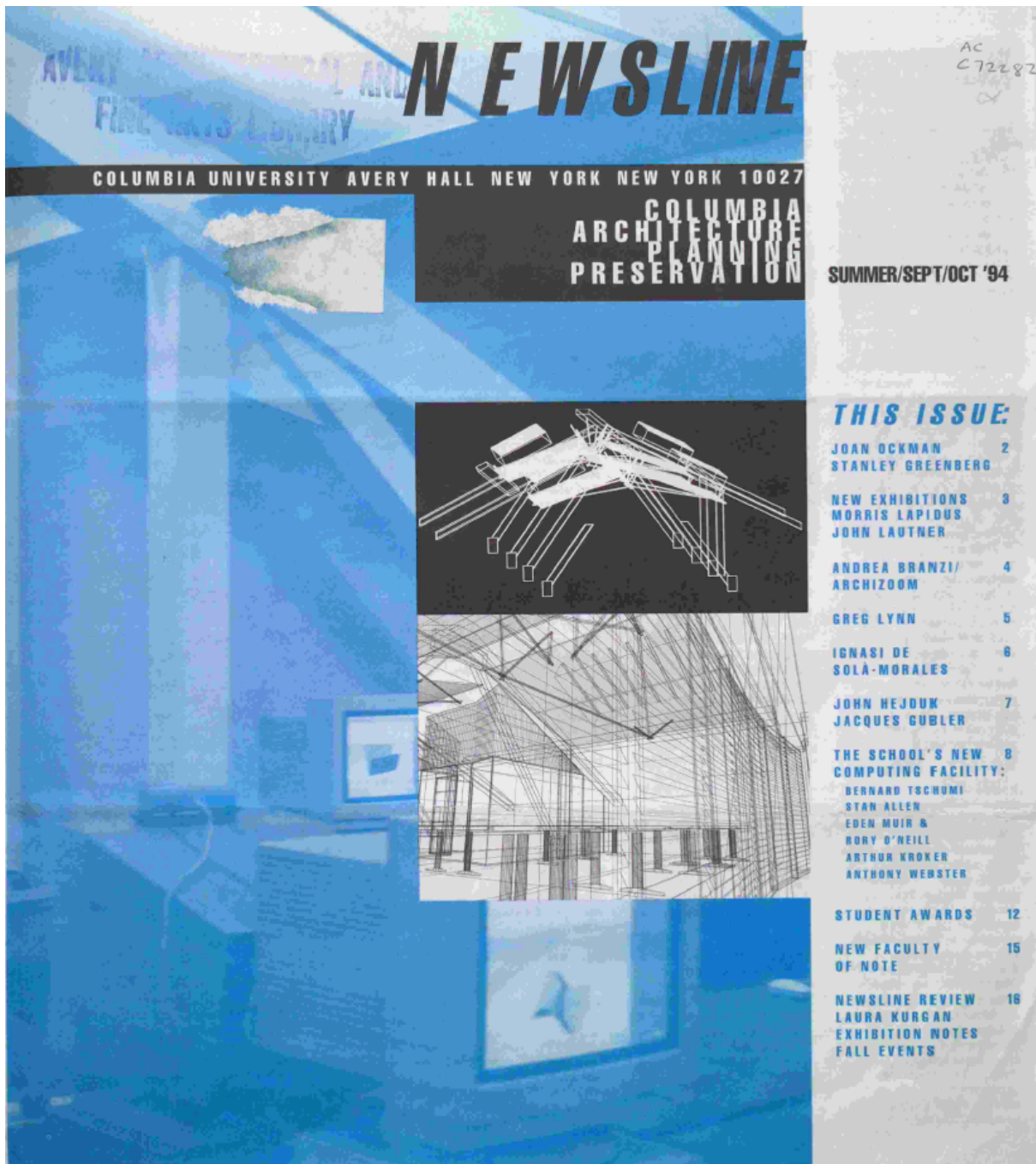


Fig 6.3 Cover of GSAPP's faculty newsletter *Newsline*, Summer/Sept/Oct, 1994. Source: Columbia Architecture Planning and Preservation, *Newsline*, (Summer/Sept/Oct, 1994): 1.

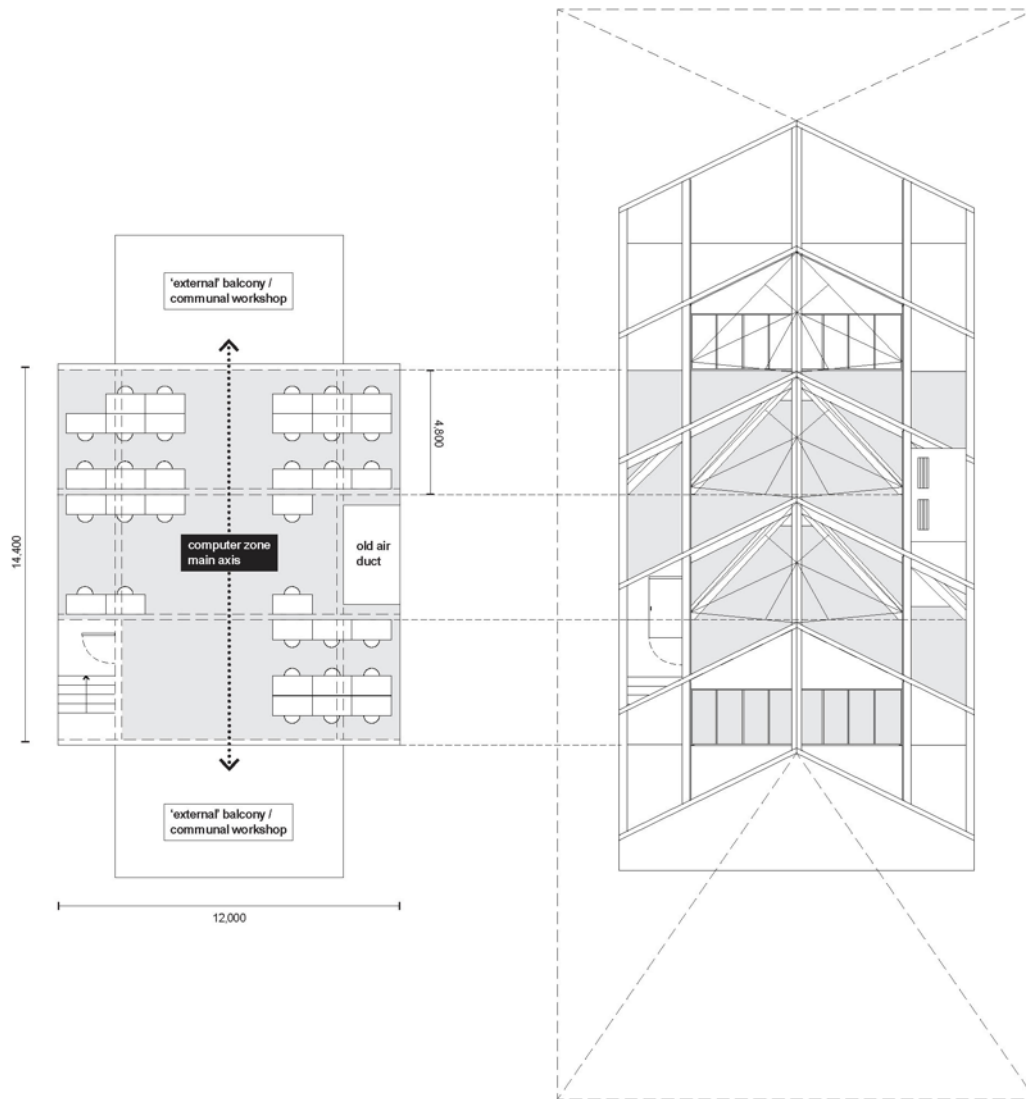


Fig 6.4 The floorplan (left) and the oblique plan (right) of the *Paperless Studio*, occupying the attic of Avery Hall, work in dialogue to showcase the spatial separation between the internalised, air-conditioned, 'digital' computer zone and the adjacent 'exterior' balconies that serve as communal workshop areas for the use of traditional media. Source: Drawing by Endriana Audisho (author) with assistance from Shuang Wu. Used with permission.

Adjunct assistant professors Eden Muir and Rory O'Neil further elaborate on the embedded relationship between tool and space, describing the configuration of the Paperless Studio as a series of "hardware clusters" where "SGI (Silicon Graphics Inc) workstations will be networked to Macintoshes on adjacent desks."⁵⁴³ This setup

⁵⁴³ Eden Muir and Rory O'Neil, "The Paperless Studio: A Digital Design Environment," *Newsline*, (Summer/Sept/Oct, 1994): 11.

enabled real-time file transfers through the network, allowing presentations on the screen or via projection without the need for paper. The physical renovation was supported by an electronic infrastructure consisting of 100 high-speed Ethernet connections in Avery and Fayerweather Halls, facilitating not only file distribution among students but also enabling “remote printing, access to library and other online resources, video conferencing to other Columbia University labs.”⁵⁴⁴ In an interview with Greg Lynn, he jokingly compares the space to a telemarketing centre, noting that “everybody is sitting right next to each other on monitors... you couldn’t even stand up”⁵⁴⁵ due to desks pressed against the walls of the pitched roof space (see Fig 6.5). Nonetheless, occupying the seventh-floor of Avery Hall was integral, providing a space of autonomy for the Paperless Studios and contributing to the generation of a new language and identity for the school.

After restructuring the curriculum, securing funds to support the hardware and software required, and completing the renovation of the space, the Paperless Studios were officially launched in the fall of 1994. GSAPP, to its own knowledge, was “the first architecture school to provide students their own SGI machines and state-of-the-art visualization software such as Softimage.”⁵⁴⁶ The 1994 Summer/September/October issue of ‘Newline’ celebrated this historic moment by dedicating two spreads,⁵⁴⁷ and for the first time in colour, to ‘The School’s New Computing Facility’ (see Fig 6.6).

⁵⁴⁴ GSAPP Columbia University, “Digital Infrastructure at the GSAPP,” *Abstract*, (1994-1995): 72.

⁵⁴⁵ Lynn, interview.

⁵⁴⁶ Tschumi, “1,2,3, Jump!,” 9.

⁵⁴⁷ It is worth mentioning that the significance of this shift is also seen in the graphics of *Newline* as colour was used from the 1994 summer issue onward.



Fig 6.5 Interior of *Paperless Studios*, 700 Avery Hall, captured from the 1994-1995 issue of *Abstract*.
Source: GSAPP Columbia University, "Paperless Studios," *Abstract*, (1994-1995): 64.

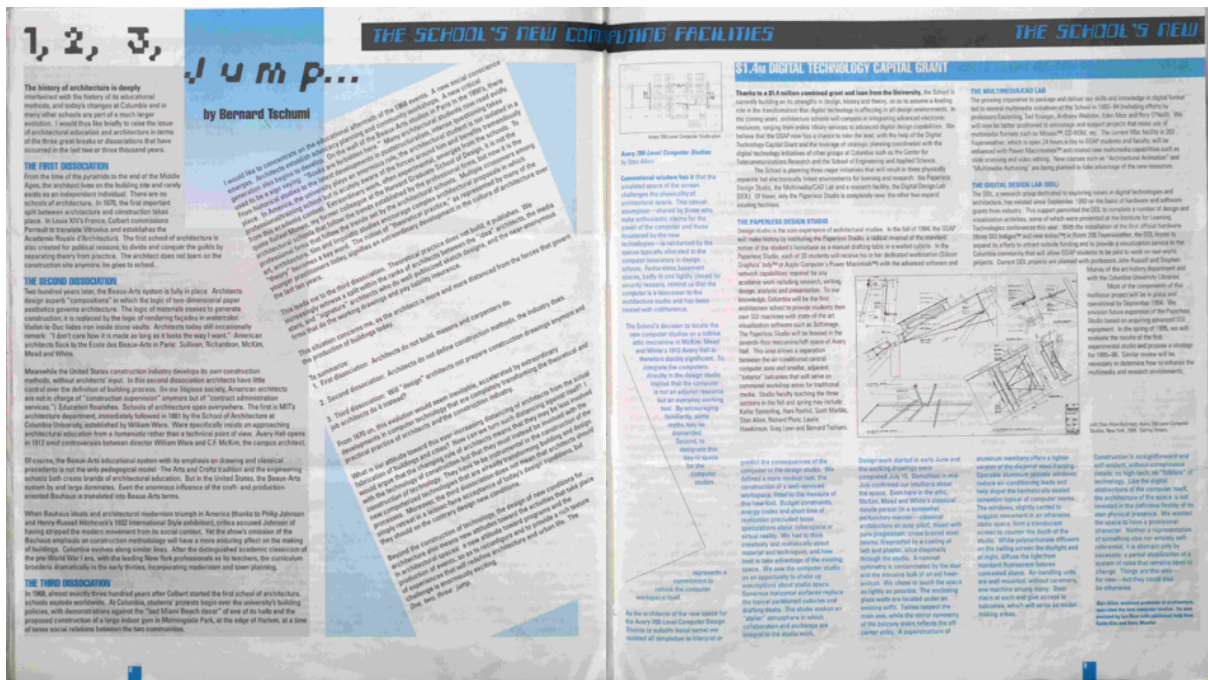


Fig 6.6 Spread from faculty newsletter *Newsline* (Summer/Sept/Oct, 1994) showcasing Bernard Tschumi's announcement of the school's new computing facilities. Source: Bernard Tschumi, "1,2,3, Jump!," *Newsline* (Summer/Sept/Oct, 1994): 8-9.

6.7 Paperless Pedagogical Model: Educators Testing Without a Plan

Acquiring and integrating a digital design infrastructure contributed to half the success of constructing a pedagogy focused on the screen. The other half is credited to the educators of the Paperless Studios, who, under one roof, each developed a distinct pedagogical approach to the screen. The school's ambition to generate its own distinct language saw Tschumi invest in the new and young generation of architects as a response to the conservatism he saw upon his arrival at the school. In the fall of 1994. Former alumni and young professors Greg Lynn, Hani Rashid, and Scott Marble taught the first Paperless design studio. Stan Allen later joined them, along with Gregory Rukavina, Keller Easterling, and Bernard Tschumi with Tomasz Kowalski in the spring of 1995. In the fall of 1995, Steven Holl taught alongside Greg Lynn with Ed Keller, and Hani Rashid. In the spring of 1996, Keller Easterling, Greg Lynn with Kazuyo Sejima, Bernard Tschumi with Tomasz Kowalski and assisted by Danielle Smoller each led a Paperless Studio.

In addition to the first Paperless Studios, the school introduced another digital design environment in 1995-96 that took over the northern end of the seventh floor of Avery – the Combined Media Studios (CMS). CMS students had access to the shared computers and video equipment initially set up for the Paperless Studios.⁵⁴⁸ This joint venture was celebrated in the 1995-96 issue of 'Abstract' under the section 'Computer Studios.' Studio critics moved between the two strands. For instance, Stan Allen and Scott Marble, alongside Karen Bausman, each taught a CMS in the fall of 1995, and Hani Rashid, Scott Marble (with William Massie) alongside Laurie Hawkinson each taught a CMS in the spring of 1996. The first three Paperless Studios had made a mark, and the "computerisation" of the school saw the focus on the digital expand over the years. More screens occupied the design studio.

Ironically, inaugurating the first Paperless Studios in 1994, Lynn, Rashid, and Marble were not computer experts. Rashid recalls, "No one had extensive computer experience... I held up a floppy disk and asked the students if they knew what it was."⁵⁴⁹ Tschumi's response was to establish a new teaching model where computer-savvy students, such as Ed Keller and Greg Pasquarelli, became digital assistants (DA's) for Lynn, Rashid, and Marble.⁵⁵⁰ Keller, for instance, recalls his time as a DA for Lynn, providing technical advice during desk crits and contributing to the design brief and vision document. For example, in one instance, he constructed a matrix listing Lynn's theoretical interests and devised how they could be translated architecturally using software such as Softimage. As seen in this example, the DA's were instrumental in translating digital design theory into architecture. They went on to teach their own version of a Paperless Studio in the following years. This unconventional relationship, where students were teaching their teachers, resulted in an opportunity to experiment in a speculative format and explore the effects of the screen on architectural production and representation. As Tschumi points out, a very experimental group of educators emerged who accepted the fact that "they were testing without a plan."⁵⁵¹

⁵⁴⁸ GSAPP Columbia University, "Computer Studios," *Abstract*, (1995-1996): 55.

⁵⁴⁹ Ned Cramer and Anne Guiney, "The Computer School," *Architecture* (September, 2000): 95.

⁵⁵⁰ Ibid.

⁵⁵¹ CCAchannel, "Toolkit for Today 2013: Bernard Tschumi," 19:15.

Although testing without a plan, the initial appointment of Lynn, Rashid, and Marble to run the first Paperless Studios was very considered, as they each had a particular interest in the relationship between architecture and the screen. Lynn explains that as a graduate in the early 1980s, he bought a PC that would run Microstation to explore spline modelling and surfaces. He also pointed out that prior to the Paperless Studios, his experience as a teaching assistant for Shoei Yoh exposed him to the exploration of computationally derived construction systems. As discussed in the chapter, 'Screen Theory and Practice,' Lynn was part of an emerging group of theorists in the early 1990s who shifted their focus from post-structural semiotics to a careful consideration of geometry, as pronounced in Lynn's special issue of *Architectural Design*, 'Folding in Architecture,' published just one year before the launch of the Paperless Studio (in 1993). The theoretical writings of Lynn at this time, which emphasised the role of calculus and mathematics in generating continuous forms, coincided with the technical development of spline modelling software and, in turn, heralded an architectural formal language of smoothness and continuity. Lynn was interested in using the computer to generate a "topological" form-based architecture, which was clearly translated in the outputs of his Paperless Studios.

Lynn also explained that Marble was connected to Muir and O'Neil and was working with fabrication in the early 1990s. Therefore, he was interested in digital design processes and the translation into build work. Moreover, Lynn specifically recalled that one of Marble's students invested in a CNC mill at the time. As a point of difference, he suggests that Rashid and his partner Lise Anne Couture were "very interested in media and 2D effects and immersive big screens"⁵⁵² and were already exploring Photoshop work and texture mapping. When prompted to describe his interests in the early 1990s, Rashid explained that they had just started using Photoshop 1.0. He continued to explain that CNN's "media event, the 24-hour coverage, the crazy nocturnal images were relatively new to most people but not so new to those of us that were monitoring tech. And so, there was a lot of discussion and theory around it... we were always theorizing media."⁵⁵³ He foregrounded this

⁵⁵² Lynn, interview.

⁵⁵³ Rashid, interview.

statement by recounting the day the Gulf War started and remembered having a conversation with a professor at Columbia where he made the provocation that the “Gulf War could be the world’s first Photoshop war.”⁵⁵⁴ The professor questioned what he meant by this, to which Rashid responded, “it wouldn’t take much to doctor it... I mean we’ve always known about doctoring images historically, but you can doctor an image in five seconds now... you could Photoshop tanks coming in over the Kuwaiti border and show it to people and say, look, this is what’s happening.”⁵⁵⁵ Rashid recalls the professor having a shocked look on his face and probably thought he was “insane to think like that.”⁵⁵⁶ However, to Rashid, there was a recognition of the effects of the screen, in this case, notions of mediation and simulation.

Rashid also explains that being a Cranbrook Academy of Art graduate significantly impacted his interest in the intersection between art and architecture, manifested through his screen-based architecture and pedagogical experiments that explored 1:1 mediated installation. He recalls running a studio just prior to the Paperless Studio where the students shot film in real space and tried to augment the space using projection. He explicitly points out that his work was very much influenced by media and technology and “the tail end of video art with Bruce Nauman, Nam June Paik, Laurie Anderson, Dan Graham, and Robert Irwin’s play with depth of field, light and screens.”⁵⁵⁷ Although initially testing without a plan, Lynn’s interest in form, Marble’s interest in fabrication and construction, and Rashid’s interest in time-based media constructed three tracks within the Paperless Studios. Pedagogical models revolved around (1) form-finding investigations, (2) digital fabrication, (3) mediascapes, and everything in between. As Tschumi highlights, the outputs of the Paperless Studios included “plenty of hard copy, but also, for the first time at the GSAP, significant quantities of video animation, “live” computer-generated demos and flipbooks, and interactive multimedia documents.”⁵⁵⁸ This list of outputs, in itself, begins to destabilise the established perception that the Paperless Studio was

⁵⁵⁴ Ibid.

⁵⁵⁵ Ibid.

⁵⁵⁶ Ibid.

⁵⁵⁷ Ibid.

⁵⁵⁸ GSAPP Columbia University, “Digital Infrastructure at the GSAPP,” 72.

completely “paperless” and that it was predominantly focused on form-finding exercises.

6.8 Testing with a Plan: From Form to Mediascapes and Everything in Between

With fabrication, form, and mediascapes as three distinct tracks running through the Paperless Studio, Tschumi saw his role as one that would “encourage people to push things as far as they can take it,”⁵⁵⁹ reflecting a bottom-up approach to culture-building in the school. When prompted with the question of how present he was within the Paperless Studios, Tschumi quickly exclaimed, “I’ve always been personally resistant to codify to a mode of education in architecture... of almost giving sort of recipes of how to go about this or that. I think I’m much more in favour of something more fluid.”⁵⁶⁰ When asked what they thought Tschumi’s vision for the Paperless Studio was, Lynn remarked, “None. Experiment,”⁵⁶¹ and Rashid elaborated that “He didn’t have one... I remember vividly his confusion, and by the way, it was positive confusion. There’s a difference between his productive confusion and the confusion of Stern, Frampton and Holl... that was scepticism. That was cynicism... Bernard was curious but kind of out to lunch. He didn’t quite understand... [but] was open to it.”⁵⁶² In the context of this comment, it is evident that Tschumi gave a sense of autonomy to the Paperless Studios leaders so they could generate their own language and discourse by testing without a plan.

The Paperless Studio instructors conducted pedagogical explorations within the bounds of their own interest, whether that was testing architectural form, mediascapes, or broader urban questions that revolved around network thinking through the screen. Although Tschumi recalls that in the first semester, “they had no idea what they could do with it, and they tested things. And so, it was quite fascinating to see that Hani was very collage oriented and Photoshop was an

⁵⁵⁹ Tschumi, interview.

⁵⁶⁰ Ibid.

⁵⁶¹ Lynn, interview.

⁵⁶² Rashid, interview.

important tool and, Greg, who was fascinated about metamorphosis form, found software in fluid dynamics,⁵⁶³ he went on to describe that as the studios developed, they all tried to claim their own territory. This was reflected in his visits to the studios where “it was amusing to see what was on the screens because I would immediately know it was Hani’s studio or Greg’s studio because the work was so different.”⁵⁶⁴ Reviewing the 1994 and 1995 issues of ‘Newslines’ and the school’s annual publication, ‘Abstract,’ specifically the 1994-1995 and 1995-1996 issues, immediately presents the scope of the first Paperless Studios and the heterogeneous explorations with the screen – supporting the thesis’ argument that there were other engagements with the screen during this period that have been hijacked by the emphasis on using software to generate form. Conflicting theories and positions emerged between those who were actually interested in operations within the computer to explore architectural form in digital space (Lynn), those interested in digital processes and feedback systems (Marble), and those who contextualised the screen in physical space (Rashid). The three modalities were evident in the studio briefs and the studio outputs, as showcased in a spread in the 1994 fall issue of Newslines (see Fig 6.7).

⁵⁶³ Tschumi, interview.

⁵⁶⁴ Ibid.

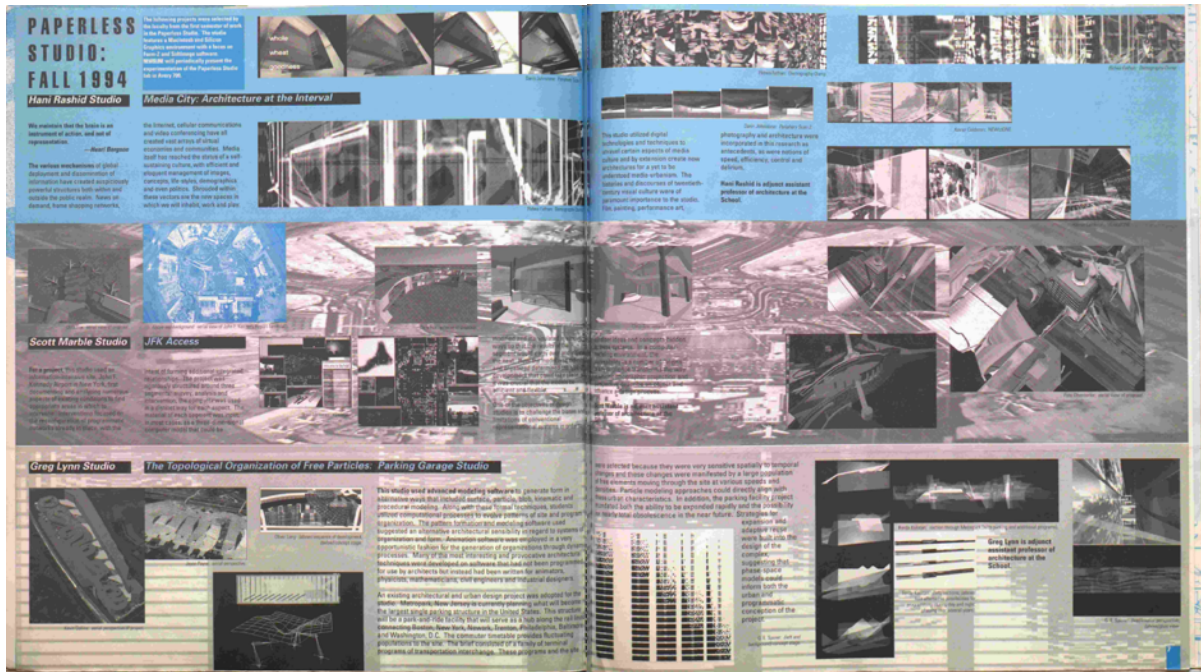


Fig 6.7 Spread from faculty newsletter *Newsline* (Jan/Feb, 1995) celebrating the first three *Paperless Studios*. Source: Hani Rashid, Scott Marble, and Greg Lynn Studio, “Paperless Studio: Fall 1994,” *Newsline* (Jan/Feb, 1995): 6-7.

Greg Lynn’s first Paperless Studio, ‘The Topological Organization of Free Particles: Parking Garage Studio,’ used a combination of formal and organisational techniques to reinterpret the existing architectural and urban design project ‘Metropark’ in New Jersey. The studio set an agenda to use “advanced modelling software to generate form in alternative ways that include surface, particle, blob, kinematic and procedural modelling”⁵⁶⁵ and particle-based modelling software to develop organisational responses to the site and program. The student work in ‘Abstract’ and ‘Newsline’ presents translations of these formal and organisational systems. For instance, in a project by Oliver Lang (see Fig 6.8 – top project), the particle studies represent a series of forces on the site, becoming the basis of both the organisation and formal logic of the building. The translation of these studies onto the site, as seen in the images of student projects by Kevin Collins and Jason Payne (see Fig 6.8 – bottom left and right images), emphasises the focus on form as the driver. While forces from the site may have influenced the form of the building, the response or relation to the surrounding context can be questioned. Moreover, the student project by Ferda

⁵⁶⁵ Greg Lynn, “The Topological Organization of Free Particles: Parking Garage Studio,” *Newsline* (January/February, 1995): 6.

Kolatan (see Fig 6.9) saw images titled “four alternative possibilities for programming during the day and night, phasing over several years.”⁵⁶⁶ The key terms here are ‘alternative possibilities,’ suggesting a continuous search and an endless form-finding exercise in real-time, as reflected in the four formal iterations presented in the project. In this case, the real-time simulation of all possible futures highlights that access to the architectural object is always mediated by the screen and requires interpretation.

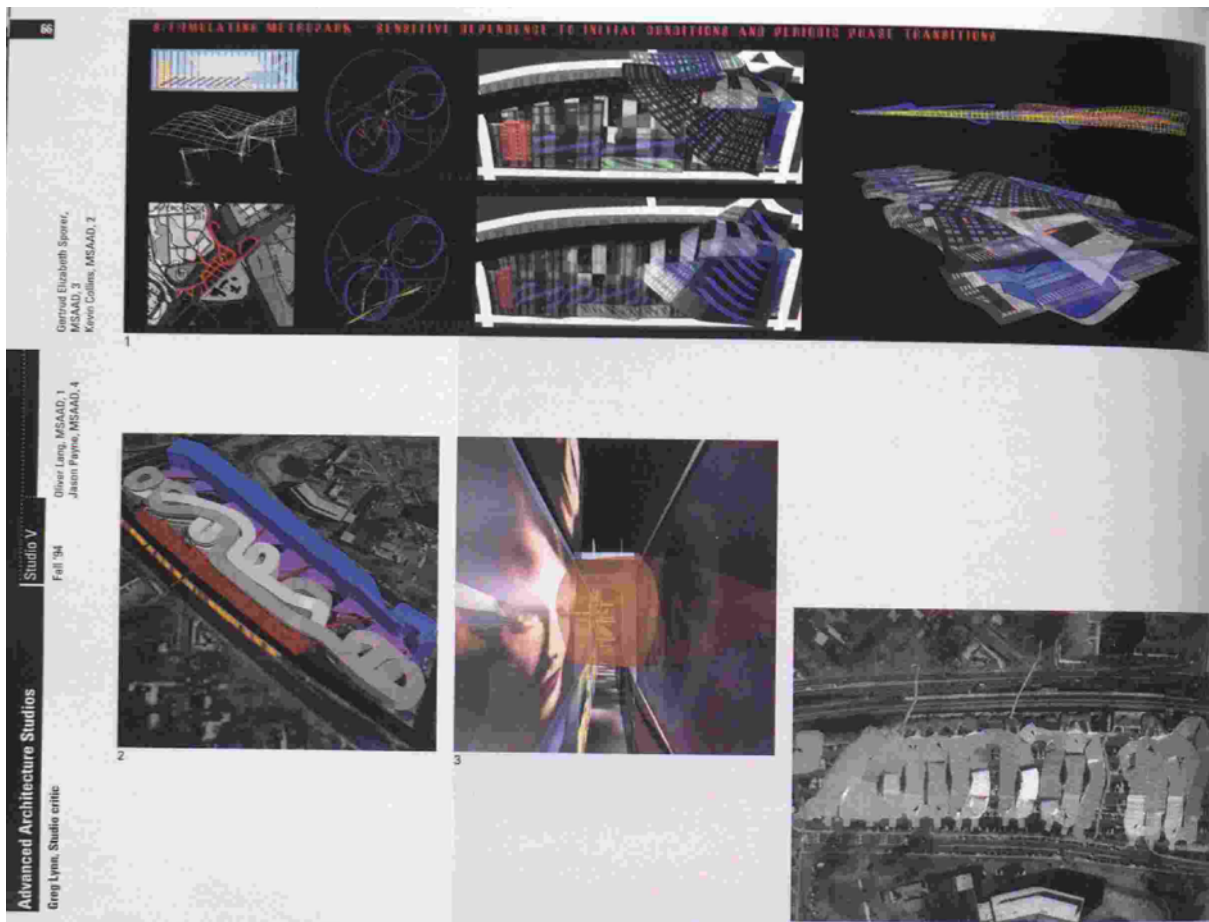


Fig 6.8 Excerpt showing student work from Greg Lynn’s 1994 Fall Paperless Studio *The Topological Organization of Free Particles: Parking Garage Studio*. Source: GSAPP Columbia University, “Paperless Studios,” Abstract, (1994-1995): 66.

⁵⁶⁶ Ibid.

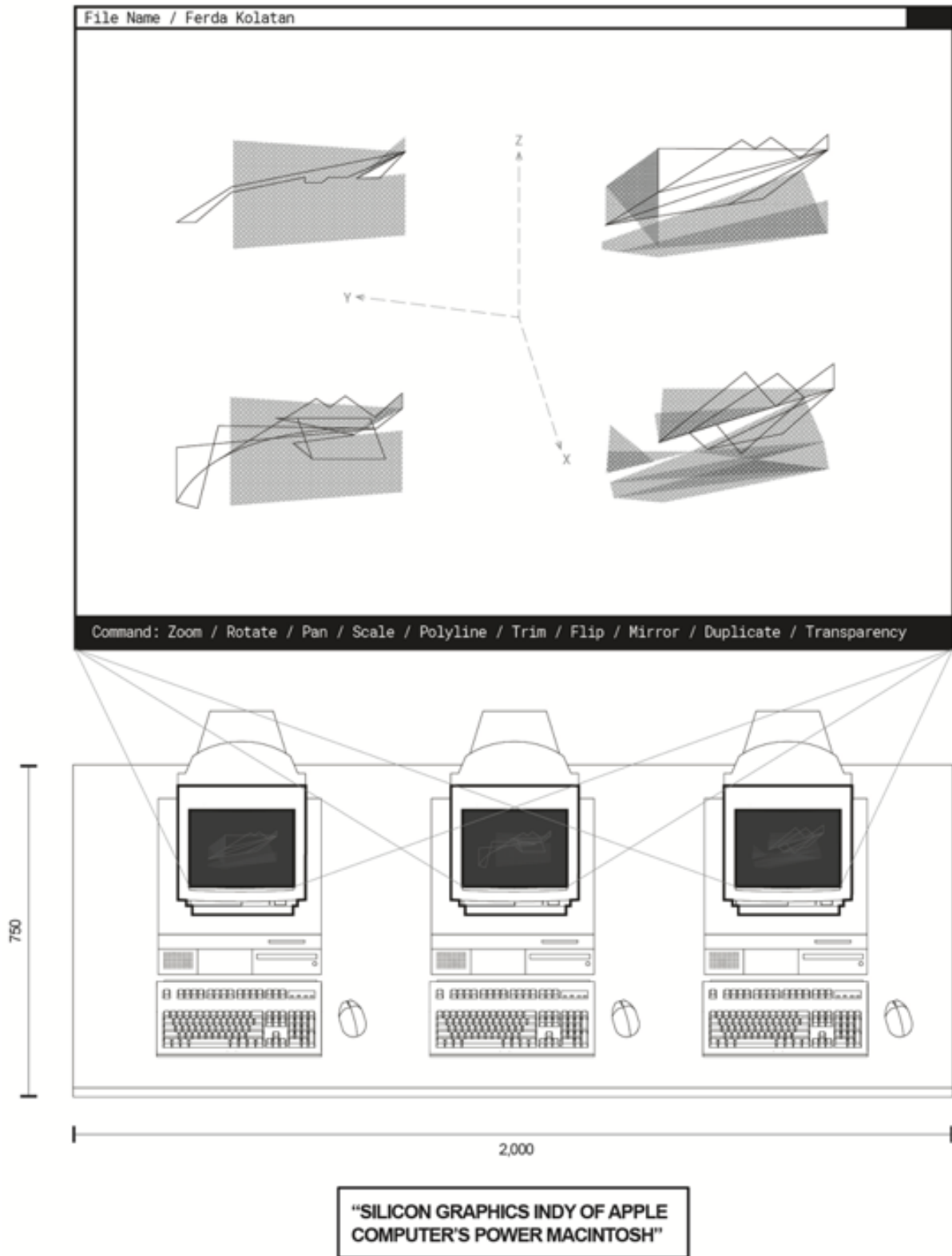


Fig 6.9 Diagram interpretation of studio work from Greg Lynn's 1994 Fall Paperless Studio *The Topological Organization of Free Particles: Parking Garage Studio*. The expanded screen interface, with a list of commands and four abstract forms, emphasises the studio's focus on iterative form-finding in digital space. Source: Drawing by Endriana Audisho (author) with assistance from Shuang Wu. Used with permission.

Lynn's real-time explorations challenge the concept of the origin as the architectural object is under constant transformation, behind the screen. This was pushed further in his fall 1995 studio taught with Ed Keller, where there was a greater emphasis on time-based structures and motion-based systems of organisations – “classical architectural metaphors of stasis and equilibrium were replaced with more vital architectural design processes that are literally and conceptually animated.”⁵⁶⁷ The interaction of forces of influence in time-based environments could be applied to the design of buildings, as seen with the student gallery proposal that could undergo various configurations and sequences over time (see Fig 6.10 – left image), and to the urban scale, as seen in student projects from his spring 1996 Paperless Studio run in collaboration with Kazuyo Sejima (see Fig 6.10 – right image).



Fig 6.10 Excerpts showing student work from Greg Lynn's Fall 1995 studio with Ed Keller (left) and spring 1996 studio with Kazuyo Sejima (right). Source: GSAPP Columbia University, “Paperless and Mixed Media Studios,” Abstract, (1995-1996): 59, 64.

Scott Marble's first Paperless Studio, 'JFK Access,' also relied on using advanced modelling software in the generation of an architectural project; however, it was more

⁵⁶⁷ GSAPP Columbia University, “Computer Studios,” 59.

focused on the process and how one exercise would carry over and initiate the next: from the initial site survey and analysis to the intervention, whereby “the computer was used in a distinct way for each aspect.”⁵⁶⁸ The design process involved analysis of dynamic interactions within the site, whereby animation and repeated runs of these animations through adjustments in the script accumulated the issues on site and influenced the final result.⁵⁶⁹ Marble’s interest in fabrication soon took over the studio agendas with his spring 1996 CMS, with assistance from William Massie. The studio proposed to use advanced CNC technology to produce a new prototypical house (see Fig 6.11). Observing that “the distinction between standardized mass production and custom production has dissolved with computer technology,”⁵⁷⁰ the prototype of the house was rethought to “incorporate an economy of almost limitless variation.”⁵⁷¹ This line of thinking, whereby there is a vested interest in getting things out of the screen, has driven Marble’s research into digital processes and workflows, as seen through his 2012 book ‘Digital Workflows in Architecture.’⁵⁷²

⁵⁶⁸ GSAPP Columbia University, “Advanced Architecture Studios,” *Abstract*, (1995-1996): 67.

⁵⁶⁹ GSAPP Columbia University, “Advanced Architecture Studios,” 67.

⁵⁷⁰ GSAPP Columbia University, “Computer Studios,” 65.

⁵⁷¹ Ibid.

⁵⁷² Scott Marble, *Digital Workflows in Architecture: Design-Assembly-Industry* (Basel/Berlin/Boston: Walter de Gruyter GmbH, 2012).

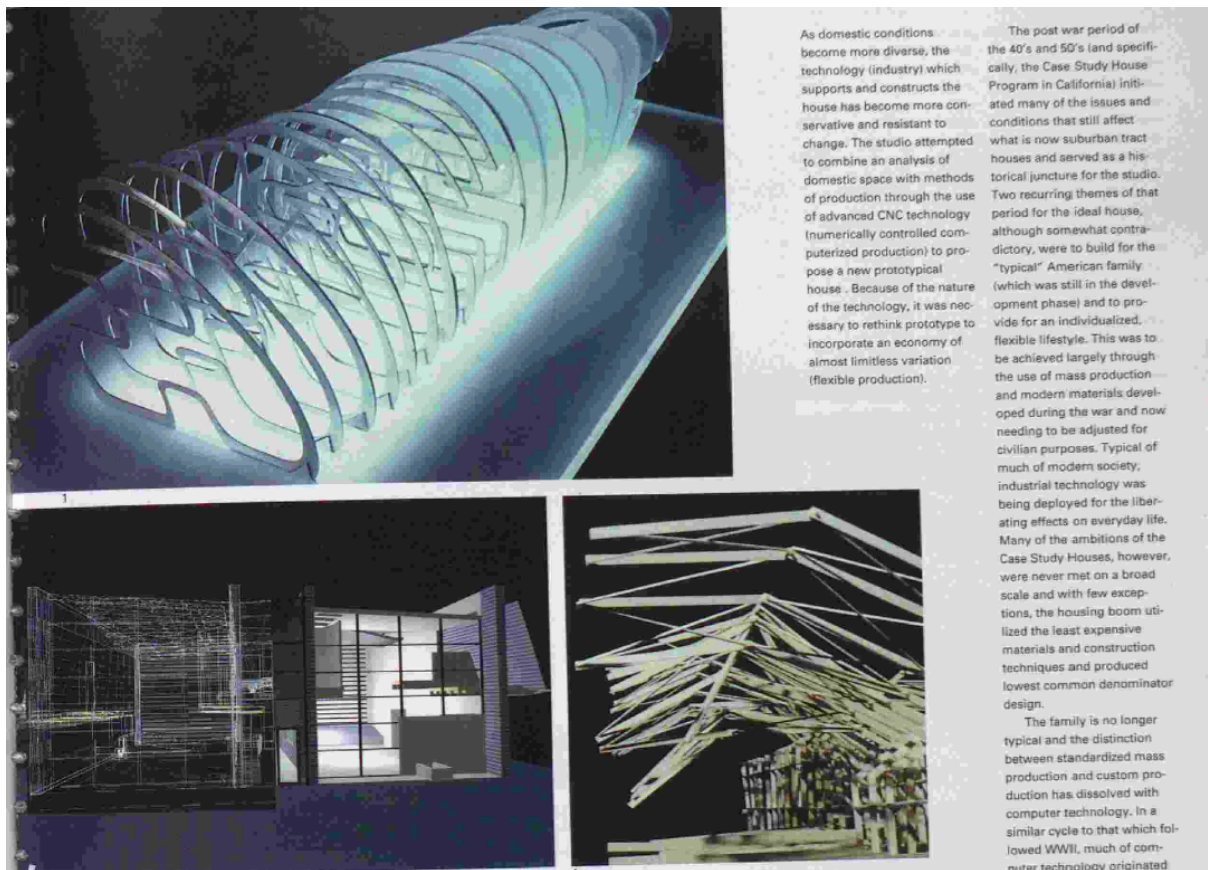


Fig 6.11 Excerpt showing student work from Scott Marble's (assisted by William Massie) spring 1996 *Combined Media Studio*. Source: GSAPP Columbia University, "Paperless and Mixed Media Studios," Abstract, (1995-1996): 65.

Of particular interest in the context of this thesis and its attempts to trace the material, spatial, and mediating effects of the screen is Hani Rashid's Paperless pedagogy and his explorations of 1:1 mediascapes. In his first Paperless Studio, 'Media City: Architecture at the Interval,' students used digital techniques to create a "yet to be understood media-urbanism."⁵⁷³ The brief highlighted the importance of twentieth-century visual culture to the studio, whereby "film, painting, performance art, photography and architecture implicated the research as antecedents to notions of speed, efficiency, control and delirium."⁵⁷⁴ These references were materialised in the student work. For instance, Xavier Caideron's 'NEW(z)ONE' and Ridwa Fathan's 'Demography Dump' applied avant-garde techniques of montage and collage to produce "images" of the media city (see Fig 6.12). Moreover, in an attempt to

⁵⁷³ Hani Rashid, "Media City: Architecture at the Interval," *Newsline* (January/February, 1995): 7.

⁵⁷⁴ GSAPP Columbia University, "Advanced Architecture Studios," 68.

understand the effects, set up by the new media culture of “news on demand, Home Shopping Networks, the internet, cellular communications, video conferencing,” the studio built a real-time large-scale installation in Wood Hall in December 1994 with students’ work projected onto the installation, translating the virtual into the physical (see Fig 6.13). The reliance on a live audience engagement with the content is an attempt to translate the post-panoptic paradigm shift in the age of the screen. This installation acted as a vehicle to unpack and experience the mediated effects of the screen at a 1:1 scale.

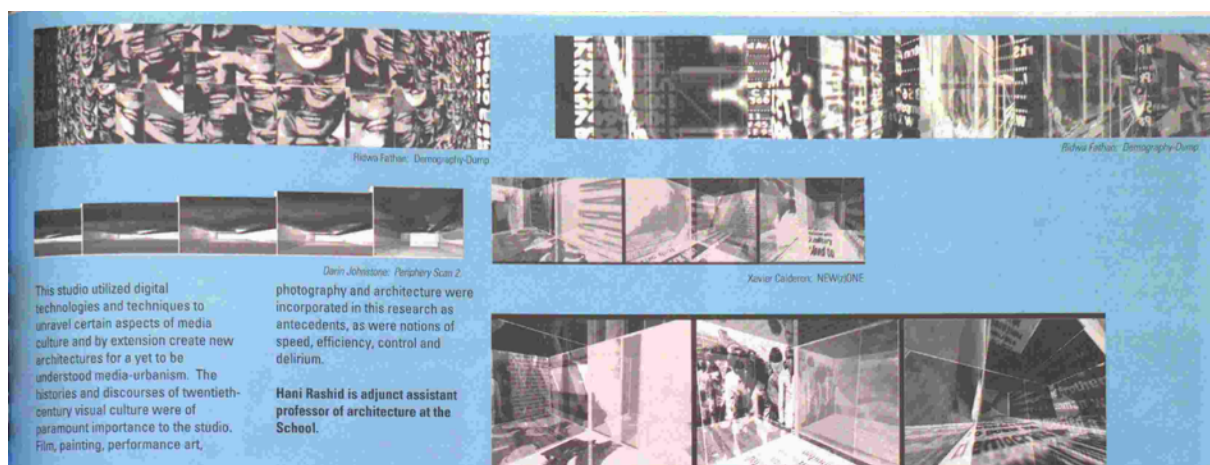


Fig 6.12 Excerpt showing student work from Hanı Rashid’s 1994 Fall Paperless Studio *Media City: Architecture at the Interval*. Source: Hanı Rashid, “Paperless Studio: Fall 1994,” *Newsline* (Jan/Feb, 1995): 7.

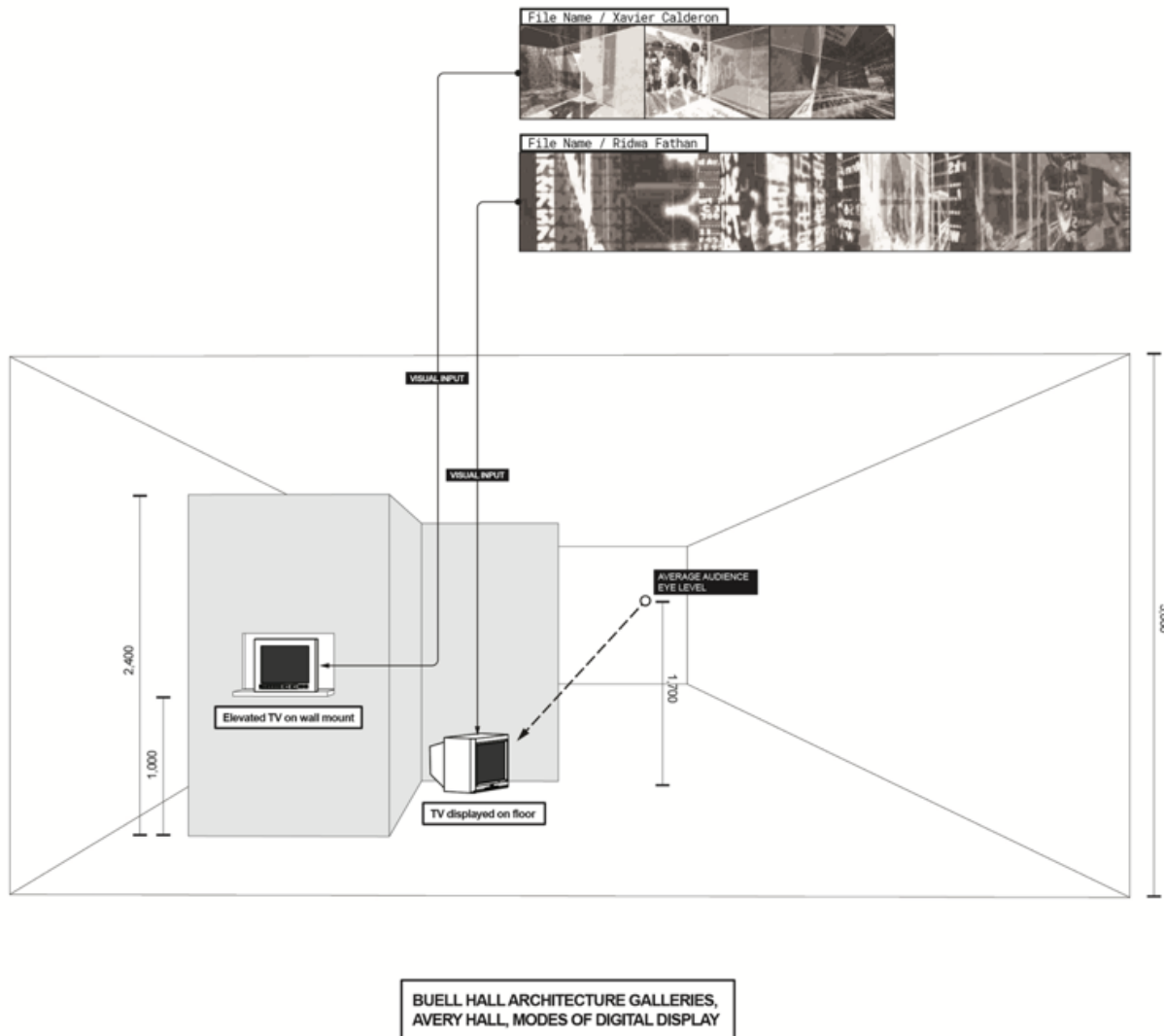


Fig 6.13 Diagram of the screen-based exhibition set up in Hani Rashid’s 1994 Fall Paperless Studio, *Media City: Architecture at the Interval*, where the different positions of the CRTs in space are an attempt to translate and spatialise the post-panoptic effects associated with multi-screen channels. Source: Drawing by Endriana Audisho (author) with assistance from Shuang Wu. Used with permission.

This engagement was repeated in Rashid’s 1995 spring studio ‘Tokyo Extreme.’ In an attempt to again speculate on a “new city space that we have yet to inhabit,”⁵⁷⁵ the studio designed a fictional urbanism to explore questions of immediacy and mediation. The outcomes were displayed through a screen-based installation in the Arthur Ross Gallery (see Fig 6.14). The installation saw an audience crowd around it, watching a series of projections, while being simultaneously (and unknowingly)

⁵⁷⁵ GSAPP Columbia University, “Advanced Architecture Studios,” 55.

recorded in real-time and displayed on one of the screens in the room (see Fig 6.15). This feedback loop inverted reality as the physical presence of the audience as well as the virtual projections on the screens were doubled, relayed, and simultaneously virtualised in real-time and space. The audience was not passive and fixed to a single perspective as the screen-based installation constructed a mediated environment that simultaneously implicated them as spectators and performers.

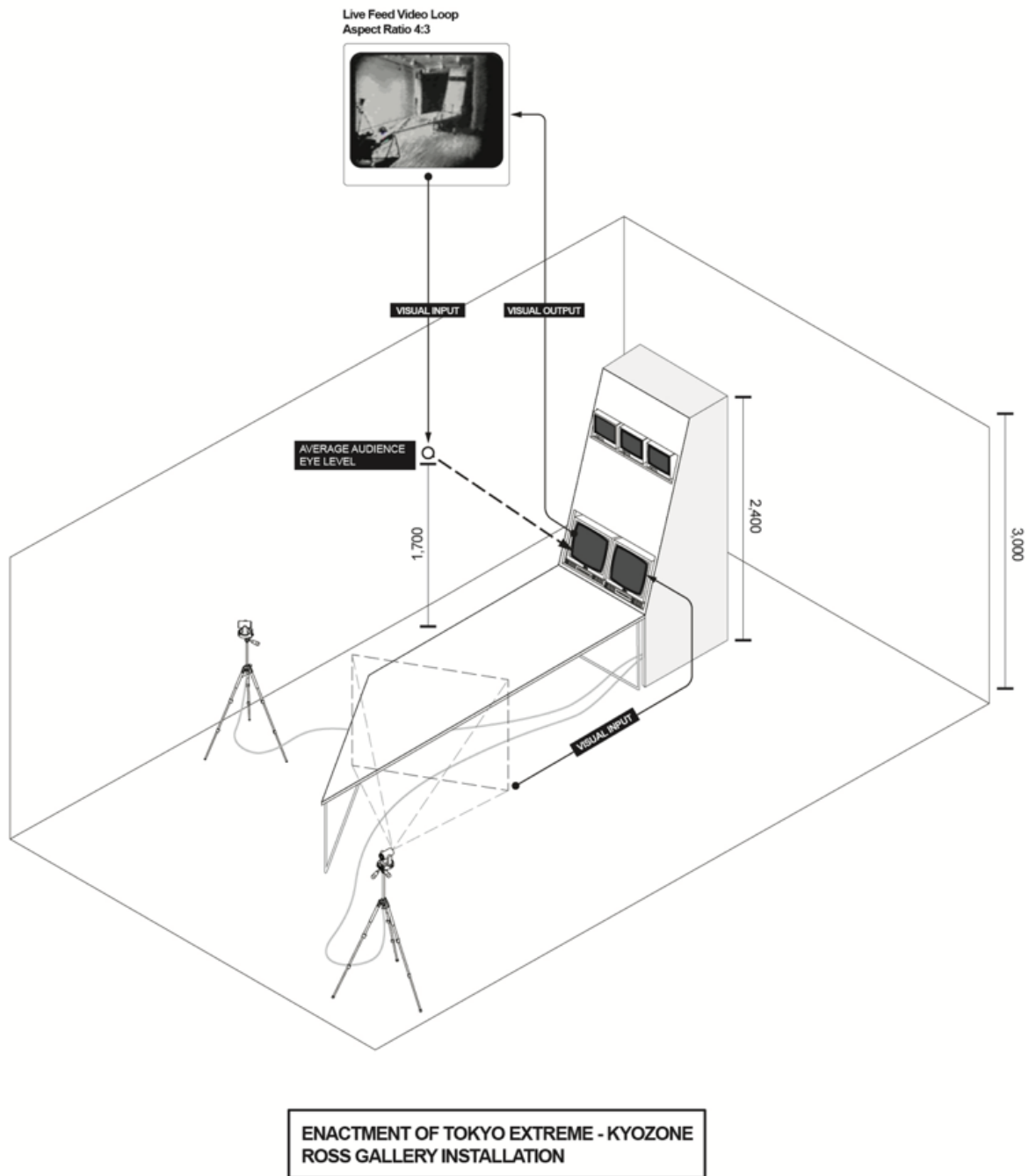


Fig 6.14 Diagram of the screen-based installation set up in Hani Rashid's 1995 Spring Studio, *Tokyo Extreme*, highlighting the network of visual technologies used to generate a live feed video loop of the space, directly engaging the audience in the studio's broader interrogation into the spatio-temporal effects of the screen. Source: Drawing by Endriana Audisho (author) with assistance from Shuang Wu. Used with permission.



Fig 6.15 Excerpt from *Abstract* showing photos of Hani Rashid's spring 1995 studio *Tokyo Extreme*. Source: GSAPP Columbia University, "Advanced Architectural Studios," *Abstract*, (1994-1995): 55.

Rashid's real-time screen-based installations break the centrality of the single frame as they require the subject to interact with the object of the screen(s) in space, which in turn collapses the dichotomy between subject and object. Consequently, the work begins to extend the discourse on the post-war body of work on video installations. Rashid's *Paperless Studio* also expands on the theoretical lines of inquiry in this thesis provoked by CNN's coverage of the Gulf War, specifically the spatio-temporal and fragmented media experience generated by the screen. When Rashid made remarks on the ability to "doctor an image in five seconds now" in the context of the Gulf War, he was also questioning the effects of this doctoring on architectural representation. In a 2013 lecture, Rashid's associated rhetoric when describing his screen-based installation works reflects that of the ability to 'warp,' 'distort,' and 'augment' space, terminology that belongs to graphics programs such as Photoshop. Rashid clarifies that he was not interested in the computer as a formal tool, but

rather, as a tool to unravel the effects of such phenomenon on space. This phenomenon is defined as one of fluctuation and mediation that is shaped by surveillance, instant replays, or real-time event structures.⁵⁷⁶

Lynn, Scott, and Rashid were joined in the second series of the Paperless Studios by Stan Allen, whose studio proposed to use the computer to generate a matrix of diverse elements in what he theorised as a “field condition.” His studio brief description indicated a shift from “demarcating lines to unifying surfaces,” which at first sounds familiar to the topological language of Lynn. However, Allen asserted that “Form matters, but not so much the forms of things as the forms between things.”⁵⁷⁷ In the same semester, Bernard Tschumi, with Tomasz Kowalski, explored the increasing tension between architecture’s material and immaterial conditions (defined as hardware and software). Transposing his interest in film, Tschumi describes the cinema technique of “parsing” as a method students could undertake, whereby the computer would be used to reconfigure an existing project by turning each of its original conditions, including its program, into its virtual opposite. Like Allen, Tschumi's Studio was focused on the urban scale. The computer assisted in understanding relationships between things in the process of designing urban spatial conditions, not formal objects like Lynn.

Also operating at the scale of the urban, however, more focused on the infrastructural, is the paperless pedagogy of Keller Easterling. In an interview with Easterling, she outlines upfront that she was “not interested in the machine for the replication of geometry... that was not [her] project.”⁵⁷⁸ Easterling explains that one possible reason why Tschumi might have selected her to run a Paperless Studio was that she had done some early new media experiments with scholarship, specifically the laserdisc project 'Call It Home' (1992). Further contextualising her project, she highlights that alongside the Paperless Studio, she was teaching seminars, including ‘Siting Infrastructure: Interstate to Internet’ (1994) and ‘Differential Architectures

⁵⁷⁶ Rashid, “Prologue,” 93.

⁵⁷⁷ GSAPP Columbia University, “Advanced Architecture Studios,” 69.

⁵⁷⁸ Keller Easterling, Interview by author, Zoom, October 31, 2022.

(1996),’ on cybernetics from the mid-century and tracing a longer history of network thinking. This was not the kind associated with the dominant Stewart Brand and Kevin Kelly view but rather trying to bring in discourse associated with feminist thinkers such as Donna Haraway.⁵⁷⁹ This was mainly in response to the observed amnesia to the history of computers at the time, whereby the “digital-turn” was treated as a brand new condition. Even though “we might have shared a Deleuzian bibliography,”⁵⁸⁰ Easterling states that she was less interested in the-then new found interest in finding complexity within geometry, or in what geometry looked like, but instead, in what the network did, or in other words, there was an emphasis to move away from “object and into process.”⁵⁸¹

This interest in process and network thinking influenced how students engaged with the computer and the types of outputs that emerged from Easterling's Paperless Studios – “the tagline was always that we weren't focused on the front of the screen. We were focused on the back of the screen and all the nipples and wires that were coming out the back of it. And so, we were trying to look at networks in the studio and urban networks.”⁵⁸² These two scales of operation – from the studio to the urban – were embedded in her Paperless Studio briefs. For instance, in the first two iterations of Easterling’s Paperless Studios (spring 1995 and spring 1996), multiple sites were considered in parallel, whereby students “devised an architecture not of building form but of protocols for intermodality and intelligent switching.”⁵⁸³ This interest in multiplicity was also deployed in the space of the studio through networked computers, which not only allowed students to collaborate on projects but was an important format to use when it came to reviews. Easterling points out that the multi-screen setup was deliberately used to be able to compare things simultaneously – “the end of year show was supposed to be these displays of geometry. But my students were doing these kind of more cinematic things. The way that they occupied the wall was very different.”⁵⁸⁴ In the process of translating the

⁵⁷⁹ Ibid.

⁵⁸⁰ Ibid.

⁵⁸¹ Ibid.

⁵⁸² Ibid.

⁵⁸³ GSAPP Columbia University, “Computer Studios,” 62.

⁵⁸⁴ Easterling, interview.

network thinking to the scale of the studio, whereby multi-screens encouraged the interplay between platforms and software, Easterling was also recognising the material, spatial, and mediating effects of the screen. Easterling's Paperless Studios were more a conceptual exercise in relational thinking, whereby the screen, both its hardware and software, was used to support explorations in network thinking.

6.9 Conclusion

To further advance discourse on the emergence of screen-based architecture, this chapter has used GSAPP's Paperless Studio as a case study to explore how screens entered the design studio space in the mid-1990s. Historically, screens have been engaged within architectural education through a classroom-lab model, as highlighted by post-war university projects such as those conducted by Nicholas Negroponte and Leon Groisser's the 'Architecture Machine Group.' However, these engagements were shaped by the funding structure supporting them, specifically funding from military organisations that directed these projects toward a techno-solutionist approach. These tightly bound academic explorations, which mainly revolved around the interrogation of the "man-machine" interface, alongside the then-emerging 'Design Methods' movement marked the period when Computer Aided-Architectural Design (CAAD) became a recognisable field of inquiry in academia, further driving a techno-solutionist approach as the computer's role in architecture focused on research and teaching developments in digital design techniques.

Consequently, scholarship on the integration of computers in architectural education has concentrated on 'Pioneers of CAD in Architecture,' highlighting schools in the US that have had a substantial history in computing, such as MIT. However, the school that designed an identity and pedagogy revolving around the screen – Columbia University's GSAPP Paperless Studio - has received little attention. Existing scholarship on the Paperless Studio has limited its focus to the formal language the school generated through its use of advanced modelling software. However, in contrast to the post-war academic engagements with the screen, revisiting the

project of the Paperless Studio, untied from any sort of military funding, and therefore, techno-solutionist agenda, has revealed a more diverse and experimental exploration into the relationship between screens and architecture. Unpacking the Paperless Studio, including the mechanisms that inaugurated its launch to the different studio briefs, has proven that introducing new software was only a small component in constructing a pedagogy revolved around the screen. This chapter has explained how an educational institution constructed itself and shifted its pedagogical practices to integrate screens into design studios. Part of this endeavour was administrative and practical and was translated through three steps: (1) a curriculum re-structure, (2) securing funding for a digital design infrastructure, and (3) a redesign of the studio space to accommodate screens. Although practical, all three endeavours contributed to the construction of an environment of experimentation in architectural pedagogy focused on the screen.

The dedicated space and autonomy given to the Paperless Studios facilitated the exploration of diverse pedagogical approaches with the screen, ranging from form-finding investigations to 1:1 mediascapes and everything in between. Departing from the conservative language inherited by Tschumi, the school suddenly found itself immersed in simulations and mixed-media installations. The pedagogical uncertainties surrounding the integration of screens into the design studio ultimately led to heterogeneous lines of inquiry. Examining these different engagements with the screen, while highlighting the lesser-known explorations with the materiality of the screen – such as the installation works of Hani Rashid and the “network” thinking of Keller Easterling – redirects attention from the prevalent accounts of the pedagogies focused on form-finding. Consequently, this contributes to the larger aim of the thesis in constructing an alternative narrative of the digital in architecture.

7.1 Introduction

The trajectory of screen-based architectural theory, practice, and the pedagogical experiment of GSAPP's Paperless Studios, which this thesis has thus far set up, begins to construct an alternative history of the digital in architecture – one that is concerned with architecture's exploration of the screen's material presence and spatial and mediating effects. This alternative history has highlighted that, in the context of the screen's heightened cultural and architectural presence, heterogeneous lines of architectural inquiry into the screen were present in the 1990s. From the installation work of critically engaged screen-based practices, such as Diller Scofidio and Asymptote, who were experimenting with the effects of the screen on the body, vision, and space, to the more practical pedagogical endeavours required to construct an environment of experimentation in architectural pedagogy focused on the screen, as seen in the Paperless Studios, architecture's relationship to the screen goes beyond its prevailing association with form and computation. Put simply, the emergence of what the thesis calls a 'screen-based architecture' foregrounds the broader material, spatial, and mediating effects of the screen in architectural production and representation of the 1990s and, in doing so, begins to destabilise the dominant account of the digital in architecture.

The thesis also recognises that by the end of the decade, the distinct lines of inquiry and theoretical positions prompted by screen-based architecture began to blur as the computer became mainstream in architectural education and practice. The chapter will first contextualise this phenomenon by unpacking the transformations in the discipline at the turn of the century, namely the rise of pragmatism, or the pro-practice stance, and post-criticality in the globalised context of the early 2000s. The consequent desire for innovation influenced the way the screen was being used, mainly as a rendering machine. The chapter then argues that this shift is epitomised by the digital aesthetic of the smooth, photo-rendered images enabled by LCD and plasma screen technology, as seen in the 2002 competition proposals to design a

new World Trade Centre (WTC). The concluding section of the chapter will discuss how the computer-generated renders produced by the self-declared digital avant-garde collaborative 'United Architects' presented a techno-formal aesthetic that not only struggled architecturally and politically to deal with the event of September 11 (9/11) but also marked the end of the critical and speculative project of the screen in the East Coast of the United States.

7.2 Paperless but Not Objectless

The experimental engagement with the effects of the screen on architectural production and representation, which came to a pinnacle in the mid-1990s through the Paperless Studios, began to dissolve by the end of the decade. As architecture schools rapidly integrated computers into their curricula, positioning digital technology as an integral part of their pedagogy, the once "radical" and boutique experiments happening at GSAPP around the screen translated into mainstream practices. According to Bernard Tschumi, the initial emphasis on testing without a plan, inventing the tools, and building a culture around the screen contributed to the "radical" nature of the early Paperless Studio experiments.⁵⁸⁵ This "level of inventiveness that went beyond simply the commercial software"⁵⁸⁶ (such as AutoCAD) constructed a distinct architectural language that, by the end of the decade, solidified into a homogenous approach. As Tschumi notes, "everything started to merge into one another... everything began to look the same as everyone was doing a little bit the same thing."⁵⁸⁷ The level of experimentation with the screen dwindled amid the democratisation of computers, and by the early 2000s, it had become "very low compared to the level of experimentation in the early days."⁵⁸⁸ This shift was not limited to external factors but also affected GSAPP internally. In the 1996-1997 issue of 'Abstract,' the dedicated section on the Paperless Studio, present in previous issues, was conspicuously absent. Instead, advanced architecture studies were introduced through the "new mixed media studios," a

⁵⁸⁵ Tschumi, interview.

⁵⁸⁶ Ibid.

⁵⁸⁷ Ibid.

⁵⁸⁸ Ibid.

consequence of the increased accessibility of machines to students in both “paperless” and “regular” studios.”⁵⁸⁹

According to Tschumi, the sweeping effect Paperless Studios had on the profession contributed to this homogenisation. During a period marked by profound changes in the discipline, driven by globalisation and the rise of digital technology, GSAPP graduates emerged with powerful digital skillsets that positioned them as valuable assets in professional practice (the first Paperless cohort graduated at the end of the decade). Highlighting the extent of this influence, Ed Keller recalls instances of large corporate firms buying dozens of copies of ‘Abstract’ as reference material.⁵⁹⁰

Describing it as a near transfer of knowledge from academia to practice, Tschumi recounts how students entering larger architectural firms in NYC in the late 1990s “brought the software and the machine”⁵⁹¹ knowledge acquired at GSAPP. As commercial offices in the city began adopting similar facilities and digital technology knowledge, Tschumi highlights that this moment marked a pivotal shift. Traditionally, architectural offices influenced education, but, as Tschumi argues, “thanks to Columbia, there was a reversal... It’s what was happening in the school that had an effect and influence on architecture offices. And then you start to see basically from 2000 onwards, the commercial offices using the same type of aesthetics as we were using in the school itself.”⁵⁹² The digital divide that manifested between architectural education and the profession in the 1990s was gradually closing.

As computers and software became more affordable and accessible in both architecture schools and practices, and as commercial offices adopted the once “experimental” architectural language incubated within the Paperless Studios, concerns about how to use and experiment with the “unfamiliar” tool became a thing of the past. The next phase, to some extent, was a response to the criticisms directed at Columbia’s early screen investigations. Critics, noting that “Columbia’s computer gurus” had yet to translate their renderings behind the screen into tangible

⁵⁸⁹ GSAPP Columbia University, “Advanced Architecture Studios,” *Abstract*, (1996-1997): 26.

⁵⁹⁰ Cramer and Guiney, “The Computer School,” 98.

⁵⁹¹ *Ibid.*

⁵⁹² *Ibid.*

realities, highlighted the need for practical implementation.⁵⁹³ For instance, in response to the array of blob projects present at the Venice Biennale's Seventh International Architecture Exhibition in the year 2000, New York Times critic Herbert Muschamp wrote, "What's missing here is a sense of real, historical time. Cities are still social condensers. Bodies still require bricks and mortar structures... It has been said that despite the emphasis on variation, blob designs all look the same, and that blob designers haven't fully reckoned with the realities of construction."⁵⁹⁴ Amid the growing criticism of the Paperless generation's inability to produce actual buildings, the digital generation of the 1990s embarked on the next phase of inquiry for the screen: how to leverage the tool to cultivate a new intellectual satisfaction with construction, essentially exploring how the tool could facilitate the construction of non-Euclidean forms born out of the digital age.⁵⁹⁵ This shift does not negate experimentation, but it signals a clear move away from a screen-based architecture invested in exploring the screen's broader material, spatial, and mediating effects, along with its reconfiguration of relations between the body, vision, and space. Instead, it signified a move toward a techno-solutionist approach.

The growing interest in fostering a building culture was reflected in Tschumi's response when questioned about the next step for his faculty; he promptly asserted, "constructability."⁵⁹⁶ Architect Frank Gehry was pioneering this leap from the computer screen to the construction site by adopting aerospace manufacturing software, namely Computer Aided Three-Dimensional Interactive Application (CATIA), to optimise architectural designs for seamless translation into a digital fabrication process. This software played a crucial role in the realisation of projects such as Gehry's Guggenheim in Bilbao completed in 1997. In an effort to address the deficiency in built projects haunting the Paperless architects, GSAPP appointed

⁵⁹³ Ibid.

⁵⁹⁴ Herbert Muschamp, "Architecture's Claim on the Future: The Blob," *The New York Times*, February 23, 2000, <https://www.nytimes.com/2000/07/23/arts/art-architecture-architecture-s-claim-on-the-future-the-blob.html>.

⁵⁹⁵ For more contextualisation on the increased use of non-standard forms of production as a consequence of digital design, refer to the 'Architectures non-standard' exhibition, curated by Frédéric Migayrou with Zeynep Mennan, Centre Pompidou, Dec 2003-2004. And the subsequent exhibition review by Marco Carpo: Mario Carpo, "Review: Architectures Non Standard by Frédéric Migayrou, Zeynep Mennan," *Journal of the Society of Architectural Historians* 64, no. 2 (2005): 234–5.

⁵⁹⁶ Cramer and Guiney, "The Computer School," 98.

Gehry as a distinguished professor in 1999.⁵⁹⁷ Simultaneously, the first generation of Paperless Studio instructors, including Greg Lynn and Hani Rashid, along with their digital assistants – who, by the late 1990s, were teaching their own version of a Paperless Studio – took the challenge upon themselves to straddle the interface between virtual and actual. They committed to fostering a building culture, mainly through digital fabrication techniques mediated by the screen. The initial aspirations of GSAPP’s Paperless Studio pedagogical project were slowly unravelling, humorously expressed by Tschumi’s remark that Paperless was a great name “but then the plotters were introduced...[laughs].”⁵⁹⁸

The shift in focus had now turned towards how to get designs out of the screens, encapsulated by Tschumi’s emphasis on “constructability” in 2000. While the year 2000 might appear somewhat arbitrary as a starting point for this shift, a thorough examination of the cultural and material evidence from this period, including journals, events, and architectural projects, reveals its significance. For instance, the September 2000 issue of ‘Architecture’ magazine was dedicated to highlighting the digital generation’s engagement with “constructability.” The issue included articles such as ‘Building a Better Blob’ by architect and critic Joseph Giovannini, who provocatively noted that the “increasingly rich, pixelated world of the computer screen has been slow to translate into habitable form.”⁵⁹⁹ The design studio of Gehry and the architecture firms coming out of the wired classrooms of GSAPP, among others, were positioned as pioneering centres of investigation.

In a survey-like manner to assay “how to build a computer-age architecture,”⁶⁰⁰ one of the articles⁶⁰¹ captured the then-current interests of those associated with the first Paperless Studios, including studio instructors Greg Lynn from Greg Lynn Form, Hani Rashid from Asymptote, and the digital assistants Greg Pasquarelli from SHoP

⁵⁹⁷ Andia, “Reconstructing the Effects of Computers on Practice and Education During the Past Three Decades,” 5.

⁵⁹⁸ Andia, “Reconstructing the Effects of Computers on Practice and Education During the Past Three Decades,” 6.

⁵⁹⁹ Cramer and Guiney, “The Computer School,” 93.

⁶⁰⁰ Ibid.

⁶⁰¹ Cramer and Guiney, “The Computer School,” 93-107.

Architects and Ed Keller. In the article, Lynn announced that he was now more focused on practice, and as his first major commission, 'The Korean Presbyterian Church of NY' in 1999, was finishing up, he left NYC for Los Angeles to "hunker down and learn the principles of machining,"⁶⁰² as these innovations were more abundant there. Rashid notes a similar departure from the early experimental work, claiming that "Theory's influence is on the wane... When students are actively involved in the process of making things, [French philosopher Gilles] Deleuze isn't as compelling. They now create proofs, not theorems."⁶⁰³ The negation of the references used to experiment with the screen highlights the consensus among the Paperless generation that the early theoretical and speculative work around the screen was now a thing of the past.

In the same article, extending Rashid's provocation even further, Pasquarelli notes that he tells his students at Columbia that "while the studio may be paperless, it is not objectless, and that they have to look beyond the seductive images on-screen."⁶⁰⁴ Confronted with the difficulty of building unconventional forms like a blob, Pasquarelli continues to note that SHoP Architects, the firm he co-founded alongside fellow Columbia graduates,⁶⁰⁵ was considering opening up a fabrication side to their practice.⁶⁰⁶ This was mainly due to the challenges associated with building an architecture conceived on screen and the consequent strain on existing materials and construction methods, which often became obsolete when dealing with complex forms (blobs).⁶⁰⁷ Building a better blob required this digital generation to embark on new fabrication techniques facilitated by the screen. The preferred form (and scale) of experimentation among this generation, as Stan Allen points out, became the pavilion.⁶⁰⁸

⁶⁰² Cramer and Guiney, "The Computer School," 99.

⁶⁰³ Cramer and Guiney, "The Computer School," 102.

⁶⁰⁴ Cramer and Guiney, "The Computer School," 104.

⁶⁰⁵ Including William Sharples, Christopher Sharples, and Kimberly Holden.

⁶⁰⁶ Cramer and Guiney, "The Computer School," 105.

⁶⁰⁷ Joseph Giovannini, "Building a Better Blob" *Architect* 89, no. 9 (2000): 126.

⁶⁰⁸ Allen, "The Paperless Studio in Context," 398.

It might be a coincidence, but the timing appears perfect, as MoMa architecture curator Terence Riley established the Young Architects Program in the year 2000. An annual invited competition to promote innovative practices saw SHoP Architects, the inaugural winners, build a better blob through their temporary pavilion, 'Dunescape.' Installed in the courtyard of MoMa's PS1 Contemporary Art Center in Queens, New York, SHoP's curved pavilion design was generated using animation software. Its constructability was solved by plugging "standard 2-inch-by-2-inch-by-8-foot pieces of cedar into the computer as the given construction material,"⁶⁰⁹ which resulted in approximately 6,000 2-by-2's segmenting the curving surface. Facilitating the translation of the curvilinear form into real space, drawings of the segmented form left the screen and were printed at 1:1 scale to serve as templates for cutting the cedar (see Fig 7.1). Neither paperless nor objectless, 'Dunescape' stands as an early example of the screen being used as a tool purely for architectural production.

⁶⁰⁹ Giovannini, "Building a Better Blob," 126.

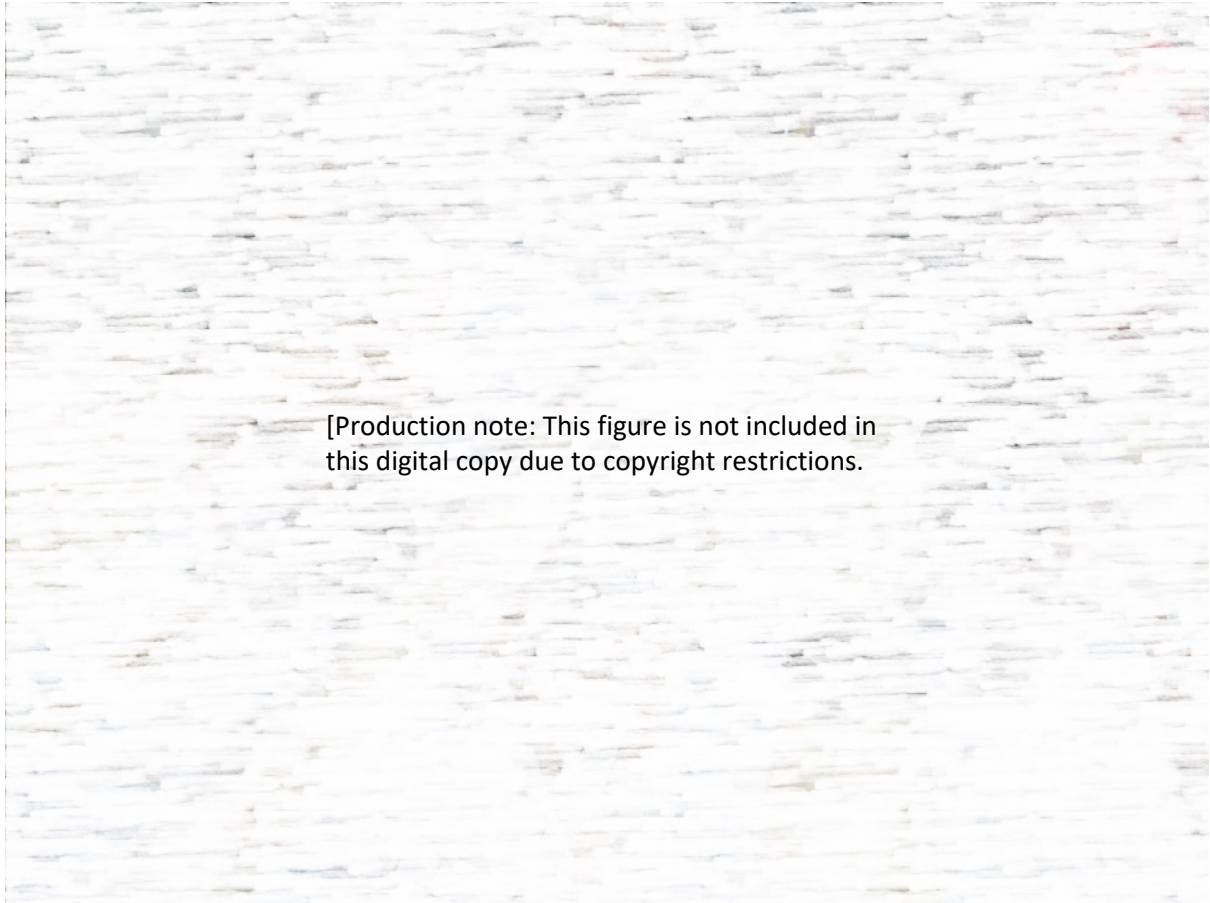


Fig 7.1 ShoP Architects' use of 1:1 drawings as templates on-site, to construct their installation *Dunescape*. Source: ShoP Architects, *Dunescape*, 2000, installation, ShoP Architects, <https://www.shoparc.com/projects/dunescape/>.

7.3 Things in the Making: The Shift from Paperless to Pragmatism in the Early 2000s

Whether or not generating a lot of paper, the general shift by the self-declared digital avant-garde to use the screen as a tool for translating topological architecture into real space was also heralded by broader transformations in the discipline at the turn of the century. This shift was marked by the rise of pragmatism, or the pro-practice stance, and the consequent desire for innovation. If the atmosphere of uncertainty and transition present in the discipline at the beginning of the decade heralded a speculative and critical architectural engagement with the screen, the unwavering shift away from critical theory by the end of the decade facilitated a new set of

questions centred around pragmatism.⁶¹⁰ A series of events marked this disciplinary shift, notably in the year 2000. These events including the conference 'Things in the Making: Contemporary Architecture and the Pragmatist Imagination,' organised by the Skidmore, Owings and Merrill Foundation (SOM) in association with Columbia University, as well as the cessation of the theory publications 'Assemblage' and 'ANY.'

The conference, convened by Joan Ockman in collaboration with philosopher John Rajchman, took its title from philosopher William James's notion of "things in the making." It aimed to address the acknowledged divide between theory and practice existing at the time, a schism that dates back to the 1960s when architectural theory matured in the US and fostered a newly politicised generation of architects who "mounted a challenge to a profession that it saw as arrogant, irrelevant, and anti-intellectual."⁶¹¹ It only intensified over the decades as theory became more autonomous, especially on the East Coast of the US with the importation of Continental philosophies, namely structuralism, critical theory, and later, post-structuralism.⁶¹² As a reaction to this growing divide and "the climate of a booming economy and plenty of buildings coming out of the ground,"⁶¹³ Ockman explained that by the late 1990s, there was a general desire to reconceptualise architectural practice and turn to pragmatism – a recurrent trope that had characterised American architecture in canonical histories of the 20th century.⁶¹⁴ If critical theory, which connected architecture in the US to Continental philosophies, was held responsible for the growing divide between theory and practice, pragmatism, as an American philosophy, was seen as a useful alternative.

⁶¹⁰ Allen, "The Future That is Now," 217.

⁶¹¹ Joan Ockman, "Pragmatism/ Architecture: The Idea of the Workshop Project," in *The Pragmatist Imagination Thinking About 'Things in the Making,'* ed. Joan Ockman, 1st ed. (New York, N.Y: Princeton Architectural Press, 2000), 16.

⁶¹² Ockman, "Pragmatism/ Architecture: The Idea of the Workshop Project," 17.

⁶¹³ Ibid.

⁶¹⁴ Ockman, "Pragmatism/ Architecture: The Idea of the Workshop Project," 18. Ockman refers to this reoccurring historical trope as one that characterises "American architecture as driven by practical exigencies and commercial realities. European architecture, on the other hand, is seen as underpinned by theories and doctrines."

In its most general form, pragmatism, defined as a ‘theory of practice,’ was proposed through this event as an alternative to the dominance of theory *over* practice present at the time – a context that nurtured a screen-based architecture. Without dismissing theory altogether, the intention was for architects to refocus on the practical, instead of the discursive, effects of their architectural production but simultaneously not fall into the “anti-intellectual and politically complicit posture that often characterised such dismissal of former critical legacies.”⁶¹⁵ For Rajchman, who had previously presented a paper titled ‘A New Pragmatism?’ at the ‘ANY’ conference held in Rotterdam in 1997, the notion of ‘diagram,’ for instance, was seen as a chance to connect the theoretical impulses of the 1990s, such as the Deleuzian fold, to reality. According to Rajchman, the pragmatism of diagrams and diagnosis leads to a “new pragmatism” in architecture that moves beyond the impasses of any ideological program or larger vision. A questioning through the diagram can define alternative programs for architecture and, in turn, “might help transform the sense of what is ‘critical’ in our thought and our work.”⁶¹⁶

The turn to pragmatism, often labelled as a post-critical moment, reached its peak with contributions from American architects and theorists Sarah Whiting, Robert Somol, and Michael Speaks, and, to some extent, Stan Allen, published after the ‘Things in the Making’ event. While Ockman’s framing of pragmatism welcomed a revision of the role of architectural theory alongside a renewed focus on practice, the post-critical stance of Whiting, Somol, and Speaks advocated a complete rejection of theory, opting for “the anti-intellectual direction that Ockman was precisely trying to avoid when she introduced pragmatism as an alternative.”⁶¹⁷ Allen, associated with the Paperless Studio experiment, acknowledged that the theoretical turn played a central intellectual role in his pedagogical and practice endeavours. He did not dismiss theory entirely but asserted that its significance had become “historical”

⁶¹⁵ Pauline Lefebvre, “What Difference Could Pragmatism Have Made? From Architectural Effects to Architecture’s Consequences,” *Footprint: Delft School of Design journal* 2017, no. 20 (2017): 23.

⁶¹⁶ John Rajchman, “A New Pragmatism?,” in *Anyhow*, ed. Cynthia C. Davidson (New York: Anyone Corp, 1998), 217.

⁶¹⁷ Lefebvre, “What Difference Could Pragmatism Have Made? From Architectural Effects to Architecture’s Consequences,” 27.

rather than a contemporary concern.⁶¹⁸ If theory was now historical, this generation of “post-critics,” a term applied by George Baird, diverged from the lineage of criticality in the US-led predominantly by Peter Eisenman and Michael Hays. Both Eisenman, influenced by Manfredo Tafuri, among others, and Hays, by Fredric Jameson, among others, worked from positions of “negation” and “resistance.”⁶¹⁹ The attempts by the post-critical protagonists, many of whom are protégés of Eisenman (Whiting, Somol, and Allen, to be precise), to “cut loose from him”⁶²⁰ and “transcend a certain Eisenmanian hegemony in the upper echelons of American architectural culture”⁶²¹ have led to multiple positions on the post-critical to surface and consequently, fostered a context in which a post-critical, screen-based architecture emerged.

In ‘Notes around the Doppler Effect and Other Moods of Modernism,’ Whiting and Somol argue that “disciplinarity has been absorbed and exhausted by the project of criticality.”⁶²² They counter Eisenman and Hays’ understanding of disciplinarity as a project of autonomy (enabling critique, representation, and signification) and propose the “projective” as an alternative architectural practice. This approach, which aligns with a second 1970s concept of disciplinarity as “force and effect” associated with and in many ways led by Rem Koolhaas, is concerned with disciplinarity as performance and practice – likened to a Doppler Effect.⁶²³ Doppler architecture moves away from a project of autonomy, focusing on “the effect and exchanges of architecture’s inherent multiplicities: material, program, writing, atmosphere, form, technologies, economics, etc.”⁶²⁴ Whiting and Somol characterise it as a “cool” discipline, drawing on Marshall McLuhan’s media distinction. It suggests an “easy” and “relaxed” process of mixing as opposed to the “hot” critical architecture that resists through distinction and medium specificity (the project of autonomy).⁶²⁵

⁶¹⁸ Michael Speaks, “After Theory,” *Architectural Record* 193, no.6 (2005): 74.

⁶¹⁹ George Baird, “‘Criticality’ and Its Discontents,” *Harvard design magazine*, no. 21 (Fall 2004/Winter 2005): 17.

⁶²⁰ Baird, “‘Criticality’ and Its Discontents,” 18.

⁶²¹ Ibid.

⁶²² Robert Somol and Sarah Whiting, “Notes Around the Doppler Effect and Other Moods of Modernism,” *Perspecta* 33 (2002): 73.

⁶²³ Somol and Whiting, “Notes around the Doppler Effect and Other Moods of Modernism,” 75.

⁶²⁴ Ibid.

⁶²⁵ Somol and Whiting, “Notes around the Doppler Effect and Other Moods of Modernism,” 76.

Most radical in crystallising the post-critical position are the writings of Speaks.⁶²⁶ In 'After Theory,' he starts with an attack on architectural education's inability to recognise contemporary challenges confronting architecture, including technological change and marketisation.⁶²⁷ Although adequately teaching digital design techniques, these "elite" schools, according to Speaks, have only formed a vanguardism engulfed in Deconstruction and Marxism and have failed to recognise that "we don't just need theory, but instead we need a new intellectual framework that supports rather than inhibits innovation."⁶²⁸ He claims that theory inhibits innovation as it follows Enlightenment ideals of truth that separate thinking from doing.⁶²⁹ Instead, Speaks advocates pursuing innovation through what he terms 'design intelligence,' that is, thinking as doing through design prototyping.

An undercurrent present in Speaks' post-critical position is the formal limits of the digital avant-garde, writing "the real question...for the form-driven American avant-garde, is whether they will be able to discover a dislocative architecture that, rather than dislocating form or type, dislocates the form of architectural practice itself,"⁶³⁰ and further proposes that a real transformation of the city requires "animate forms of practice, not animate forms."⁶³¹ This is a direct reference to Lynn and, by implication, Eisenman and the theory journals of the time, such as 'Assemblage,' which became the instruments of theory's normalisation in the US. For Speaks, the direction of architecture no longer emerges from the studio spaces where "new species of form are born (or at least on the screen)"⁶³² but in the practices that are championing a pragmatist approach – a shift from the paperless to pragmatism. The Paperless generation's interest in using the screen to translate topological architecture into real space aligned with this position.

⁶²⁶ See Michael Speaks, "Design Intelligence and the New Economy," *Architectural record* 190, no. 1 (2002): 72–76; "After Theory," *Architectural Record* 193, no.6 (2005): 72–75; "Design Intelligence, Part 1: Introduction," *A + U*, no. 12387 (2002): 10–18; "Theory Was Interesting... but Now We Have Work," *Arq* 6, no. 3 (2002): 209–12; "Intelligence after Theory," *Perspecta* 38, (2006): 101–106.

⁶²⁷ Speaks, "After Theory," 73.

⁶²⁸ Ibid.

⁶²⁹ Speaks, "After Theory," 74.

⁶³⁰ Michael Speaks, "It's Out There... The Formal Limits of the American Avant-Garde," *Architectural design* 68, no. 5-6 (1998): 30.

⁶³¹ Ibid.

⁶³² Speaks, "After Theory," 75.

7.4 Building on Ground-Zero: A Post-Critical Screen-Based Architecture After 9/11

In the context of the rise of pragmatism and the general shift to a building culture by the self-declared digital avant-garde, screen-based architecture, or what now should be labelled as a post-critical screen-based architecture, in the early 2000s, became centred around notions of innovation and the ability to make “real” and practical transformations in architecture and the city, as opposed to discursive ones. As mentioned, this transformation was already taking place and being tested at the scale of the pavilion; however, the opportunity to make a more significant transformation was afforded by the 2002 competition to design a new World Trade Centre in the aftermath of the catastrophic and tragic September 11 attacks in NYC. The collapse of two towers, symbolic of capital, power, and technical innovation within the architectural panorama of Manhattan’s skyline, sparked a debate on what type of architecture would emerge at the WTC site. The event, and subsequent design competition, precipitated the re-emergence of “buildings” as architecture. The ‘landmark’ opportunity inherent to the reconstruction of post-9/11 lower Manhattan, as well as the unprecedented and visually dominant media coverage of the event, presented additional concerns for those involved in the competition – specifically, the ‘image’ of the architecture, the site, and the impending skyline of NYC. If building a better blob saw the screen being used as a tool purely for production, a post-critical screen-based architecture after 9/11 was now also implicated in questions of aesthetics and representation.

This was first and foremost foregrounded by the media spectacle of 9/11, symptomatic of what would transpire within the architectural competition – specifically, the preoccupation with the ‘image’ of the site as mediated by the screen. The coverage, like that of the Gulf War, was relayed in real-time across the television screens of a global audience. Qualities ranging from the sense of loss, public display of collective emotion, the ensuing context of war, mass media, and scientific and technological advancement all unfolded “at the same time, in real time, on a world

scale.”⁶³³ The sheer scale and “telepresence,” to use Paul Virilio’s term, saw an unprecedented collective connection to the event via the screen. In contrast to the Gulf War, where CRT screens materialised grainy images of Baghdad, making it difficult to distinguish between reality and its simulated representation of the city, LCD screen technology of the time presented “sharper” image quality. Although reduced to a repetition of a few images looped in motion on the screen⁶³⁴ – most notably, the image of the Twin Towers on fire with smoke billowing out into the sky of NYC – the prolific visual presence marked an age of imbalance, a shock to the system that destabilised the known physical and psychological landscape of the public on a global scale. Being the first “symbolic event on a world scale”⁶³⁵ and dubbed by Baudrillard as an ‘image-event,’ the proliferation of images circulating on screens, unlike the absence of “real” images in the Gulf War,⁶³⁶ absorbed the event, transforming it into a spectacle, and offered it up for consumption.⁶³⁷ Epitomising his 1981 proclamation that we are living in a hyperreality, where reality has been replaced by simulacra,⁶³⁸ Baudrillard highlights that the proliferation of images via the screen only distanced viewers from the “original,” as the event “radicalized the relation of image to reality.”⁶³⁹ If the image, via the screen, became the only way of accessing the event, the fascination with the attack, to quote Baudrillard, “became primarily a fascination with the image.”⁶⁴⁰

Post 9/11, the call for the global design competition also responded to a series of images. In July 2002, images of the six initial concept plans by Beyer Blinder Belle, commissioned by the Lower Manhattan Development Corporation (LMDC), overseeing the rebuilding of the WTC site, and the Port Authority, were released (see Fig 7.2). There was immediate widespread public dissatisfaction with the concept plans. Criticised for the lack of community participation in the process,

⁶³³ Ewa Kowal, *The 'Image-Event' in the Early Post-9/11: Novel Literary Representations of Terror after September 11, 2001* (Krakow: Jagiellonian University Press, 2012), 30.

⁶³⁴ Ibid.

⁶³⁵ Jean Baudrillard, *The Spirit of Terrorism and Requiem for the Twin Towers* (London: Verso, 2002), 27.

⁶³⁶ Baudrillard, *The Gulf War Did Not Take Place*, 82.

⁶³⁷ Baudrillard, *The Spirit of Terrorism or Requiem for the Twin Towers*, 27.

⁶³⁸ Baudrillard, *Simulacra and Simulation*, 1.

⁶³⁹ Baudrillard, *The Spirit of Terrorism or Requiem for the Twin Towers*, 26–27.

⁶⁴⁰ Baudrillard, *The Spirit of Terrorism or Requiem for the Twin Towers*, 28–29.

LMDC conducted community consultation through the ‘Listening to the City’ forum in the same month. Asked to give feedback, the participants strongly objected to Beyer Blinder Belle’s six initial concept plans for being “too dense, too dull and too commercial”⁶⁴¹ as well as “lacking the vision necessary to reflect the significance of this historic moment.”⁶⁴² Instead, they advocated for the transformation of Lower Manhattan into a vibrant, 24-hour commercial, cultural, and residential community that simultaneously paid attention to the memorial aspect of the masterplan (as opposed to it being an afterthought in the planning process). Respectively, LMDC announced a second attempt⁶⁴³ to select a masterplan through a global design competition with revised design requirements, notably the restoration of a tall, powerful, and symbolic skyline.⁶⁴⁴

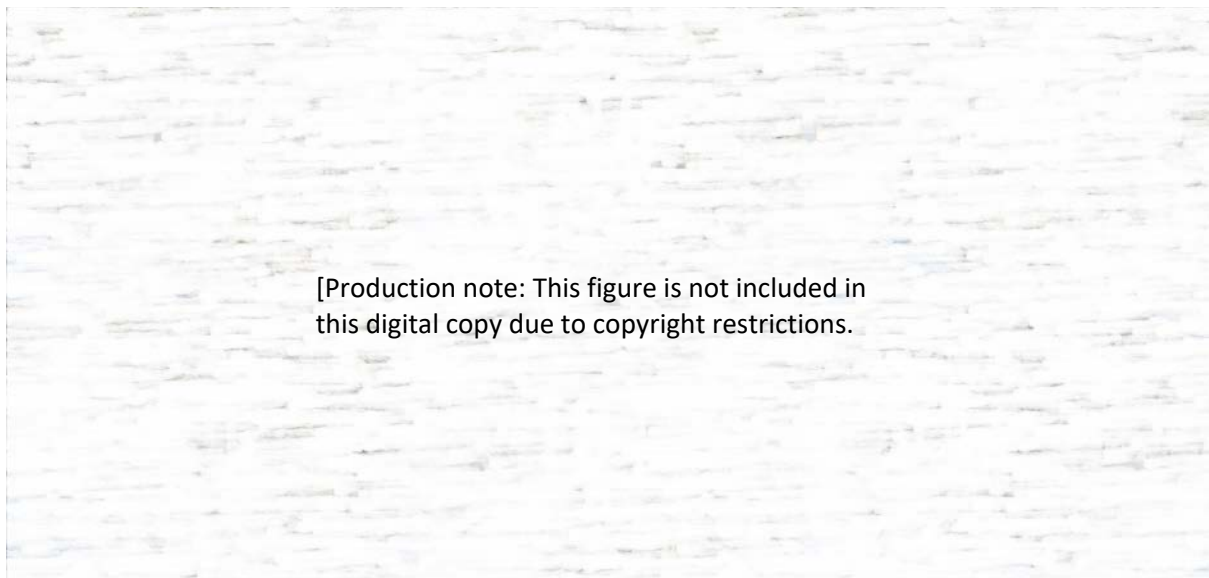


Fig 7.2 Six initial master-plan concept plans for the WTC site by Beyer Blinder Belle, July 2002.

Source: Beyer Blinder Belle, *Master-plan concepts for the WTC site*, 2002, architectural models, The Skyscraper Museum, <https://skyscraper.org/world-trade-center-rebuilding/timeline/>.

⁶⁴¹ Civic Alliance to Rebuild Downtown New York, *Listening to the City: Report of Proceedings* (New York: Civic Alliance, 2002), 2, accessed June 20, 2022, http://www.weblab.org/ltc/LTC_Report.pdf.

⁶⁴² Civic Alliance to Rebuild Downtown New York, *Listening to the City: Report of Proceedings*, 11.

⁶⁴³ This time, with the aim of conducting a transparent planning process in which the public would play a central role in shaping the future of lower Manhattan, LMDC engaged with a broader network of actors ranging from advisory councils to public hearings and meetings with public officials. For instance, nine advisory councils representing groups affected by the attacks were established to regularly consult with LMDC.

⁶⁴⁴ Michelle Young, “The NYC that never was: 1 WTC and the competition for the World Trade Center Site,” *Untapped New York*, November 4, 2004, <https://untappedcities.com/2014/11/04/the-nyc-that-never-was-1-wtc-and-the-competition-for-the-world-trade-center-site/>.

With the announcement of the global design competition, Cynthia Davidson observed, “immediately, the image was what everyone was talking about. What is the image of the project? What does it look like on the skyline? No one was talking about the ground plan, what was happening on the ground, what kinds of public spaces it created or didn't create.”⁶⁴⁵ Davidson continued to explain that in the context of 9/11 and following the end of the ten-year theory-driven ‘ANY’ project, interest in theory declined, and an era where “using the screen to project something that looks real was upon us.”⁶⁴⁶ Something “real” could be interpreted as the hyper-realistic renders that were to come through the competition, which focused on the ‘image’ of the building within the Manhattan skyline. Davidson, who ended up being involved in the competition by joining one of the competition teams (consisting of Peter Eisenman, Charles Gwathmey, Steven Holl, and Richard Meier), further observed that the images of the proposals totally seduced everyone, as opposed to the architectural and urban ramifications of the project – “the only thing they were concerned about was the image of a new structure on the skyline of New York to take the place of the lost World Trade Centre Tower.”⁶⁴⁷

To further contextualise Davidson’s comment regarding the fetishization of the image, we have to understand that unlike other architectural competitions (for example, those of the mid to late 1990s), this competition was heavily reported on and, consequently, subject to external and public review. Being one of the most significant design competitions in the history of the US, it became the focal point of worldwide coverage, and “architectural interests were thrust into the spotlight of an unprecedented level of popular attention.”⁶⁴⁸ The media coverage of the competition proposals “went into a pop-culture frenzy,”⁶⁴⁹ exacerbated by the live instant polls on CNN of the presentation of the finalist’s schemes.⁶⁵⁰ The polls, “based on public

⁶⁴⁵ Cynthia C. Davidson, interview by author, New York City, February 9, 2019.

⁶⁴⁶ Ibid.

⁶⁴⁷ SCI-Arc Media Archive, “Cynthia Davidson: Image & word: a critical context,” YouTube video, 41:50, <https://www.youtube.com/watch?v=6m4io3NiWo0>.

⁶⁴⁸ Lynne B. Sagalyn, “The Politics of Planning the World’s Most Visible Urban Redevelopment Project,” in *Contentious City*, ed. John Mollenkopf (New York: Russell Sage Foundation, 2005), 25.

⁶⁴⁹ Cynthia C. Davidson, “What’s in a Log?,” *Log*, no. 1 (2003): 5.

⁶⁵⁰ Lynn, interview.

responses to architectural images,⁶⁵¹ were void of any critical analysis of the proposals, as most of the attention was redirected onto the architects responsible for the designs. Architecture was now operating in a new media paradigm, obsessed with the image-event where the image of not only the proposals but the architects themselves was of importance. Or, as Davidson prompts, “was this a design competition or an Oscar awards ceremony?”⁶⁵²

On 26 September, 2002, the LMDC selected six finalists⁶⁵³ from the global pool (see Fig 7.3). The selected competition proposals were released for public review at the Winter Garden in the World Financial Centre. Considering the large public interest in both the event and competition, especially after the strong responses against the initial concept plans by Beyer Blinder Belle, the competition finalists’ designs were also simultaneously broadcast live on TV. Although the LMDC aimed for a transparent and public planning process, it became politically contested. After the public review at the Winter Garden, LMDC stated that satisfying everyone would be impossible and that the final decision would be made by LMDC and the Port Authority, who owned the WTC site.⁶⁵⁴ To complicate matters more, the planning process coincided with the gubernatorial election that saw New York Governor George E. Pataki, who controlled the WTC site, criticised for his political neutrality in a bid to be re-elected.⁶⁵⁵ The political fragmentation among the multiple stakeholders, including LMDC and the Port Authority, as well as the lack of direction from the governor, overtook the portrayed publicness of the planning process with endless posturing, symbolic rhetoric, and a political narrative.⁶⁵⁶

⁶⁵¹ Davidson, “What’s in a Log?,” 5.

⁶⁵² Ibid.

⁶⁵³ The six finalists included Foster and Partners, Studio Daniel Libeskind, Richard Meier and Partners, THINK Architecture (including Shigeru Ban), Skidmore, Owings and Merrill, and United Architects.

⁶⁵⁴ Sagalyn, “The Politics of Planning the World’s Most Visible Urban Redevelopment Project,” 63.

⁶⁵⁵ Sagalyn, “The Politics of Planning the World’s Most Visible Urban Redevelopment Project,” 23–24.

⁶⁵⁶ Sagalyn, “The Politics of Planning the World’s Most Visible Urban Redevelopment Project,” 63.

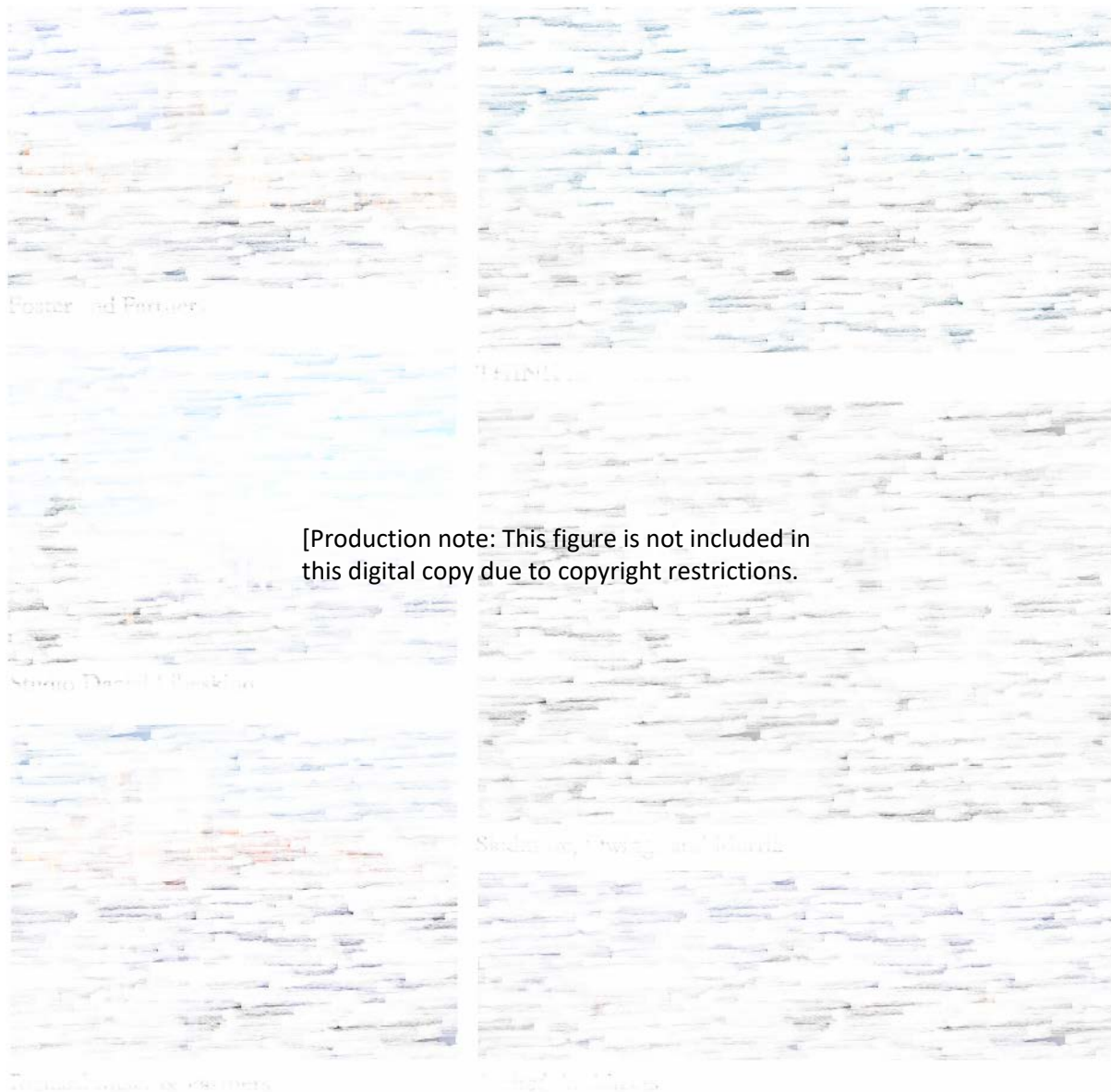


Fig 7.3 Compilation of the six finalists of the *World Trade Centre Competition*, 2002. Source: “The NYC that never was: 1 WTC and the competition for the World Trade Center site,” Untapped New York, November 4, 2004, <https://untappedcities.com/2014/11/04/the-nyc-that-never-was-1-wtc-and-the-competition-for-the-world-trade-center-site/>.

The mediated and politically charged milieu of the competition generated a specific assemblage of aesthetics and politics, as Reinhold Martin describes, that affirmed a “progressive architecture.”⁶⁵⁷ This ideological direction was pre-empted by and exemplary of a post-critical position as well as what Martin describes as “the

⁶⁵⁷ Reinhold Martin, “Architecture at War: A Report from Ground Zero,” *Angelaki: Journal of Theoretical Humanities* 9, no. 2 (2004): 217.

exigencies of professional realism”⁶⁵⁸ that many architects faced in the early 2000s. In calling for a tall, powerful, and symbolic skyline, architects were ultimately being asked to engage in a politics of progress with the intention of producing an architecture “that pointed towards a triumphant future.”⁶⁵⁹ This condition, of not surrendering to terrorism by looking forward, was further intensified with the declaration by the US government of a ‘war on terror’ post 9/11. The rhetoric associated with rebuilding something tall, powerful, and symbolic also emphasised that building on ground zero was the preferred response. Therefore, a progressive architecture involved the exploitation of the landmark opportunity as well as “an architecture dedicated to producing striking images of the future.”⁶⁶⁰

Early indications of this “progressive architecture” were seen even before the Beyer Blinder Belle concept plans and subsequent call for an international design competition. In late 2001, American art dealer Max Protetch contacted 100 architects to consider proposals for a new World Trade Center, re-imagine the site, and envision a “new” future for the city. The outcomes were put on display through his exhibition ‘A New World Trade Centre: Design Proposals’ (January-February 2002). Although the exhibited schemes were divided (on whether to build on the site or not), a post-critical and “progressive” aesthetics, often associated with “technological innovation through digital representation and/or new structural systems and a regressive politics,”⁶⁶¹ dominated the architectural proposals. The screen became the tool that materialised this “technological innovation,” as almost every project exhibited generated a digital aesthetic through the smooth, photo-rendered images framing their proposals within the Manhattan skyline.

For instance, the images displayed in the exhibition saw projects by Hani Rashid, who used a computer program to bifurcate the forms of the original twin towers and, in the process, change the morphology of the surface (see Fig 7.4);⁶⁶² a tower by

⁶⁵⁸ Martin, “Architecture at War: A Report from Ground Zero,” 219.

⁶⁵⁹ Martin, “Architecture at War: A Report from Ground Zero,” 218.

⁶⁶⁰ Martin, “Architecture at War: A Report from Ground Zero,” 218–9.

⁶⁶¹ Martin, “Architecture at War: A Report from Ground Zero,” 219.

⁶⁶² *After September 11: Re-imagining Manhattan’s Downtown*, directed by Michael Blackwood (Michael Blackwood Productions, 2002), 46:11, <https://www.kanopy.com/en/uts/video/172359>.

Nader Tehrani and Monica Ponce de Leon of Office dA with complex latticework that expands and contracts with the increase in height; FOA's bundle of interconnected structural tubes that buttress each other for additional structural stability; and NOX Architect's interweaving towers, referencing Frei Otto's structural thread diagrams, among others (see Fig 7.5). The images of these projects all displayed a turn to formal and technological experiments in architectural production,⁶⁶³ a technoformalism that failed to register any political awareness of its implication.⁶⁶⁴ Or, as Peggy Deamer put in her review of the formal exhibition, most of the architects could not resist to "strut their aesthetic stuff"⁶⁶⁵ and were blinded to the fact that this was a time to "think beyond aesthetics altogether."⁶⁶⁶ This statement could be applied to both the forms of the designs as well as the significance placed on the 'image' of the project.

⁶⁶³ Martin, "Architecture at War: A Report from Ground Zero," 219–20.

⁶⁶⁴ Peggy Deamer, "A New World Trade Center," *Journal of Architectural Education* 56, no. 3 (2003): 73.

⁶⁶⁵ Deamer, "A New World Trade Center," 71.

⁶⁶⁶ *Ibid.*



Fig 7.4 Hani Rashid in front of an image of his WTC proposal *Twin Towers*, for the 2002 exhibition *A New World Trade Centre: Design Proposals*. Source: “After September 11: Re-imagining Manhattan’s Downtown,” Michael Blackwood Productions, accessed December 7, 2022, <https://michaelblackwoodproductions.com/project/after-september-11-re-imagining-manhattans-downtown/>.

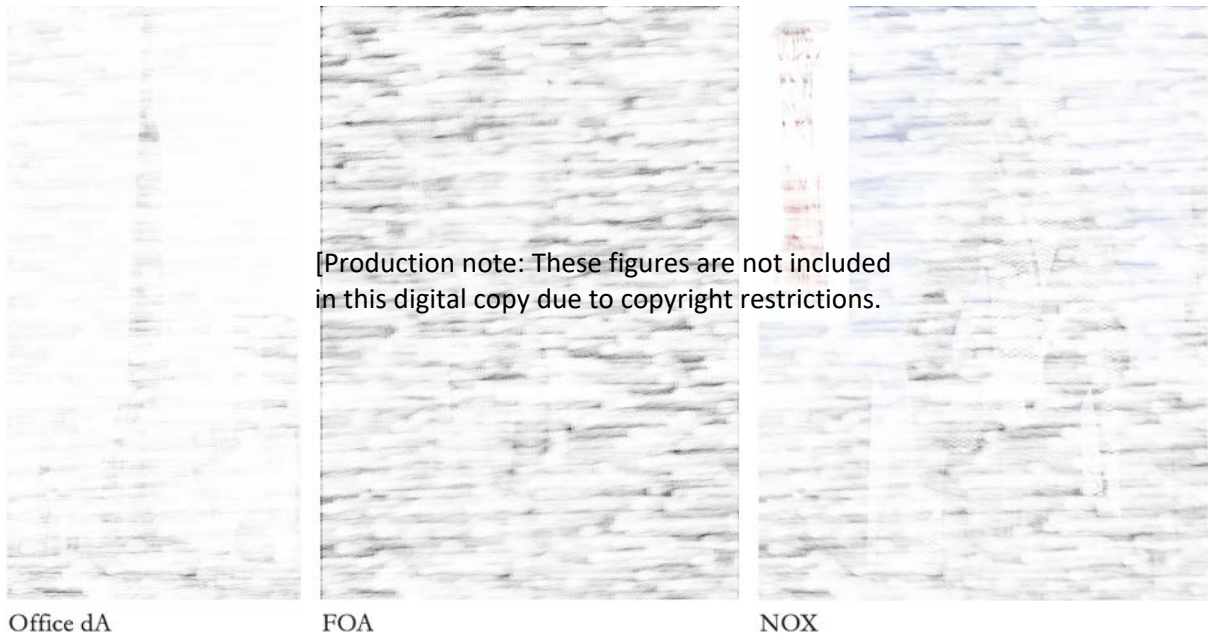


Fig 7.5 Compilation of (left to right) Office dA, FOA and NOX’s WTC proposals for the 2002 exhibition *A New World Trade Centre: Design Proposals*. Source: “Witness and Response: September 11 Acquisitions,” Library of Congress, accessed December 11, 2022, <https://www.loc.gov/exhibits/911/911-maxprotetch.html>.

Perhaps most evident of this techno-formalism, or an architecture of form and image as directed by the screen, was one of the six finalists of the formal competition – the team who called themselves United Architects. Paperless Studio instructors Greg Lynn of Greg Lynn Form and Jesse Reiser (alongside Nanako Umemoto) of Reiser+Umemoto RUR Architecture joined forces with Alejandro Zaera-Polo and Farshid Moussavi of Foreign Office Architects (FOA), Kevin Kennon of Kevin Kennon Architects, and Ben van Berkel and Caroline Bos of UNStudio. Members of the team, namely Lynn, FOA and UNStudio, represented a digital generation whose early investigations around the screen were ideologically aligned to and even referenced the philosophies of Deleuze. However, their proposal moved away from theory and adopted an “increasingly anti-intellectual stance.”⁶⁶⁷ Favouring a techno-formalist position where affect became the primary commodity⁶⁶⁸ transformed Deleuze’s “revolutionary philosophy into a pro-capitalist one.”⁶⁶⁹ This was apparent in the proposal’s associated rhetoric, which saw hyper-realistic images of the ‘United Towers’ accompanied by the slogans “a bold vision for the future”⁶⁷⁰ (see Fig 7.6) and “returning pride to the site”⁶⁷¹ (see Fig 7.7).

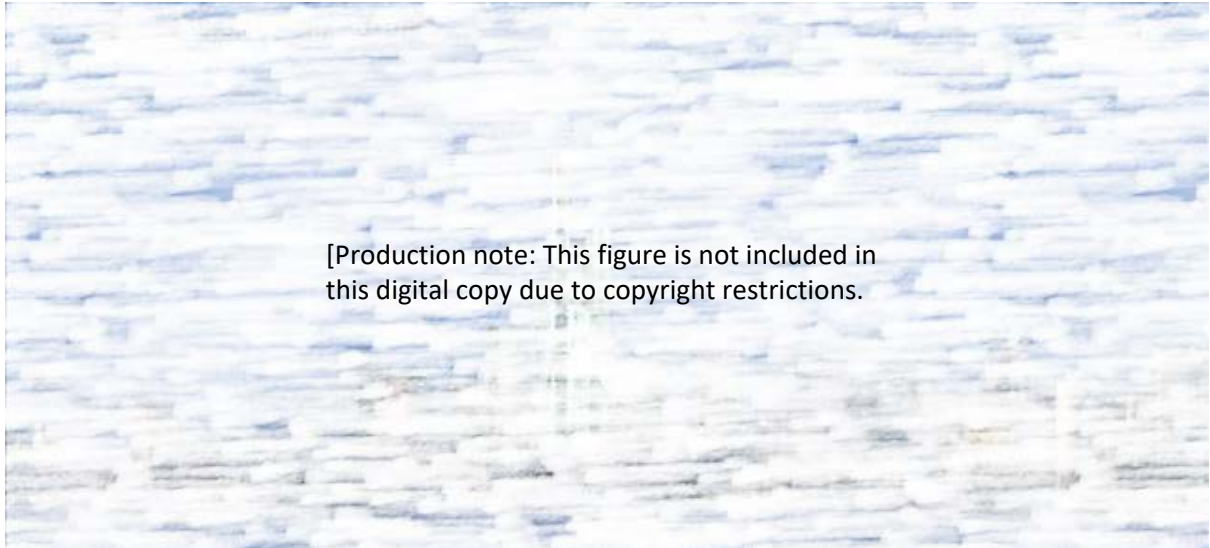
⁶⁶⁷ Martin, “Architecture at War: A Report from Ground Zero,” 221.

⁶⁶⁸ Ibid.

⁶⁶⁹ Ibid.

⁶⁷⁰ “New World Trade Centre Designs. Renew NYC,” LMDC, accessed June 20, 2022, <http://www.renewnyc.com/PlanDesDev/Wtcsite/newdesignplans/firmf/slides/slide11.asp>.

⁶⁷¹ “New World Trade Centre Designs. Renew NYC,” LMDC, accessed June 20, 2022, <http://www.renewnyc.com/PlanDesDev/Wtcsite/newdesignplans/firmf/slides/slide12.asp>.



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Fig 7.6 Slide from United Architects' presentation of their 2002 WTC proposal, *United Towers*, highlighting "a bold vision of the future." Source: "United Architects," LMDC, accessed December 13, 2022, <http://www.renewnyc.com/PlanDesDev/Wtcsite/newdesignplans/firmf/slides/slide10.asp>.



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Fig 7.7 Slide from United Architects' presentation of their 2002 WTC proposal, *United Towers*, highlighting "returning pride to the site." Source: "United Architects," LMDC, accessed December 13, 2022, <http://www.renewnyc.com/PlanDesDev/Wtcsite/newdesignplans/firmf/slides/slide12.asp>.

From the name, 'United Architects,' to the collective portrait comprising of a grid of "multi-racial faces in a field of coloured squares,"⁶⁷² to the public relations strategy, which included hiring a filmmaker to document the team's collaboration during the competition, the team made a conscious effort to construct an identity of unity and progress in a time of uncertainty. Aware of the importance of portraying this to the public, Lynn explains that he intentionally asked filmmaker Tom Jennings to follow the team and construct "a centre of gravity, as having a camera around would make [them] feel like a band, like a team"⁶⁷³ (see Fig 7.8). Lynn recalls the day they arrived for the competition briefing, "Tom had the camera on in the cab, and it was the day that Bush announced he was starting the second Gulf War. And so, he starts to film with the radio of Bush in the background."⁶⁷⁴ An American United Architects formed amid the imminent international war on terror, as directed by the screen.

⁶⁷² Martin, "Architecture at War: A Report from Ground Zero," 221.

⁶⁷³ Lynn, interview.

⁶⁷⁴ Ibid.

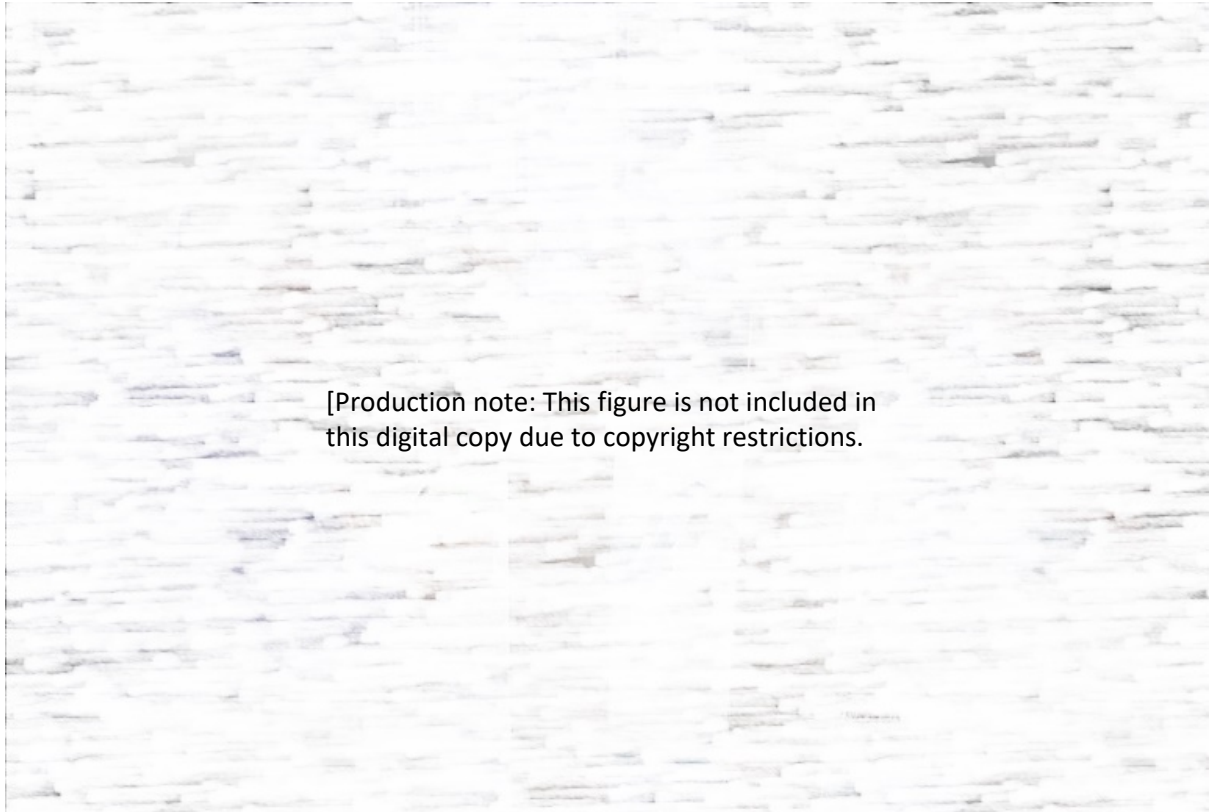


Fig 7.8 A still from Tom Jennings's film *The Architects: A Story of Loss, Memory and Real Estate*. Source: "Architecture & Design Film Festival Celebrates 8th Anniversary," Interior Design, accessed, December 13, 2022, <https://interiordesign.net/designwire/architecture-and-design-film-festival-celebrates-8th-anniversary/>.

The screen also played a fundamental role in formulating a progressive architecture and aesthetic, mainly through the digital, hyper-realistic images of the project. United Architects' proposal comprised five skyscrapers that conjoined at different heights, creating a 70-storey 'city in the sky.' The images generated for the competition entry mostly presented an external view of the towers, which could be seen as a response to the revised design requirements that advocated for a tall, powerful, and symbolic skyline. The panorama view did just that – the proposal, centred within the image as well as the skyline, luminously soared over the existing datum line of the skyline (see Fig 7.6). Although the reflective glass made the 'United Towers' look like they fit into the material palette of the skyline, the project stood taller than any other building, and its asymmetric nature broke the uniformity of the often-rectangular skyscraper typology present in the city (see Fig 7.9 – left). Close-up renders show the interweaving individual towers leaning on each other at around 800ft (see Fig 7.9 –

right). As the towers lean on each other, they reflect a symbol of unity and act as a wall of protection around the East side of the site, framing the footprint of the original WTC. The close-up view also highlights the exterior braced-frame structural system on the façade (see Fig 7.10). At a time when citizens of New York City were seeking “stability, certainty, and tradition”⁶⁷⁵ and in response to the public concerns of tall buildings and the associated discourse on safety, reassurance of the technological innovation of the project was very carefully curated via the digital and technical aesthetic of these hyper-realistic renders.

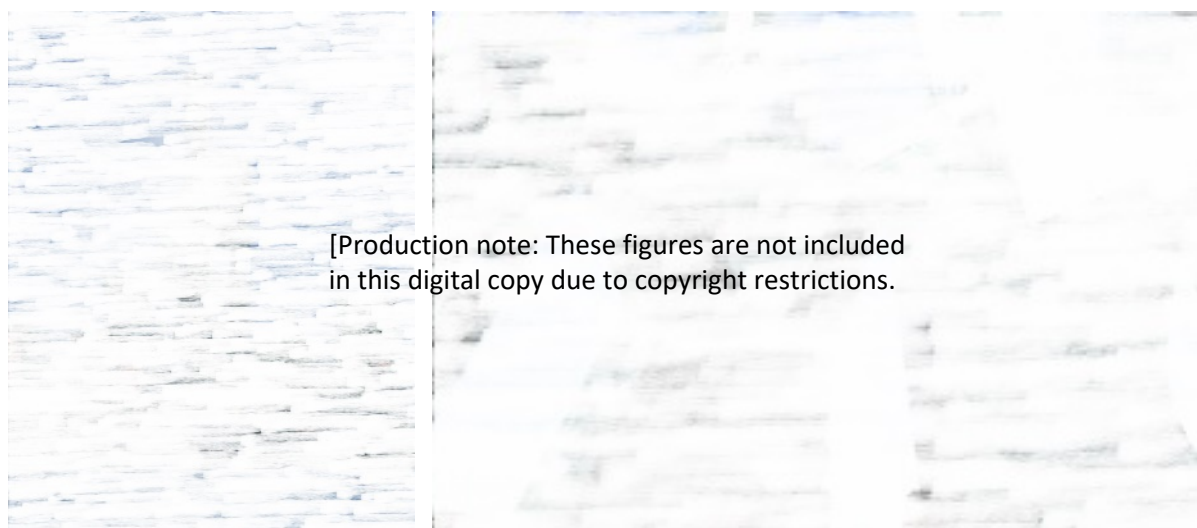


Fig 7.9 Composite image of United Architects' WTC proposal, *United Towers*, 2002. Source (left): “United Architects,” LMDC, accessed December 13, 2022, <http://www.renewnyc.com/PlanDesDev/Wtcsite/newdesignplans/firmf/slides/slide11.asp>. Source (right): “World Trade Centre Memorial Plans,” The Guardian, accessed December 13, 2022, <https://www.theguardian.com/pictures/image/0,8543,-11104463251,00.html>.

⁶⁷⁵ Dana Varinsky, “The new World Trade Center could have been a 70-story interconnected ‘city in the sky,’” *Business Insider*, September 9, 2016, <https://www.businessinsider.com/world-trade-center-documentary-2016-9>.

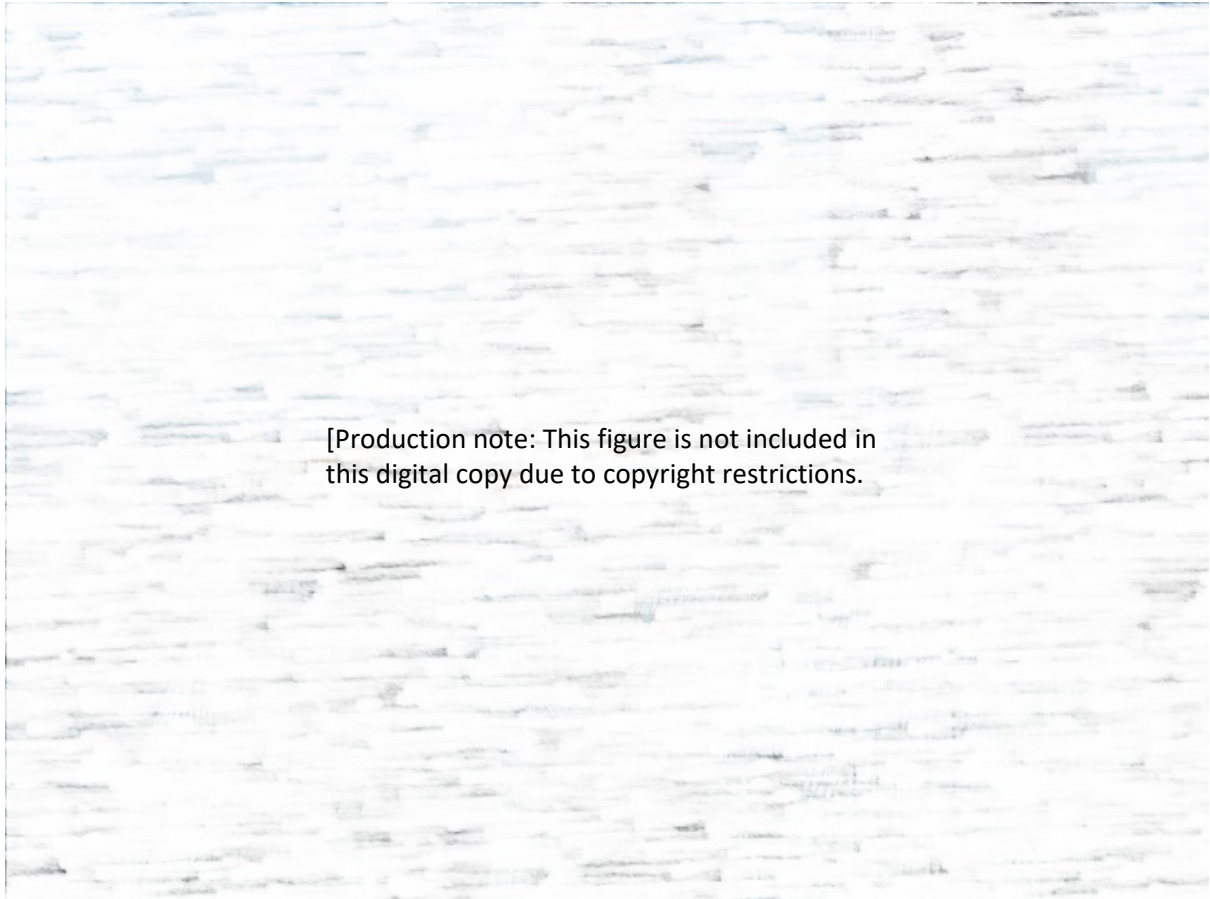


Fig 7.10 Close-up of United Architects' WTC proposal, *United Towers*. Source: "The new World Trade Center could have been a 70-storey interconnected 'city in the sky,'" Business Insider, accessed December 13, 2022, <https://www.businessinsider.com/world-trade-center-documentary-2016-9>.

What is concerning, however, about the images produced by United Architects is that they echo Baudrillard's theory that reality disappears in hyperreality. Specifically, the political reality of the event and the complexities attached to the rebuilding process seem to be absent. Instead, the images produced by United Architects look to the future and, in turn, depoliticise the event. Furthermore, the "progressive" aesthetics associated with a discourse on technological innovation, and a post-critical stance, seem to directly respond to the competition design guideline to restore a tall, powerful, and symbolic skyline. To design, according to Martin, a (neo-) modern structure on the site that symbolises cultural and economic imperialism whilst simultaneously producing "striking images of the future"⁶⁷⁶ dismisses "any real public debate regarding the historical dimensions of the event itself."⁶⁷⁷

⁶⁷⁶ Martin, "Architecture at War: A Report from Ground Zero," 219.

⁶⁷⁷ Martin, "Architecture at War: A Report from Ground Zero," 218.

Reflecting on the competition, Jennings, who documented United Architects and directed the film 'Architects: A Story of Loss, Memory and Real Estate,' stated, "It's hard not to look back on it now and see that what they were doing then was not being impacted by the geopolitics of the time."⁶⁷⁸ The competition was an opportunity for architecture to publicly engage itself and a broader audience with politics, or in the words of Bruno Latour, foreground "matters of concern"⁶⁷⁹ as opposed to "matters of fact."⁶⁸⁰ United Architects' project text describes "the tall building as a technical and cultural artifact,"⁶⁸¹ but what about the historico-political? When analysing the renders produced by United Architects, it is evident that they fall into the "matters of fact" category, presenting a sanitised solution that is blind to the violence of the event. Aesthetics becomes a form of politics itself as the "progressive" hyper-realistic images of the project, as mediated by the screen, acted as a filter and deterrent to the reality of the event.

Understood from this perspective, if we return to United Architects' render of the skyline, there is a striking resemblance between the composition of the proposed twisting, asymmetric towers and the Statue of Liberty, which is also featured within the image (see Fig 7.11). The inclusion of the Statue of Liberty, an icon of freedom, symbolises a liberation – possibly from the reality of the event. This is emphasised by mostly external and distant views of the project, with no real relation to the ground, which we know is contested because of the physical void left after the attacks. The one render that gives detail to a relationship with the ground is a view from the memorial looking up, which frames the tower receding into the sky (see Fig 7.12), emblematic of a utopic vision and a hyperreality devoid of a political reality. Therefore, United Architects' competition proposal can be criticised for reducing architecture to a series of techno-formal concerns that do not address the realities of the event of 9/11. In an age where architecture should be suspicious of the effects of

⁶⁷⁸ Dana Varinsky, "The new World Trade Center could have been a 70-story interconnected 'city in the sky.'"

⁶⁷⁹ Bruno Latour, "Why Has Critique Run Out of Steam? From Matters of Fact to Matters of Concern," *Critical inquiry* 30, no. 2 (2004): 231.

⁶⁸⁰ Ibid.

⁶⁸¹ Rebecca Roberts, ed., *MOMA, Highlights Since 1980: 250 Works from the Museum of Modern Art New York* (New York: Museum of Modern Art, 2007), 228.

the screen on architectural representation, the hyper-realistic images produced by United Architects presented a techno-formal aesthetic that not only struggled architecturally and politically to deal with the event of 9/11 but also marked the end of the critical and speculative project of the screen in the East Coast of the United States, as symbolically manifested through their competition loss.

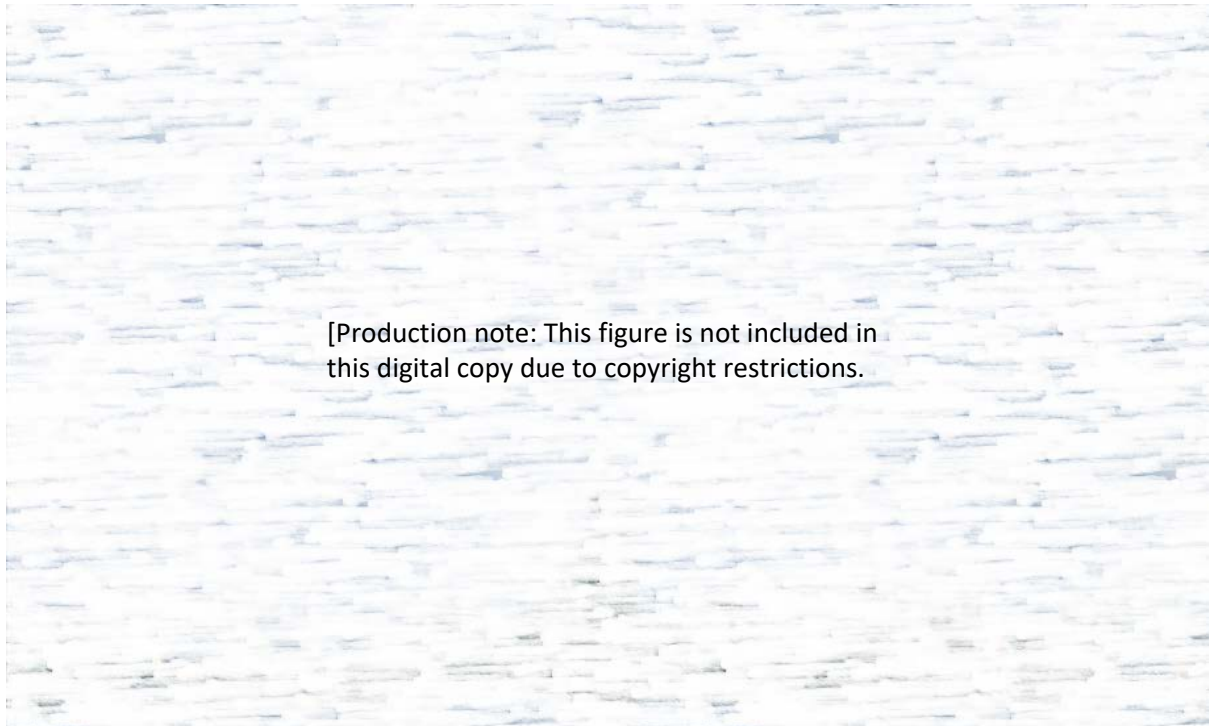
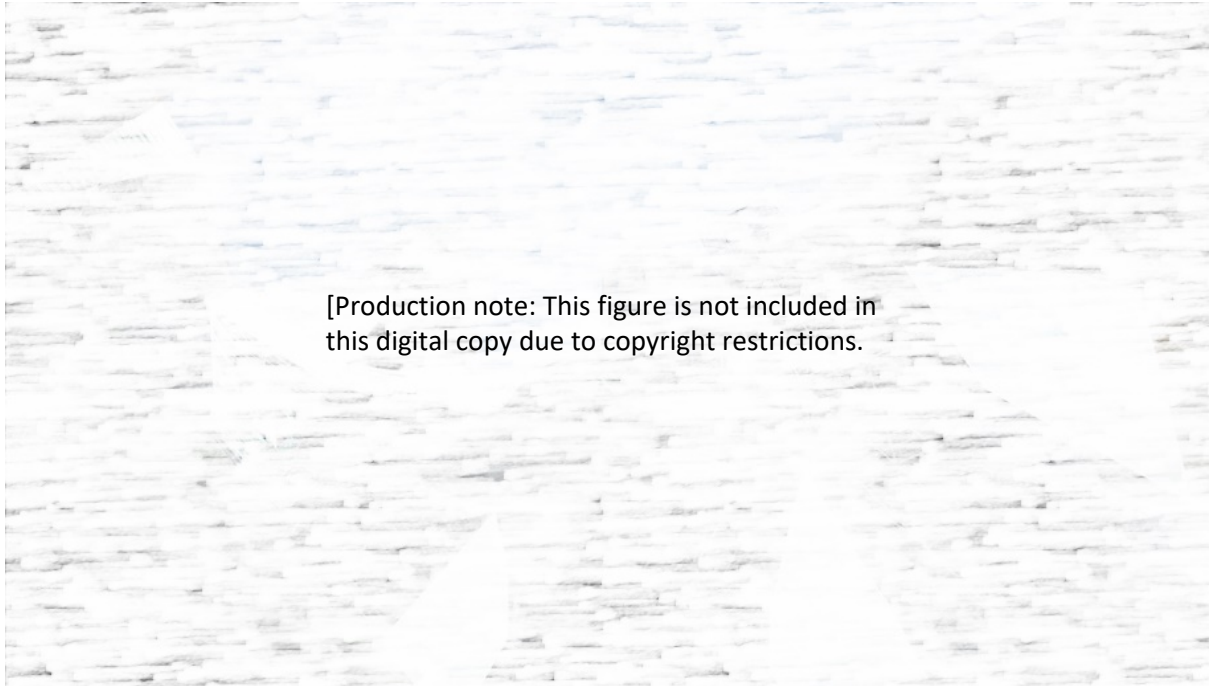


Fig 7.11 Image of United Architects' WTC proposal, *United Towers*, in the Manhattan skyline. Source: "The NYC that never was: 1 WTC and the competition for the World Trade Center site," Untapped New York, November 4, 2004, <https://untappedcities.com/2014/11/04/the-nyc-that-never-was-1-wtc-and-the-competition-for-the-world-trade-center-site/>.



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Fig 7.12 Image of a view looking up at United Architects' WTC proposal, *United Towers*. Source: "greg lynn interview," designboom, October 20, 2012, <https://www.designboom.com/architecture/greglynn-interview/>.

7.5 Conclusion

This chapter has foregrounded the shift in engagement with the screen in the early 2000s, whereby it was now being used solely as a rendering machine. The heterogeneous explorations with the screen and its effects on architectural production and representation, epitomised by the Paperless Studios in the mid-1990s, dissolved by the end of the decade as computers and software became more affordable and accessible. The parallel broader transformations in the discipline at the turn of the century, namely, the shift to a pro-practice stance and the rise of pragmatism and post-criticality, also influenced this shift in engagement with the screen. The then-new desire was to get designs out of the screens, or as Tschumi affirmed in 2000 – "constructability," and to produce "hyper-realistic" images of these designs.

This thesis argues that the unwavering shift away from critical theory gave rise to a post-critical, screen-based architecture centred on notions of innovation and a return

to techno-formalism, devoid of any critical engagement with the effects of the screen. Challenging the post-critical debate at the time, Reinhold Martin questioned the criteria by which these practices sought evaluation “beyond mere acceptance and accommodation of existing societal, or cultural norms?”⁶⁸² In a similar line of inquiry, George Baird, in “Criticality” and Its Discontents,⁶⁸³ bluntly asked what models of assessment are being used to measure the significance of the “putatively” projective forms of practice.⁶⁸³ While acknowledging the urgency to engage with “messy realities” is urgent,⁶⁸⁴ Martin cautioned against the elimination of all forms of critique, fearing that post-critical practitioners assumed that “reality is entirely real- that is pre-existent, fixed, and therefore exempt from critical re-imagination.”⁶⁸⁵ The opportunity to prove otherwise was afforded by the 2002 competition to design a new World Trade Centre in the aftermath of the catastrophic and tragic September 11 attacks in NYC.

In the process of dealing with the “messy realities” of the city after the September 11 attacks as well as the competition’s call for a tall, symbolic, and powerful skyline, the post-critical screen-based architecture of ‘United Architects’ used the screen to generate a “progressive” aesthetic, specifically through the hyper-realistic renders, that pointed towards a triumphant future. Carefully curated and framed, the renders ranged from showing the proposal luminously soaring over Manhattan’s skyline to close-ups highlighting the exterior braced-frame structural system on the façade (responding to the discourse on safety in the wake of 9/11). Despite advocating for technological innovation and presenting striking images of the future, the digital and technical aesthetic of these hyper-realistic renders completely dismissed the historical and political dimension of the event. In doing so, aesthetics became a form of politics itself as the “progressive” hyper-realistic images of the project, as mediated by the screen, acted as a filter, deterring confrontation with the reality of the event.

⁶⁸² Reinhold Martin, “Critical of What?: Toward a Utopian Realism,” in *Constructing a New Agenda: Architectural Theory, 1993-2009*, ed. A. Krista Sykes (New York: Princeton Architectural Press, 2010), 349.

⁶⁸³ Baird, “Criticality’ and Its Discontents,” 7.

⁶⁸⁴ Martin, “Critical of What? Toward a Utopian Realism,” 360.

⁶⁸⁵ Ibid.

United Architects, representing the self-declared digital avant-garde, surrendered a critical screen-based architecture in favour of a “progressive architecture” that became pure representation without regard to the history, politics, or the reality of the event itself. Materialised through CNN’s live poll, the loss of United Architects’ competition proposal marked the end of the critical and speculative project of the screen on the East Coast of the US, as initially fostered by the Paperless Studio. Screen-based architecture and the screen’s live transmission of conflict merged and, literally, collapsed in the architectural competition for the 9/11 site. Shortly afterwards, and in near-perfect symmetry, the United States’ ‘War on Terror’ brought the discourse on the effects of the screen on architectural representation back to where this thesis began – the battlefields of Baghdad.

SECTION 03: THE SCREEN IN THE FIELD

Chapter 08: The Centre for Research Architecture and Forensic Architecture: Critical Counter-Pedagogy and Counter-Practice

8.1 Introduction

By narrating the demise of the (self-declared) digital avant-garde, as argued through their inability to engage with the new aesthetic and geopolitical concerns raised since 9/11, this thesis intentionally halts the continuation of their ‘avant-gardism.’ Instead, it redirects the trajectory through an inquiry into the tools and methodologies required to support contemporary architectural approaches to media and conflict, thereby constructing an alternative account of the digital in architecture. The thesis argues that although screen-based architecture and the live transmission of conflict through screens merged and literally collapsed in the architectural competition for the 9/11 site, the subsequent announcement of a global ‘War on Terror,’ as well as the unrivalled rise of urban and armed conflicts in the 2000s, reopened the relationship between architecture, media, and conflict.

At the core of this relationship was the synchronising role of the screen. From the mobile phone screen of the citizen journalist to the computer screen serving as a viewing portal into the Earth’s surface, different registers, traces, and recordings across digital media introduced new aesthetic and geopolitical concerns. The combination of on-the-ground and above-the-ground data visualised scales of spatial and urban transformations across time. More crucially, this data also captured scales of injustices and crimes against humans and non-humans. In other cases, the blurring or unclear data in specific areas sparked investigation into the hidden. Suddenly, McLuhan’s prophecy of the social responsibility and collective consciousness required of a global village came true. Bearing witness to these acts of violence, as captured by and consumed through the screen, gave rise to a new mode of architectural practice – one that took on a social and activist role and

employed the techniques and methods of investigative journalism in the pursuit of accountability or the production of “truth.”

The work of Forensic Architecture (FA) and the Centre for Research Architecture (CRA) at Goldsmiths University has led this re-orientation through their investigations into human rights violations and environmental crimes. Established in 2010 by Eyal Weizman, FA’s multidisciplinary research agency uses 3D modelling, visualisation, mapping, and counter-cartographies, alongside other digital techniques and tools, to construct and present architectural evidence that uncovers alternative narratives to those presented by dominant state-led media. This chapter will examine the work of FA, both as an emerging field of practice and an academic endeavour developed at the CRA since 2005, to establish the screen, and by extension, the digital, at the confluence of media and politics in architecture. This will be undertaken through a broader contextualisation of their work in the specific historical period of the 2000s, coupled with a detailed account of their *modus operandi* by unpacking a number of FA’s theories, case study investigations, and exhibition works centred around the screen. Specific attention will be drawn to the role of the screen in the investigative methodology developed by FA in the digital model, as well as its use as a display mechanism through exhibitions. This chapter aims to recognise that critical engagement with the screen, and consequently the digital in architecture, was revived as new aesthetic and geopolitical concerns emerged at the turn of the twenty-first century, challenging the techno-formal aesthetic of the post-critical in architecture.

8.2 Multi-Screens: Above-Ground and On-The-Ground Spatial Technologies

Alongside the rise of urban and armed conflicts, the early to mid-2000s formed a very particular historical moment of technological advancement that expanded the visual field of conflict and, in turn, formulated new understandings of the screen’s material, spatial, and mediating effects. A significant development during this period was the widespread accessibility of higher-resolution satellite imagery. While monitoring the Earth’s surface dates back to the 1960s with weather satellites and

the introduction of earth observation satellites, namely Landsat 1, in 1972, the resolution of these images is incomparable to the fourth generation remote sensing satellites developed from 1997 onwards. These newer satellites provided a spatial resolution of up to one metre or less. This heightened resolution proved revolutionary, enabling the identification of intricate details, including buildings and other urban features, previously undetectable by older satellite technologies. Concurrently, the early 2000s witnessed the declassification of satellite imagery, amplifying its availability as a significant resource for studying the surface of the Earth. What had once been limited to the eyes of the military industry was now accessible to a broader audience, offering greater visual access to various parts of the world and shedding light on any violations that occurred within and upon it.

Another advancement that contributed to the expanded visual field of conflict in the 2000s was the rise of the global internet and subsequent social networking platforms, including Facebook and Twitter. These platforms played a significant role in facilitating citizen journalism during conflict and political protests. They served as channels for communication among protesters and were instrumental in raising local and global awareness of events in real-time. This phenomenon can be seen as an amplified, yet democratised, version of CNN's "liveness" during the Gulf War. This transformative influence was particularly evident during the Arab Spring, a series of democratic uprisings that began in Tunisia on the 17th of December, 2010, and spread across the Arab world in 2011. The Arab Spring was the first mass media movement in the Middle East to strongly incorporate social media and online protests, shifting narrative construction to the field through live multi-screen feeds. Despite the physical occurrence of protests in major squares, icons, and roundabouts across the Middle East, comments such as "We use Facebook to schedule the protests' ... [we use] Twitter to coordinate, and YouTube to tell the world" highlight that the protests were largely born and facilitated through social media platforms. The combination of advancements in above-ground satellite imagery and on-the-ground visual technologies prompted urban research into spatial politics and digital spatial technologies.

8.3 Critical Counter-Pedagogies: The Centre for Research Architecture, 2005

In this context, the emergence and ongoing development of the research centre (CRA) and the research agency (FA) were shaped by the convergence of technological advances with political events, casting a new light on the relationship between architecture, media, and conflict. Before exploring how FA's screen-based practice began to explore this relationship, it is important to note that FA emerged from the institutional framework at Goldsmiths, University of London, where CRA was set up in the Department of Visual Cultures by Eyal Weizman in 2005. The conception of the research centre relied on the institutional funding apparatus, specifically the need to secure external funding to support ongoing research. The research project has been supported by academic, human rights, technology, and art grants. Notable among these are two European Research Council grants (2011-2015 and 2016-2021), the most recent totalling €1,996,830; three Sigrid Trust grants (2016-2017, 2017-2020, 2020-2023), with the first two totalling £350,000 and the current one totalling £450,000 over 3 years; two Oak Foundation grants (2016-2019, 2020-2023), the most recent totalling \$605,325 USD; three Open Society Foundations grants (2018-2019, 2020-2021, 2021-2022) totalling \$560,000; and three David & Elaine Potter Foundation grants (2015-2016, 2017-2018, 2018-2019) totalling \$170,000, among others. This funding structure aligns with a longer lineage of university research projects dating back to the 1960s, with advancements in computing. During that period, computers were being used as an educational and research model in academia, relying on funding, such as government military funding that supported early computer explorations at MIT. While the institutional funding apparatus is still in place, what differs in the context of CRA is the shift from military-led funding projects to human rights investigations. Understanding the funding models supporting research centres such as CRA is important as they serve as mechanisms fostering ongoing experimentation with and beyond the institution.

The ability of CRA to secure continuous funding has enabled them to develop a growing body of work that, in many ways, works within but also challenges institutional frameworks. The centre grew out of a number of observations but was

mainly a response to a gap in architectural education at the time, specifically at the post-graduate level. In the early 2000s, architecture PhD programmes worldwide were predominantly still classified as degrees in architectural history and based on the traditions of art history.⁶⁸⁶ Interested in challenging the traditional conception of architectural practice and education, Weizman saw the opportunity to reconfigure existing academic structures and establish practice-based architectural research as a valid form of knowledge production. Consequently, CRA adopted the pedagogical framework of a PhD and operationalised it as a mode of practical inquiry,⁶⁸⁷ aiming to equip practitioners with the tools to undertake spatial research addressing urgent political conditions of our time.⁶⁸⁸ The second major force in the establishment of CRA was the observation that at the turn of the millennium, architectural theory⁶⁸⁹ was engaging with other fields, including art and curation, and welcoming post-colonial theory, sociology, and visual and cultural studies.⁶⁹⁰ Weizman called upon a more multi-disciplinary approach to architecture. Simultaneously, the rise of geopolitical tensions and subsequent “neo-colonial wars that erupted in Palestine, Iraq, and Afghanistan as well as the hyper-securitisation of cities in the global north,”⁶⁹¹ turned attention in architectural pedagogy away from discourse on globalisation and the rapid growth of cities to an emphasis on the urban and spatial dimension of these conflicts.

Furthermore, the set-up of a peer-to-peer learning experience, bringing together students from different spatial disciplines, and the engagement of a diverse range of collaborators in the pedagogical experiment – including artists, curators, filmmakers, and lawyers, among others – foregrounds a multi-disciplinary approach to architectural research. The practice-led PhD programme and the two MA studios (Research and Forensic Architecture) incorporate fieldwork and are mainly defined

⁶⁸⁶ “About CRA,” Centre for Research Architecture, accessed October 1, 2022, <https://research-architecture.org/About-1>.

⁶⁸⁷ Ibid.

⁶⁸⁸ Ibid.

⁶⁸⁹ For a collection of essays regarding the state of architectural theory at the turn of the millennium, see James Graham, *2000+: the Urgencies of Architectural Theory* (New York, NY: GSAPP Books, 2015),

⁶⁹⁰ Centre for Research Architecture, “About CRA.”

⁶⁹¹ Ibid.

by a series of Roundtable seminars⁶⁹² that physically take place on a large wooden round table positioned at the centre of the studio (see Fig 8.1). The circular configuration of the roundtable sets up a non-hierarchical physical structure, inviting diverse research topics and collaborators to assemble and ‘investigate’ around it. It comes as no surprise that in the foundational years, CRA invited a number of guests who are or have been connected to GSAPP. These guests, with aligned pedagogical agendas or critical perspectives on the relationship between digital technology and architecture, including Laura Kurgan, Felicity D. Scott, and Keller Easterling, contributed to the roundtable discussions, shaping the overall conceptual aims of CRA.⁶⁹³ Columbia University also hosted the ‘Architectural Practices’ seminar in 2007 with CRA’s Susan Schuppli and GSAPP’s Reinhold Martin, Laura Kurgan, and Felicity D. Scott. This informal and underexamined exchange between two institutions threads a discourse and field of inquiry into alternative modes of architectural pedagogy, practice, and production. Furthermore, it also assembles a body of work that shares similar concerns, mainly an interrogation of the relationship between technology, media, and politics in architecture.

⁶⁹² See <https://research-architecture.org/Roundtables-1> for CRA Roundtables programme.

⁶⁹³ Laura Kurgan, alongside Thomas Keenan, led the ‘Humanitarian Paradoxes’ roundtable in March 2006 and the ‘Activism on the Map’ roundtable, alongside Michel Feher, Yates McKee, Meg McLagan, Gaelle Krikorian, Amy Kapczynski, in April 2013. Felicity D. Scott led a roundtable discussion on ‘Air Emergency’ in January 2007 and presented her then-newly launched book ‘Outlaw Territories: Environments of Insecurity/Architectures of Counter-insurgency,’ through a lecture titled ‘Playing on Insecurities’ in November 2016. Keller Easterling led a roundtable discussion titled ‘ExtraStateCraft: hidden organizations, spatial contagion and activism’ in October 2006.



Fig 8.1 The ‘roundtable’ at the Centre for Research Architecture (CRA), Department of Visual Cultures at Goldsmiths, University of London. Source: “Roundtables,” Centre for Research Architecture, accessed November 17, 2022, <https://research-architecture.org/Roundtables-1>.

CRA's Roundtable One, representing the first generation of CRA researchers, including Susan Schuppli,⁶⁹⁴ the current Director at CRA, developed an operative theory that foregrounded the need to assemble facts. More importantly, it also established the centre as a form of critical practice, “but with the valence of “critical” suggesting something vital and dynamic rather than pointing to something as problematic.”⁶⁹⁵ Architectural historian Jane Rendell introduced this relation to the critical, which embraces alternative ways of doing things as opposed to binary thinking, in 2003 through the term ‘critical spatial practice.’⁶⁹⁶ For Rendell, critical spatial practice refers to urban interventions that operate between art and

⁶⁹⁴ Schuppli, whose PhD thesis titled ‘Entangled Matters’ explored the entanglement between historical media artefacts and events, has been instrumental in the formation of CRA. Her most recent work, ‘Material Witness: Media, Forensics, Evidence,’ merges her interest in the material world and its entanglement with the aesthetic, the juridical, and the political. See Susan Schuppli, *Material Witness: Media, Forensics, Evidence* (Cambridge: The MIT Press, 2020).

⁶⁹⁵ Centre for Research Architecture, “About CRA.”

⁶⁹⁶ See Jane Rendell, “A Place Between Art, Architecture and Critical Theory,” in *Place and Location*, (Tallinn, Estonia, 2003), 221–33; *Art and Architecture: A Place Between* (London: I. B. Tauris, 2006).

architecture, aiming to transform the social conditions of the sites they engage with while also questioning disciplinary procedures or usual ways of working.⁶⁹⁷ This approach not only offers “critique as a rejection of practices and ideologies that are understood as unacceptable and unjust, but also alternative ways of doing things.”⁶⁹⁸ At its core, critical spatial practice encourages the instrumentalisation of critical theory into practice, fostering a “continuation with, or relation to, rather than breakage from, the critical,”⁶⁹⁹ a departure from the post-critical architectural discourse of the early 2000s championed by Robert Somol and Sarah Whiting.

Identifying CRA, and by extension FA, as a critical mode of spatial practice situates it with an expansive body of work that has evolved the term. Most notable is the book series ‘Critical Spatial Practice,’ edited by Nikolaus Hirsch and Markus Miessen. Miessen, who himself completed a PhD through CRA’s Roundtable One, has been a key contributor to this discourse. In the first issue, published in September 2011, Hirsch and Miessen asked a number of protagonists to reflect on what critical spatial practice means today, featuring contributions from Keller Easterling, Eyal Weizman, and Felicity D. Scott, among others.⁷⁰⁰ Since 2011, Miessen has also led the ‘Architecture and Critical Spatial Practice Studio’ (ACSP) at Städelschule Architecture Class, a postgraduate master program in Frankfurt. ACSP views critical spatial practice as a means to re-think “one’s professional, operation, and codes of conduct.”⁷⁰¹ The studio injects critical discourse into the field of architecture by setting up ‘problematics’ that do not result in a final design but rather inquiries into and documentation of a ‘spatial condition,’⁷⁰² This pedagogical approach is shared by Weizman’s CRA and aligns what this thesis terms ‘critical counter-pedagogies.’

⁶⁹⁷ Jane Rendell, “Forward,” in *Critical Practices in Architecture: The Unexamined*, ed. Jonathan Bean, Susannah Dickinson, and Aletheia Ida (Newcastle-upon-Tyne: Cambridge Scholars Publishing, 2020), xii.

⁶⁹⁸ Rendell, “Forward,” xvii.

⁶⁹⁹ Rendell, “Forward,” xix.

⁷⁰⁰ See the full ‘Critical Spatial Practice’ book series: <https://www.sternberg-press.com/series/critical-spatial-practice-series/>.

⁷⁰¹ “Critical Spatial Practice,” Markus Miessen, accessed October 5, 2022, <http://criticalspatialpractice.org/>.

⁷⁰² Ibid.

Another significant architectural program within this network of critical counter-pedagogies is GSAPP's Masters of Science in Critical, Curatorial, and Conceptual Practices in Architecture (CCCP), also formed in 2011 by Felicity D. Scott and later joined by co-director Mark Wasiuta. Scott's research, which intersects architecture, media, politics, and environment with a specific focus on post-war radical practices and institutions,⁷⁰³ crossed with Wasiuta's research-based exhibition practice and role as Director of Exhibitions at GSAPP for the past decade,⁷⁰⁴ has heavily influenced the direction of the centre, inspiring new research and methodological approaches across various research themes (ranging from architecture's relation to technology, media, ecology, sexuality, and spatial politics). Similar to Miessen and Weizman's counter-pedagogies, CCCP advocates for an expansive recognition of architectural production. It promotes an approach to practice that transcends the discipline's conventional role in the production of buildings.⁷⁰⁵ Aligning with Weizman's call for activist-architect, this network of counter-pedagogies adds architect as curator, critic, editor, and journalist, among others. Collectively, they contribute to formalising architecture as a critical spatial practice.

8.4 Investigating the Politics of Digital Spatial Technologies

In addition to the critical spatial model operationalised through the counter-pedagogies explored thus far, the early 2000s also saw the establishment of research labs and centres in architecture schools specifically focused on investigating the relationship between technology, media, and politics. While the

⁷⁰³ For instance, in 'Architecture of Techno-Utopia,' Scott traces an alternative account of the postmodern turn in the US by unpacking a series of post-war radical and experimental practices and institutions, including the counter-cultural video works of Ant Farm. See Felicity D. Scott, *Architecture or Techno-Utopia: Politics after Modernism* (Cambridge, Mass: MIT Press, 2007). Furthermore, in 'Outlaw Territories,' Scott explores architecture's encounter with forms of human unsettlement and territorial insecurities, including migration, warfare, environmental crisis and urbanisation, during the 1960s and 70s. See Felicity D. Scott, *Outlaw Territories: Environments of Insecurity/architectures of Counterinsurgency* (New York: Zone Books, 2016).

⁷⁰⁴ Wasiuta's recently published 'The Archival Exhibition: A Decade of Research at the Arthur Ross Architecture Gallery, 2006-2016' charts the critical and alternative role the gallery has played through the commitment to research and exhibit under-examined projects from the post-war period. See Mark Wasiuta, *Archival Exhibition. A Decade of Research at the Arthur Ross Architecture Gallery, 2006-2016* (New York: Columbia University Press, 2021).

⁷⁰⁵ "M.S. Critical, Curatorial & Conceptual Practices," Columbia GSAPP, accessed October 1, 2022, <https://www.arch.columbia.edu/programs/4-m-s-critical-curatorial-conceptual-practices>.

Paperless Studio has received significant attention regarding the digital in architectural education, several other pedagogical initiatives within the same institution have contributed to an alternative account. A noteworthy example is GSAPP's Spatial Information Design Lab (SIDL),⁷⁰⁶ founded and directed in 2004 by architect and educator Laura Kurgan. SIDL operated until 2014 and, from 2015 onward, expanded into what is known today as the Center for Spatial Research (CSR).⁷⁰⁷ The work developed at SIDL, acknowledged in this thesis as part of the critical counter-pedagogies network, began to embed the digital at the confluence of media and politics in architecture. It ran parallel to, yet also countered, the post-critical, screen-based architectural project prevalent at GSAPP during that period.

SIDL was established to address the growing significance of spatial-information technologies and explore their implementation in architectural and urban research practices. It is part of Kurgan's⁷⁰⁸ extensive inquiry into the politics of spatial technologies, grounded in two key observations. The first is a reaction to a series of technological advances from the 1990s onwards, profoundly impacting "our ability to navigate, inhabit, and define the spatial realm."⁷⁰⁹ This includes the operation of GPS in 1991 to the increased accessibility to high-resolution satellite images through Google Earth in 2005.⁷¹⁰ The sheer scale of visual access provided by these technologies, representing the Earth's surface across different digital registers,

⁷⁰⁶ For an archive of SIDL work from 2004-2014 see "Archive of SIDL work from 2004-2014," Spatial Information Design Lab, accessed October 1, 2022, <http://spatialinformationdesignlab.org/>.

⁷⁰⁷ Kurgan has also been Director of the Visual Studies Sequence at GSAPP from 2004 – present. In 2021 GSAPP launched the Master of Science in Computational Design Practices (M.S.CDP) program which Kurgan also directs. This new program integrates architecture, data visualisation, and urban planning. For an overview of the program, see "M.S. Computational Design Practices," Columbia GSAPP, accessed October 1, 2022, <https://www.arch.columbia.edu/programs/15-m-s-computational-design-practices>.

⁷⁰⁸ In 'Close Up at a Distance: Mapping, Technology, and Politics,' Kurgan states that "since the early 1990s – since the First Gulf War, to be precise – I have been thinking about and working with new technologies of location, remote sensing and mapping." Kurgan, *Close up at a Distance: Mapping, Technology, and Politics*, 13.

⁷⁰⁹ Kurgan, *Close up at a Distance: Mapping, Technology, and Politics*, 14.

⁷¹⁰ A more extended list is provided by Kurgan, which includes "the operation of Global Positioning System (GPS) satellites for both military and civilian uses in 1991; the democratisation and distribution of data and imagery on the World Wide Web in 1992; the proliferation of desktop computing and the use of geographic information systems for the management of data; the privatisation of commercial high-resolution satellites later in the 1990s; and widespread mapping made possible by Google Earth in 2005." Kurgan, *Close up at a Distance: Mapping, Technology, and Politics*, 14.

transforms how space is “seen” and experienced, and in some cases, “unseen,” prompting an investigation into its invisibility. The second observation Kurgan brings to light is that the emergence of these spatial technologies has been both influenced by and has influenced a series of events, mainly political, military, and social conflicts, in “what is loosely called the “post-Cold War” period.”⁷¹¹ What sets these conflicts apart is their deep entanglement with image and information technologies – they operate through them, as demonstrated in this thesis through the case study of CNN’s live coverage of the Gulf War. The Gulf War, renowned as the first conflict reported through 24-hour live coverage, has also been labelled as the world’s first “space war” due to the extensive use of satellites and GPS in the context of combat.⁷¹² The stealth operation behind the screen involved using maps that were far more complex than the ones presented to viewers through CNN’s live coverage.

Aware of the deep entanglement between technology and conflict, Kurgan undertook a series of projects steered by a critical inquiry into spatial technologies. In her work on the Gulf War, a piece for ‘Documents Magazine’, Kurgan ordered and reproduced three Landsat images of Kuwait, combining them with images from the Kuwaiti database – one from the beginning, one during, and one nearing the end of the war (see Fig 8.2). This series not only traces new ways of conceptualising territory and landscapes but, more importantly, the temporal nature of the images reproduced by Kurgan. The territory captured across time, at three intervals in this case, suggests that mapping technologies can play a political and evidentiary role in zones of conflict⁷¹³ – an approach that, as will be unpacked in the latter half of this chapter, is core to FA’s practice. Kurgan’s work on the Gulf War, specifically the claim that mapping technologies can play a political and evidentiary role, prefigures an

⁷¹¹ Ibid.

⁷¹² The Gulf War, Kurgan highlights, “was a battle unprecedented in its reliance on maps, from the digital ones stored in the on-board memories of cruise missiles to the commercial satellite data purchased by the Pentagon during the war.” Kurgan, *Close up at a Distance: Mapping, Technology, and Politics*, 14. Although the American military had been experimenting with forms of GPS since the 1960s, it was not until 1978 that the first GPS satellite, NAVSTAR I, was launched. It was scheduled to be in full operation by 1993, however, it was deployed in its infancy in the Gulf War in 1991 to direct missile strikes and as a means to aid troops in navigating the desert via their handheld GPS receivers. Furthermore, the U.S. Airforce used SPOT and Landsat satellite images, which were overlaid on the pilot’s digital terrain maps to be used when targeting from above.

⁷¹³ Kurgan, *Close up at a Distance: Mapping, Technology, and Politics*, 95.

alternative engagement with the digital, one that is less interested in the formal capacities of the computer.

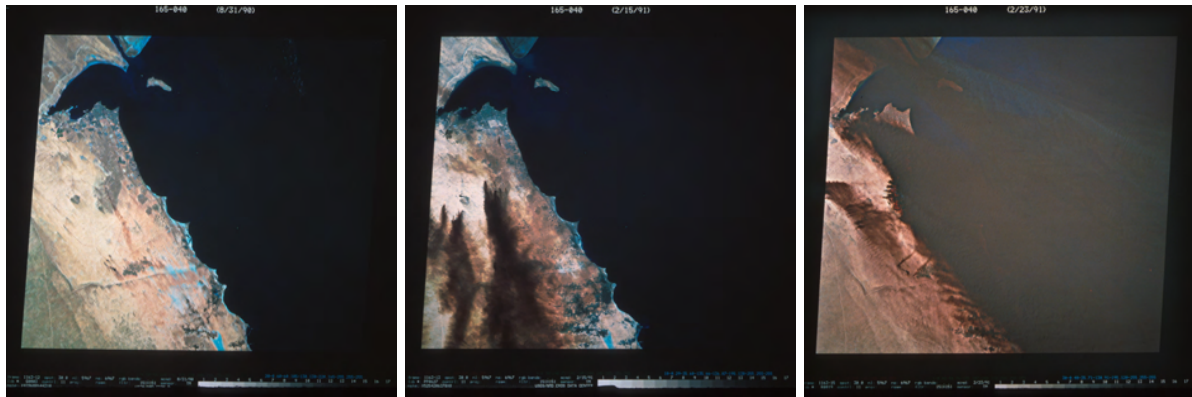


Fig 8.2 Triptych of Laura Kurgan’s *Kuwait: Image Mapping*, 1991. Source: Laura Kurgan, *Close up at a Distance: Mapping, Technology, and Politics* (New York: Zone Books, 2013), 89, 91, 93.

This counter-engagement is also reflected in her biographical account. In an interview conducted by art historian and activist Yates McKee, Kurgan reveals that she was trained as an architect in the so-called “high-theory” period. The theoretical discourse of the late 1980s and early 1990s, guided by the likes of Derrida and Virilio among others, coincided with the introduction of computers in design studio, specifically with the Paperless Studio. Highlighting that many used the computer for its novel formal or sculptural possibilities, Kurgan continues to describe a clear departure from this approach, stating that she was rather “interested in how computers and computer networks would reconfigure our sense of space and what Rosalyn Deutsche called ‘spatial politics.’”⁷¹⁴ Further marking her nuance, Kurgan outlines that, unlike others who were using GPS solely as a drawing tool, she was interested in “the “architecture” of the computer systems themselves, such as the spatiotemporal logic of the atomic clock, which governs time keeping around the globe, as stored by satellites as they record the surface of the Earth.”⁷¹⁵ This delineation and the setup of SIDL can be read as a counter-position to the mainly formal and post-critical agendas floating around the school at the time.

⁷¹⁴ McKee, “How to Do Things with Space – Expanded Architecture and Nongovernmental Politics: An Interview with Laura Kurgan,” 496.

⁷¹⁵ *Ibid.*

This counter-position is also present in Kurgan’s response to 9/11. In 2001, Kurgan was invited to contribute to Thomas Levin’s CTRL [SPACE] exhibition at the ZKM in Karlsruhe, where artists were asked to explore practices, transformations, and experiences of surveillance.⁷¹⁶ A few weeks before the show opened, the 9/11 attacks occurred. By this time, more commercial satellites, such as Ikonis – the first commercial satellite to collect publicly available high-resolution imagery – had been launched, enabling access to imagery up to one-metre resolution. Kurgan purchased an image of Ground Zero from 15 September, only four days after the attack (see Fig 8.3). It was enlarged to a scale of seventeen metres long and six metres wide, then exhibited on the gallery floor at ZKM for investigation and interpretation (see Fig 8.4). “No one wanted to walk on Ground Zero,”⁷¹⁷ Kurgan recalls. At a time when public fear and security were at the forefront of people’s minds, the image, in its sheer size and high resolution, along with the audience surrounding and observing it, created tension.



Fig 8.3 A satellite image of Ground Zero from 15 September, only four days after the 9/11 attack, purchased by Laura Kurgan. Source: Laura Kurgan, *Close up at a Distance: Mapping, Technology, and Politics* (New York: Zone Books, 2013), 134-35.

⁷¹⁶ For a full curatorial statement see, “CTRL [Space]. Rhetorics of Surveillance,” Center for Art and Media Karlsruhe, accessed October 1, 2022, <https://zkm.de/en/event/2001/10/ctrl-space-rhetorics-of-surveillance>. Levin, in his curatorial statement, draws a longer trajectory of work on surveillance in the art world, including Bruce Nauman’s live-taped video corridors and Dan Graham’s Time Delay Rooms in the 1970s and the installation work of Diller Scofidio in the 1990s, and as an extension to this history prompted contemporary explorations on surveillance through the exhibition.

⁷¹⁷ Kurgan, *Close up at a Distance: Mapping, Technology, and Politics*, 129.



[Production note: This figure is not included in this digital copy due to copyright restrictions.]

Fig 8.4 Installation view of Laura Kurgan’s large digital print, of a satellite image of Ground Zero, in the exhibition *ctrl [space]: the Rhetoric of Surveillance from Bentham to Big Brother*, 2001. Source: “ctrl [space],” Frieze, March 3, 2002, <https://www.frieze.com/article/ctrl-space>.

This tension was deliberately orchestrated. The intention behind the work was for it to act as an intervention that sparked thought and debate on the controversy surrounding access to the site in the months following the attack. Bearing witness to the image did not simply mark the event. It was aimed to “teach people how to look at the site as a zone of post disaster architecture, rather than primarily as a site of monumental nationalist-identification.”⁷¹⁸ This was driven by Kurgan’s concern and genuine inquiry into why building anything in the middle of the ‘War on Terror’ was the immediate reaction. Kurgan’s position differed from architects who chose to put forward proposals as a part of the WTC design competition. Although guided by the competition brief and parameters, these proposals were primarily “concerned with building as a question of symbolism or iconography...[where] there was a privileging of the formal and the iconic,”⁷¹⁹ as this thesis has discussed through United Architects’ proposal. The all-seeing aerial image of Ground Zero, which shows everything that cannot be seen with the human eye, did not propose anything but a reflection through the act of seeing something so raw up-close. By showing everything and nothing at once, the image raises consciousness and prompts inquiry and investigation into what is displayed. It also advocated for an alternative narrative of the site – one where building was not the answer, aligning with the critical spatial practice position.

The maps, spatial data, and images produced by mapping technologies not only raise consciousness, as exemplified in Kurgan’s projects on the Gulf War and 9/11, but, more importantly, prompt ethical and political action on behalf of the displayed. By reappropriating GPS and GIS systems, initially developed to enhance state surveillance and military power, to cover social and geopolitical events through a spatial lens, Kurgan foregrounds what Bruno Latour and Peter Weibel call “matters of concern.”⁷²⁰ As Kurgan’s work developed, the scale of inquiry increased, and a wider array of sources, alongside satellite imagery, was collected to assemble

⁷¹⁸ McKee, “How to Do Things with Space – Expanded Architecture and Nongovernmental Politics: An Interview with Laura Kurgan,” 499.

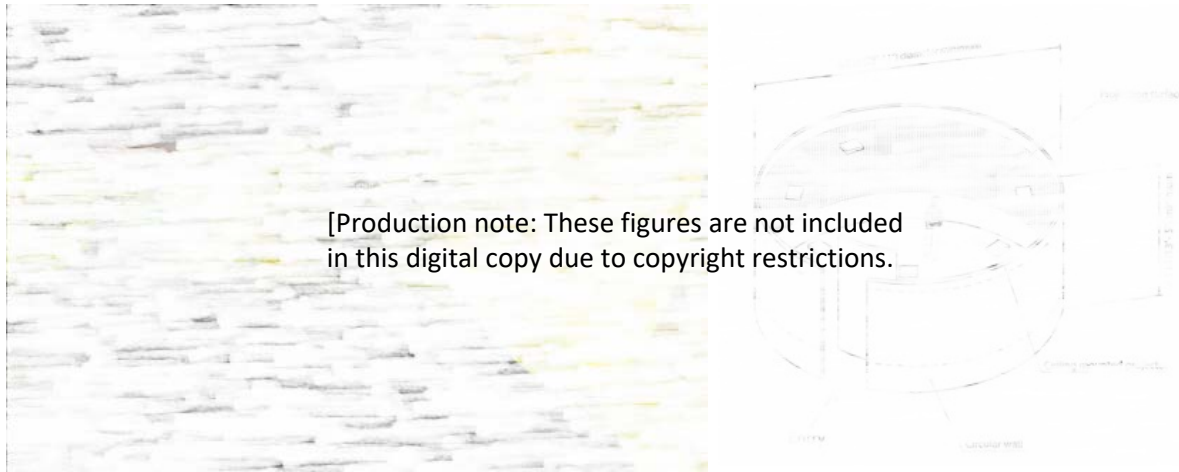
⁷¹⁹ McKee, “How to Do Things with Space – Expanded Architecture and Nongovernmental Politics: An Interview with Laura Kurgan,” 500.

⁷²⁰ See Peter Weibel and Bruno Latour, eds., *Making Things Public: Atmospheres of Democracy* (Cambridge, Mass: MIT Press, 2005), 19.

matters of concern, making the screen, as a site of display, central. For instance, in 'Exit,' a collaboration between Kurgan, Diller Scofidio + Renfro, statistician-artist Mark Hansen, among others,⁷²¹ a 360° video installation saw the inclusion of media coverage, including news footage, photographs, and documentaries, alongside statistical data to document contemporary global human migration flows.⁷²² The installation comprised a forty-five-minute video on a panorama screen that rolled out visual information evidencing recent and drastic anthropogenic changes to the planet. Viewers were engulfed in the circular room and immersed in the spatio-temporal work, mediated by the screen (see Fig 8.5). The work's relevance lies in its ability to draw attention to what is made visible, in this case, a narrative of the effects of global migration that would otherwise be impossible to perceive by the human eye. More importantly, it marks an opportunity to use digital technology as a tool to reimagine sites of contestation. By reclaiming and repurposing these technologies, a new way of seeing and intervening in the world emerges – one that poses ethical, social, and political questions. The screen is the device through which these matters of concern are 'exhibited' and, in turn, made public to a broader audience.

⁷²¹ Full team credit: Diller Scofidio + Renfro, Laura Kurgan, Mark Hansen, Ben Rubin with Robert Gerard Pietrusko, Stewart Smith, and a core team of scientists and geographers. The project was commissioned by the Fondation Cartier in 2008 and was updated and re-presented in 2015 at the Palais de Tokyo.

⁷²² See Paul Virilio and Francois Gemenne, *Diller Scofidio + Renfro, EXIT. Based on an idea by Paul Virilio* (Paris: Fondation Cartier Pour L'Art Contemporain, 2019). The installation, part of the exhibition 'Native Land: Stop Eject,' was framed by Raymond Depardon and Paul Virilio's proposal for a reflection on the questions of sedentariness, nomadism and identity. 'Exit' specifically responded to Virilio's previously unpublished text titled 'Stop Eject,' which is an extension of his thinking into the dematerialisation of space and, in this case, an increasing acceleration of reality through global forces and interconnectivity. See Paul Virilio, *The Futurism of the Instant: Stop-Eject* (Malden: Polity Press, 2010).



[Production note: These figures are not included in this digital copy due to copyright restrictions.]

Fig 8.5 Installation view (left) and drawing (right) of *Exit* by Diller Scofidio + Renfro, Laura Kurgan, Mark Hansen, Ben Rubin with Robert Gerard Pietrusko, and Stewart Smith, 2008. Source: Diller Scofidio + Renfro, *Exit*, 2008, installation, Diller Scofidio + Renfro, https://dsrny.com/project/exit?index=false§ion=projects&tags=installation&wptouch_preview_the_me=enabled&sort=alphabetic&view=list.

8.5 Critical Counter-Practice: Forensic Architecture, 2010

This chapter has given considerable attention to critical counter-pedagogies, asserting that an alternative account of the digital, situated at the confluence of media and politics in architecture, relies on critical spatial practice. It is within these counter-pedagogies, operating within and challenging institutional frameworks, that a re-imagination of the role of the architect, as well as an expanded definition of architectural production, fosters a contemporary mode of practice capable of critically using digital technology to engage with the urgent social and political conditions of our time. Although each critical counter-pedagogy has contributed to this re-conceptualisation, the CRA has played the most formative role — through its inception of FA — in constructing an alternative account of the digital.

FA, as a research agency, emerged in 2010 through the second generation of research conducted at CRA, or what is referred to as Roundtable Two. The interactions between a group of peers⁷²³ led the spatial practice in new directions —

⁷²³ Including Susan Schuppli, Paulo Taveras, Anselm Franke, Thomas Keenan, Adrian Lahoud, Alessandro Petti, Ann-Sofi Rönnskog and John Palmesino (Territorial Agency), and Srdjan Jovanovic Weiss.

into law, media, acoustics, ecology, infrastructures, and climate justice⁷²⁴ – with the aim to produce and exercise spatial evidence for processes related to human rights violations, environmental destruction, and urban warfare. Through these interactions, the theories and methodologies of the investigative practice, or what FA calls 'counter-forensics,' surfaced, constituting Weizman's genesis story.

Weizman situates the origins of FA's work in the development of forensic science, as described alongside Thomas Keenan in 'Mengele's Skull: The Advent of Forensic Aesthetics.' Counter-forensics inverts the practice of forensics. Weizman, who was initially against the idea of a forensic institute and the authority of established truths,⁷²⁵ turned to counter-forensics in order to question the very authority of "truth" production. If contemporary forensics is the art of the state, that is, the means by which state agencies "survey, police and judge individuals under their control,"⁷²⁶ then counter-forensics seeks to invert this practice by returning the forensic gaze and, in turn, expose state violence. Turning forensics against the state is also an attack on the monopolisation of information and evidence that the state holds and uses (distorts/manipulates) to its advantage. Therefore, FA's version of counter-forensics is a civil practice aiming to interrogate both the crimes and the process of "truth" production.⁷²⁷ Using a multitude of forms of evidence from the field and representing them publicly across multiple forums, such as the media, courts, and cultural institutions, contributes to FA's counter-forensic practice.

⁷²⁴ Centre for Research Architecture, "About CRA."

⁷²⁵ Eyal Weizman, "Open Verification," e-flux Architecture (June 2019), <https://www.e-flux.com/architecture/becoming-digital/248062/open-verification/>.

⁷²⁶ Forensic Architecture, "Counter-Forensics," Institute of Contemporary Arts (n.d.), <https://www.ica.art/counter-forensics>.

⁷²⁷ The ground-up approach of taking control of the production of evidence in the pursuit of public accountability originated in Argentina in the 1980s when a group of activists trained by forensic anthropologist Clyde Snow exhumed and analysed the bodily remains of victims of political repression as a means to hold the state accountable for its action. Eyal Weizman, *Forensic Architecture: Violence at the Threshold of Detectability* (Brooklyn, NY: Zone Books, 2017), 78.

The use of inanimate objects, alongside documents and witness testimonies, as evidence in the investigations of war crimes and crimes against humans define an important shift in the history of international criminal law or what Keenan and Weizman have dubbed in 'Mengele's Skull: The Advent of Forensic Aesthetics,' as the 'forensic turn.' See Thomas Keenan and Eyal Weizman, *Mengele's Skull: The Advent of a Forensic Aesthetics* (Berlin: Sternberg Press, 2012).

A deeper inquiry into the genesis story also reveals that FA is an extension of the projects established through 'Decolonizing Architecture/Art Residency (DAAR),'⁷²⁸ an architectural collective and residency program in Beit Sahour, Bethlehem. Weizman set up DAAR alongside Alessandro Petti and Sandi Hilal in 2007. Additionally, his earlier explorations into the role of cartography, or more precisely, counter-cartography,⁷²⁹ in investigating state violence and human rights violations, contribute to the foundation of FA. This interest can be traced back to the beginning of Weizman's architectural education at the Architectural Association (AA) in London and, more importantly, to his "year out" in 1996 before returning to complete the two-year Diploma Program (MArch) at the AA. During this time, Weizman volunteered as a planner for the Palestinian Ministry of Planning in Ramallah and played a significant role⁷³⁰ in collecting data to update the ministry's maps of a territory (Occupied Palestinian Territory) that was being shaped and reshaped by conflict. Although this account is beyond the scope of this thesis, it has been acutely unpacked in Weizman's first major book, 'Hollow Land: Israel's Architecture of Occupation.'⁷³¹

Weizman's time at the Palestinian Ministry of Planning prompted the production of several counter-maps, including one for the 'Landgrab' report in 2001.⁷³² Through

⁷²⁸ DAAR's thinking around decolonising architecture has been documented in their joint publication 'Architecture after Revolution.' See Sandi Hilal, Alessandro Petti, and Eyal Weizman, *Architecture after Revolution: Decolonizing Architecture Art Residency* (Berlin: Sternberg Press, 2013).

⁷²⁹ Weizman's early cartographic work coincided with a very important article written by Edward Said titled 'Palestinians under Siege' for the London Review in 2000, which called for the counter-cartography of Palestine amidst what was the start of the second intifada. Weizman references this article as being instrumental in his development of a practice of counter-cartography. See Edward Said, "Palestinians Under Siege," *London Review of Books* 22, no.24 (December 2000), <https://www.lrb.co.uk/the-paper/v22/n24/edward-said/palestinians-under-siege>.

⁷³⁰ Being Israeli meant that Weizman had access to cartographic information, such as aerial, satellite imagery and maps, which before Google Earth was controlled by the state cadastral office to which Palestinians did not have rights to access. The ministry was able to update its data and maps, specifically detailing the built environment, which prior to Weizman's mission, was simply demarcated as abstract dots on the map.

⁷³¹ See Eyal Weizman, *Hollow Land: Israel's Architecture of Occupation* (London: Verso, 2012).

⁷³² This counter-cartographic project was initiated by researcher Yehezkel Lein from B'Tselem, a non-profit organisation, to evidence the violations of Palestinian human rights through the architectural and spatial planning of the Occupied Territories.

See full PDF report here: "Land Grab: Israel's Settlement Policy in the West Bank," The Israeli Information Center for Human Rights in the Occupied Territories, accessed October 1, 2022, https://www.btselem.org/sites/default/files/sites/default/files2/publication/200205_land_grab_eng.pdf.

'Landgrab,' Weizman developed a new type of spatial representation and analysis, involving the synchronisation of various drawings and maps into a single document – a spatial forensics method for collecting, compiling, and presenting evidence to build a comprehensive case (See Fig 8.6). During this time, obtaining high-resolution satellite imagery was challenging. Consequently, Weizman undertook a manual and “on-the-ground” cartographic approach, encompassing everything from on-site measuring to aerial surveys, aiming to locate local settlements and prove that architects and planners were complicit in the occupation.

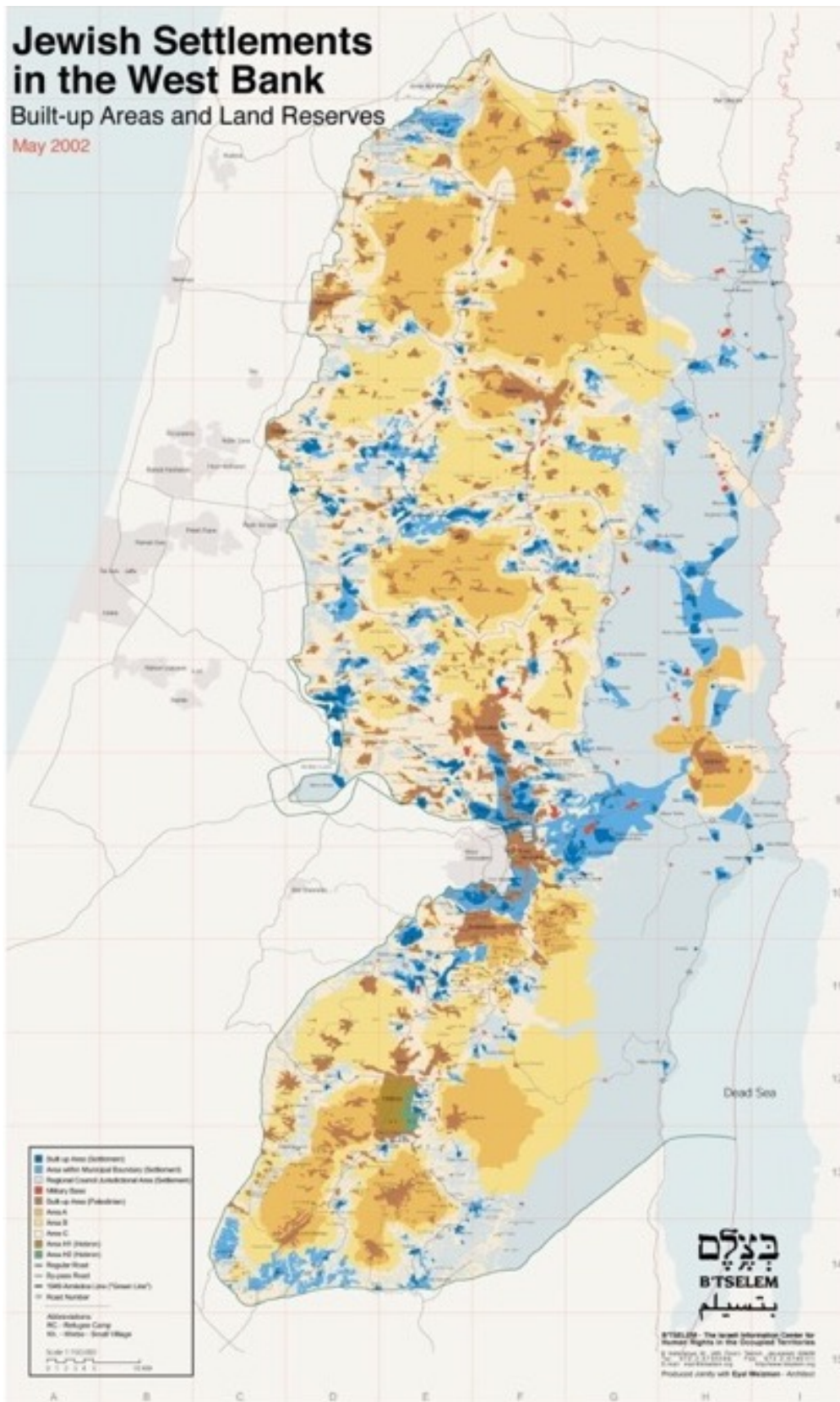


Fig 8.6 A map titled *Jewish Settlements in the West Bank* co-produced in 2002 by B'Tselem and Eyal Weizman as part of the *Landgrab* report. Source: "Jewish Settlements in the West Bank, May 2002," The Israeli Information Center for Human Rights in the Occupied Territories, accessed October 1, 2022, https://www.btselem.org/download/settlements_map_eng.pdf.

When the map was published⁷³³ in 2002, it became “one of the geographical tools for advocacy against the Israeli government.”⁷³⁴ By publishing it in PDF format online, it turned into an open-source project, enabling others to download, isolate layers of the map, edit and update it, and then re-upload. The map, therefore, played a larger role as it prompted a local and international collaborative effort in the fight against occupation and became a prevalent form of protest and resistance. It can be argued that within ‘Landgrab,’ the foundations of FA’s practice were set up: an investigative and forensic methodology devised around the synchronisation of information, relying on open-source data to construct counter-cartographies in zones of conflict. This method, as will shortly be unpacked through FA case studies, defines a very specific relationship to the digital, where the screen plays a synchronising role in the construction and representation of evidence – both in the space of the gallery and within the architectural digital model.

8.6 The Screen in the Gallery: Forensic Architecture’s Exhibition-Based Practice

As one map was published, another was prevented from being publicly displayed. In 2002, Weizman and his collaborator Rafi Segal curated an exhibition and accompanying catalogue titled ‘A Civilian Occupation’ (see Fig 8.7) to be displayed at the UIA Berlin Architectural Congress. Serving as an extension to the work conducted through the ‘Landgrab’ report, ‘A Civilian Occupation’ included a series of counter-cartographies and data, along with contributions from Israeli architects, historians, photographers, and journalists analysing the consequences of architecture and planning in the Occupied Territories. Controversially, the Israeli Association of Architects, who originally commissioned the work, cancelled the exhibition under the guise of budgetary issues and additionally destroyed the 5,000 copies of the accompanying catalogue.⁷³⁵ Banning the exhibition and catalogue was,

⁷³³ See PDF of published map here: “B’Tselem settlements map, May 2022,” The Israeli Information Center for Human Rights in the Occupied Territories, accessed October 1, 2022, https://www.btselem.org/download/settlements_map_eng.pdf.

⁷³⁴ Weizman, *Hollow Land: Israel’s Architecture of Occupation*, 262.

⁷³⁵ A revised edition was printed in 2003 by Babel and Verso publishers. See

as Sharon Rotbard points out in his preface of the revised edition, “proof that the denial of the political dimension of architecture is in itself a clear political statement.”⁷³⁶ The objective of ‘A Civilian Occupation’ was to present the investigation to an international audience of architects and highlight that the spatial dimension of the Israeli-Palestinian conflict required a reconsideration of the role of architects, and by extension, architecture in the context of urban warfare.

Rafi Segal, Eyal Weizman and David Tartakover, *A Civilian Occupation: The Politics of Israeli Architecture*, rev. ed. (London: Babel, 2003).

⁷³⁶ Sharon Rotbard, “Preface,” in *A Civilian Occupation: The Politics of Israeli Architecture*, ed. Rafi Segal, Eyal Weizman, and David Tarkakover, rev. ed. (London: Babel, 2003), 15–16.

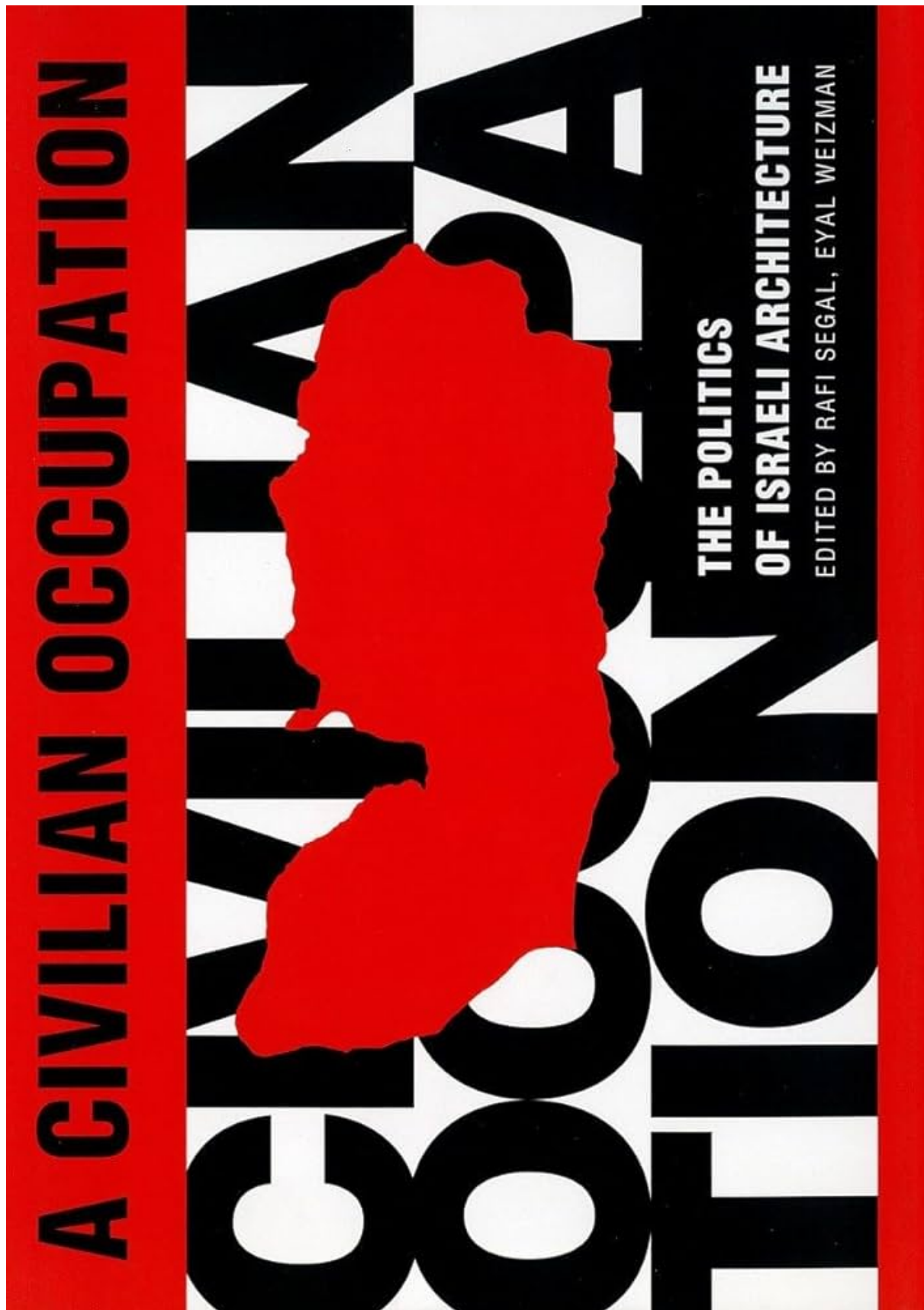


Fig 8.7 Cover of Rafi Segal and Eyal Weizman's *A Civilian Occupation*, 2003 revised edition. Source: Rafi Segal, Eyal Weizman and David Tartakover, *A Civilian Occupation: The Politics of Israeli Architecture*, rev. ed. (London: Babel, 2003).

The censorship of 'A Civilian Occupation' inadvertently drew attention to the work and expanded its scope, leading to a series of international exhibition commissions. These included the first public showing of the work, co-curated by Sarah Herda, in 2003 at the Storefront Gallery for Art and Architecture in New York City, followed a few months after by a more expanded version titled 'Territories,' co-curated by Anselm Franke, at the KW Institute for Contemporary Arts in Berlin.⁷³⁷ Updated versions of 'Territories' continued to be exhibited from 2003 through 2004,⁷³⁸ and the work was also presented at a number of conferences, the most significant being 'The Archipelago of Exception,' organised with Thomas Keenan and Judit Carrera at the Centre for Contemporary Culture, Barcelona in 2005. Although Weizman and Segal initially saw these opportunities as public platforms to present the censored research, they soon realised the unique potential offered by the art world, including exhibitions as a platform for critique and exposure. In particular, working with Franke on 'Territories' exposed them to curation as a method to produce and assemble visual and other forms of knowledge, gaining access to different readings of the political through this format.⁷³⁹ The synchronisation method used at the document scale for 'Landgrab' was now being explored at the scale of the gallery through the act of curation, selecting and assembling multiple works of evidence for presentation to a public audience.

The research-based exhibitions served as the precursor to FA's exhibition-based practice, which privileged, referencing Latour and Weibel once again, "making things public." Exhibiting architectural research points to an expanded sense of architectural production, where producing research, as seen in Kurgan's work, unfolds through practice. In the postscript to 'Hollow Land,' Weizman notes that architectural research since the mid-1960s, specifically citing Bernard Rudofsky's 1960 MoMA exhibition 'Architecture without Architects' and Robert Venturi, Denise Scott Brown, and Steven Izenour's 1972 publication 'Learning from Las Vegas,' "re-

⁷³⁷ See Anselm Franke and Klaus Biesenbach, *Territories: Islands, Camps and Other States of Utopia* (Köln: Verlag der Buchhandlung Walther König, 2003).

⁷³⁸ These include at the Witte de With Centre for Contemporary Art in Rotterdam (November 2003), Berkley University in San Francisco (March 2004), Konsthall in *Malmö* (May 2004), the B'tzalel gallery in Tel Aviv and Sham'l Centre in Ramallah (November 2004).

⁷³⁹ Weizman, *Hollow Land: Israel's Architecture of Occupation*, 263.

invigorated architectural design with symbolic, communicative and semiotic contents.”⁷⁴⁰ While this body of work influenced the direction of architectural research, it also proposed, as Weizman explains, “turning observations into concepts, concepts into tools and tools into design methodologies applied to the construction of building.”⁷⁴¹ This is exemplified, for instance, in the ‘learning’ in ‘Learning from Las Vegas,’ establishing the premise that architectural research is at its core projective applied research.⁷⁴² Contrastingly, FA’s architectural research challenges applied research, or the traditional notion that research leads to construction or that practice follows theory,⁷⁴³ as vividly foregrounded by Weizman’s question: “What should creative architectural research ‘learn from the domination of Gaza’ and apply in London?”⁷⁴⁴ Conducting architectural research in zones of conflict does not lead to the construction of buildings but rather, in Weizman’s case, leads to the construction of evidence that holds perpetrators accountable for the acts of violence. Thus, the primary concern becomes making this evidence public.

The screen serves not only the space in which the digital architectural model synchronises and assembles evidence, as will be shortly unpacked, but also plays a significant role in translating, materialising, and therefore “making public” investigations to a broader public within the context of the gallery. Although the group has been labelled as “artists,” a term critics argue is detrimental to FA’s purpose of addressing serious humanitarian issues, a characterisation solidified by their nomination for the Turner Prize art award in 2018, the space of the gallery has been instrumental in becoming an alternative space of political representation, alongside the space of the courts.

Collaborating with cultural venues, Weizman explains, is also a pragmatic move. The gallery space provides a forum to present an investigation if it is not admitted to court or if the juridical process is prolonged, necessitating urgency in bringing attention to

⁷⁴⁰ Weizman, *Hollow Land: Israel’s Architecture of Occupation*, 259.

⁷⁴¹ Ibid.

⁷⁴² Ibid.

⁷⁴³ Weizman, *Hollow Land: Israel’s Architecture of Occupation*, 261.

⁷⁴⁴ Weizman, *Hollow Land: Israel’s Architecture of Occupation*, 259.

the case in the present.⁷⁴⁵ Furthermore, this speaks to the use of institutional frameworks, where the budget provided for exhibiting can be used as a resource to either investigate an existing case further or reopen a case, as demonstrated with the investigation into the Israeli police killing of Yakub al-Qi'an, facilitated by the budget provided by the Tate Britain. Beyond the pragmatic capacities afforded by exhibiting in cultural venues, Weizman argues for a dismantling of the historical opposition of science and art. He emphasises that "both forensics and curatorial practices share a deep concern for knowledge production and display, for the presentation of ideas and issues through the arrangements of evidence, objects, conversations, screenings, or bodies in space."⁷⁴⁶ The exhibitions thus are an attempt to close this gap.

From this perspective, the act of making something public in art institutions is a conscious effort through FA's exhibits to broaden the conversation and facilitate other modes of engagement with the work. This can include assisting in a better understanding of what's on display or potentially prompting local forms of activism as a consequence of exposure to the subject matter. Despite the unsettling or sensitive content at times, being spatially situated and exposed to the "back-stage" – the process FA undertakes to collect evidence and construct their cases – can challenge us to reconsider how we engage with current events in a post-truth context. Finally, exhibiting in the gallery space can raise questions or be turned against the institution itself, as seen in their work 'Triple-Chaser' at the 2019 Whitney Biennial. The exhibit featured a video investigating the association of the vice chair of the board of trustees of the Whitney Museum with the US bullet manufacturer, Sierra Bullets, leading to the trustee's resignation shortly after.

Following the lineage of post-war video art, the screen is primarily used in FA's exhibitions for its audio-visual, temporal, and narrative capacity. Video works are displayed in almost all exhibitions and hold significance, as the single medium allows the compilation of fragmented pieces of evidence into a cohesive story. For instance,

⁷⁴⁵ Eyal Weizman, "Open Verification."

⁷⁴⁶ Ibid.

in '77sqm_9:26min,' an installation produced for Documenta 14 in Kassel in 2017, a three-channel video displayed the investigation into the murder of Halit Yozgat in a family-run internet café in Kassel, Germany, in 2016. The screen was hung on the back wall of a darkened room, enhancing the impact through sensory deprivation (see Fig 8.8). The three-channel format facilitates the arrangement of multiple videos or documents together, enabling the visualisation of unseen connections, conflicts, or affinities on one "screen." Although mainly guided by the voice-over, the comparative and non-linear view set up by the three-channel configuration welcomes a degree of subjectivity or interpretation on the part of the spectator. On the other hand, in instances where a crucial piece of evidence is presented, such as a voice clipping visually represented through a spectrogram, using a single channel becomes a powerful gesture to draw attention or focus.



Fig 8.8 Installation view of Forensic Architecture's *77sqm_9:26min*, exhibited at Documenta 14 in 2017. Source: Forensic Architecture, *77sqm_9:26min*, 2017, three-channel video installation, Forensic Architecture, https://forensic-architecture.org/programme/exhibitions/77sqm_926min-documenta-14.

This relationship between the whole narrative and a single document is a repeated gesture among a number of FA's exhibits and was deployed in an interesting manner

through the 'Cloud Studies' display at UTS Gallery, Sydney, in 2020.⁷⁴⁷ Upon entering the space, visitors were guided to a sectioned-off "room" featuring a large projector screen dominating the entire back wall. This sectioned-off part of the gallery, combined with the scale of the screen, facilitated a small audience to form an assembly and watch the 33-minute-long video investigating the environmental and political dimension of clouds (see Fig 8.9). Adjacent to the video work was a space dedicated to more intimate encounters. Four trestle tables were staggered in the space, each hosting two iPads and a range of material sources relevant to the cases on display, including books and the exhibition catalogue (see Fig 8.10). Each iPad was dedicated to one of the 'cloud' investigations presented in the film – eight cases in total, ready to be engaged with more deeply (see Fig 8.11). The interplay between the large screen in a single room and many smaller screens arrayed in an adjacent room reflects the tension between the total work of art and the more intimate engagement with a single case.

⁷⁴⁷ 'Cloud Studies' was originally produced for the exhibition, 'Critical Zones: Observations for earthly politics' curated by Peter Weibel and Bruno Latour at ZKM Lorenzstraße, Karlsruhe, Germany in 2020.



Fig 8.9 View of Forensic Architecture's video investigation *Cloud Studies*, exhibited at UTS Gallery in 2020. Source: Photograph by Jacquie Manning, *Cloud Studies*, 2020, essay film, Forensic Architecture, <https://forensic-architecture.org/programme/exhibitions/cloud-studies-at-uts-gallery>.



Fig 8.10 View of collateral material from Forensic Architecture's *Cloud Studies* exhibition at UTS Gallery in 2020. Source: Photograph by Jacquie Manning, *Cloud Studies*, 2020, mixed-media installation, Forensic Architecture, <https://forensic-architecture.org/programme/exhibitions/cloud-studies-at-uts-gallery>.



Fig 8.11 Close-up of collateral material from Forensic Architecture’s *Cloud Studies* exhibition at UTS Gallery in 2020. Source: Photograph by Jacquie Manning, *Cloud Studies*, 2020, mixed-media installation, Forensic Architecture, <https://forensic-architecture.org/programme/exhibitions/cloud-studies-at-uts-gallery>.

This strategy of curating different scales of engagement with the work is heightened through their multi-screen “field” installations. In ‘Forensis,’ co-curated with Anselm Franke at the Haus der Kulturen der Welt, Germany, in 2014, a field of screens of different scales – some vertically and horizontally hung, others projected, and some propped and tilted on tabletops – presented a constellation of forensic investigations undertaken by FA (see Fig 8.12). The overwhelming installation lacks a clear point of access; however, the multiplicity of screens, accompanied by walls of text and images, constructs a cohesive totality in the work. Despite being spaced separately in the space, each screen allows for an intimate engagement with the subject matter. However, this engagement is not limited to a surface reading and instead requires constant re-evaluation to contextualise its position in the overall narrative, forcing the viewer to confront the work both in its entirety and up-close (see Fig 8.13). The ability to consume works of differing scales and temporalities simultaneously constructs a decentralised display model that eliminates the hierarchy traditionally

set up between the audience and the work of art, extending the lines of inquiry set up by the post-war video artists.



Fig 8.12 Installation view of Forensic Architecture's 2014 exhibition *FORENSIS* at the Haus der Kulturen der Welt. Source: Photograph by Laura Fiorio, *FORENSIS*, 2014, mixed-media installation, Forensic Architecture, <https://forensic-architecture.org/programme/exhibitions/forensis>.



Fig 8.13 View of visitors engaging with Forensic Architecture’s 2014 exhibition *FORENSIS* at the Haus der Kulturen der Welt. Source: Photograph by Laura Fiorio, *FORENSIS*, 2014, mixed-media installation, Forensic Architecture, <https://forensic-architecture.org/programme/exhibitions/forensis>.

8.7 The Operative Digital Model in Forensic Architecture

As the screen, through its narrative or spatio-temporal capacity, plays a synchronising role in the re-presentation of cases in the gallery space, it also facilitates a similar yet more complex synchronising role when evidence is being constructed within the digital model. The difference in the case of the latter is the challenge of verification attached to the construction of “truth.” Recognising that truth is a contested site, FA deploys an alternate term to describe truth production – that of verification. As an objection to the single perspectival conception of truth, exemplified through its Latin root ‘veritas,’ verification “relates to truth not as a noun or as an essence but as a practice, one that is contingent, collective, and poly-perspectival.”⁷⁴⁸ Whilst verification is typically associated with scientific authority, confirming truth through the use of empirical data, observation, or the testing of a

⁷⁴⁸ Eyal Weizman, “Open Verification.”

hypothesis, and in journalism is used to confirm or challenge statements made by governments and institutions, among others, for Weizman, verification can also be used to engage with new kinds of materials and methods of evidence production that “integrate scientific with aesthetic sensibilities, and work across and bring together different types of seemingly incompatible institutions and forms of knowledge.”⁷⁴⁹ If, as Weizman states, truth “needs to be harvested, it needs to be worked, to be composed; you need to build it, you need to construct relations between things,”⁷⁵⁰ verification is a practice in presenting the relation between evidence – once disparate and fragmented pieces of evidence are brought together in a relational field.

The combination of different sources and evidence, “until they become collective – a common,”⁷⁵¹ is what Weizman and Matthew Fuller recently claimed in their book ‘Investigative Aesthetics: Conflicts and Commons in the Politics of Truth’ as an aesthetic practice. Drawing from the ancient Greek term ‘aisthesis,’ which describes anything that pertains to the senses, aesthetics for FA involves “*sensing* – the capacity to register or to be affected, and *sense-making* – the capacity for such sensing to become knowledge of some kind.”⁷⁵² It is these two terms, sense and sense-making, that differentiate aesthetics from being related to the act of beautification and align it more with an evidentiary dimension. If, as Weizman and Fuller claim, everything senses – both human and non-human agents – then the world is entangled together in an inherently aesthetic way. Making “sense” of these aesthetic compositions is the work undertaken by FA’s multidisciplinary team of architects, artists, film-makers, investigative journalists, scientists, lawyers, and software developers, among others.

Investigative aesthetics sees FA’s team work collectively to construct relational evidence, utilising aesthetic sensibilities in assembling cases through “editing

⁷⁴⁹ Ibid.

⁷⁵⁰ Eyal Weizman, “El suelo como evidencia forense,” *ARQ*, no. 93 (2016): 20–21.

⁷⁵¹ Matthew Fuller and Eyal Weizman, *Investigative Aesthetics: Conflicts and Commons in the Politics of Truth* (La Vergne: Verso, 2021), 4.

⁷⁵² Fuller and Weizman, *Investigative Aesthetics: Conflicts and Commons in the Politics of Truth*, 33.

material into effective film and videos and installations.⁷⁵³ The narrative capacity of the mediums that FA privileges, particularly film and videos, presented in a number of legal and cultural forums, allows for the construction of a multiplicity of evidence in relation to each other across time.⁷⁵⁴ This interest in working with spatio-temporal mediums is critical in FA's investigations, as each incident is not just about an event in space but also about time – there is evidence from before and after an event, and there is a need to assimilate the two.⁷⁵⁵ In their book 'Before and After,' Ines and Eyal Weizman explain that the most common presentation of an event is through the before-and-after image, that is, the juxtaposition of two images, usually satellite imagery, of the same place taken at different times.⁷⁵⁶ However, the before-and-after does not necessarily present the event slowly over time but rather as a "sudden or radical change."⁷⁵⁷ The event is usually missing from this representation. Therefore, a forensic methodology is required to fill the gap, register any blind spots, and reconstruct what happened in-between the images (and two moments in time). This often involves "intricate processes of interpretation that cross-reference before-and-after images with other forms of evidence"⁷⁵⁸ to build the narrative between the before-and-after, ultimately constituting an act revolving around the reversal of time.⁷⁵⁹

The narrative between images and other forms of visual evidence, including maps, videos, and photographs, is what FA refers to as 'the architectural-image complex' – a technique that involves actively composing visual material into an assemblage and,

⁷⁵³ Fuller and Weizman, *Investigative Aesthetics: Conflicts and Commons in the Politics of Truth*, 13.

⁷⁵⁴ The interest in film and its spatio-temporal effects can be traced back to Weizman's architectural education at the AA, in which he produced chronograms (long stretches of time-sequences films) to study urban conditions of London. This was undertaken under Diploma unit 10 at the AA under the supervision of Robert Mull and Carlos Villaneuva Brandt. See Eyal Weizman, *Yellow Rhythms: A Roundabout for London* (Rotterdam: 010 Publishers, 2000). For more information on Chronography, see Christian Nicolas, Mark Cousins and Eyal Weizman, *Random Walk* (London: AASF, 1998).

⁷⁵⁵ Eyal Weizman, "Truth Is Not a Noun: Eyal Weizman in conversation with Maite Borjabad López-Pasto on truth production, power, and trust," in *Designs for Different Futures*, ed. Hiesinger, Kathryn B, Michelle Millar Fisher, Emmet Byrne, Maite Borjabad López-Pastor, Zoë Ryan, Andrew Blauvelt, Juliana Rowen Barton, et al. (Philadelphia, PA: Philadelphia Museum of Art, 2019), 172.

⁷⁵⁶ Eyal Weizman and Ines Weizman, *Before and after: Documenting the Architecture of Disaster* (Moscow: Strelka Press, 2014), 7.

⁷⁵⁷ Weizman, and Weizman, *Before and after: Documenting the Architecture of Disaster*, 8.

⁷⁵⁸ Ibid.

⁷⁵⁹ Weizman, and Weizman, *Before and after: Documenting the Architecture of Disaster*, 42.

more importantly, understanding the relationships between them. From the mid-2000s, when high-resolution satellite images became publicly available through Google Earth, and a few years later with the rise of citizen journalism, as seen through the Arab Spring,⁷⁶⁰ there has been an abundance of primary sources that have expanded the visual field of conflict, aiding the process of constructing the architectural-image complex (see Fig 8.14 and Fig 8.15). Citizen journalism, where civilians record, upload, and share real-time information from sites of conflict across social media platforms, has become complementary to satellite images as “the incident missed by the latter is captured by the former.”⁷⁶¹ This recent reality, characterised by the multiplicity of visual sources resulting from the on-the-ground ‘hoovering’ of spatial information with every sweep of the smart-phone camera to the continuous scanning and registering of the surface of the earth via satellites,⁷⁶² has expanded the scope of investigation, involving multi-actors and technologies. To support open-source investigations, FA developed a software called PATTRN⁷⁶³ in 2014, enabling activists to upload geo-tagged images and videos that can be used to identify relations between an event or events. The sheer volume, speed, and circulation of digital data across technical and social platforms facilitate open-source investigations and empower citizens to participate in counter-forensics.

⁷⁶⁰ The Arab Spring was a series of democratic uprisings that began in Tunisia on 17 December 2010 and spread across the Arab World in 2011. The protests physically took place across major squares, icons, and roundabouts across the Middle East. It was also the first mass media movement in the Middle East to strongly incorporate social media and online protests, shifting narrative construction to the field through live multi-screen feeds.

⁷⁶¹ Eyal Weizman, “Forensic Architecture: Political Practice, Activism, Aesthetics,” in *The SAGE Handbook of 21st Century City*, ed. Suzanne Hall and Ricky Burdett (City Road: SAGE Publications, 2017), 641.

⁷⁶² Eyal Weizman, “Forensic Architecture: The thick surface of the Earth,” in *Common Ground: A Critical Reader*, ed. David Chipperfield, Kieran Long, and Shumi Bose (Enfield: Marsilio, 2012), 251.

⁷⁶³ PATTRN can be accessed at: <http://pattrn.co/>.



Fig 8.14 Compilation of citizen, local, and international media footage of the Pearl Roundabout during the Bahraini Uprising in 2011. Source: Image compilation by Endriana Audisho (author). Used with permission.

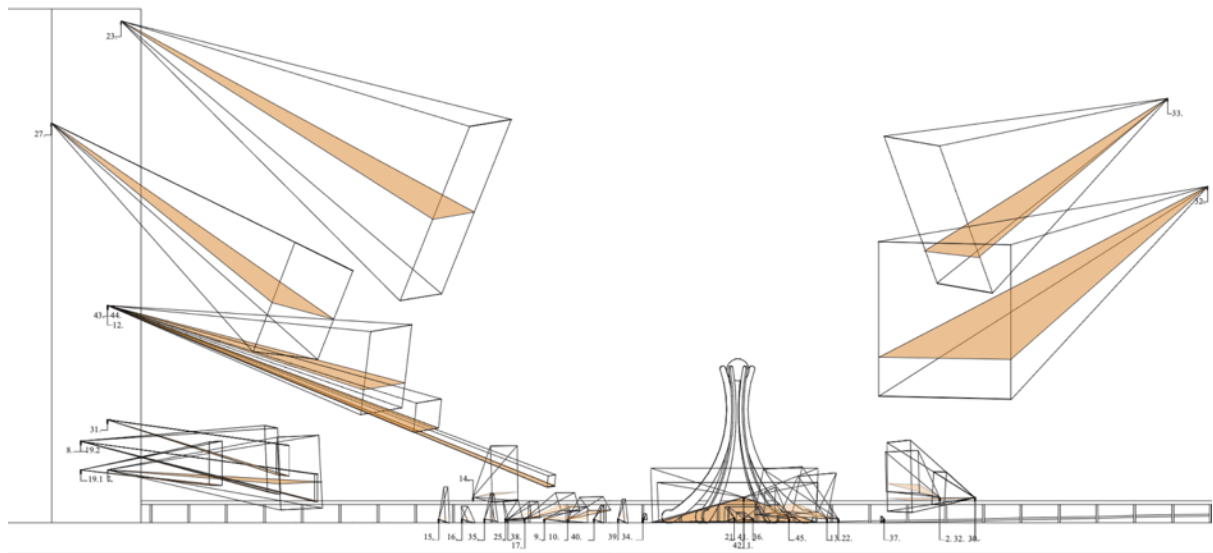


Fig 8.15 Drawing compiling images taken of the Pearl Roundabout during the Bahraini Uprising, identifying the location and perspective of each image, to gain a stronger spatial understanding of the event. Source: Drawing by Endriana Audisho (author). Used with permission.

Although the saturation of sources has expanded the visual field of conflict, it does not always add clarity. In a post-truth context and era of “deepfakes,” the increase in digital data has also led to the spread of propaganda, disinformation, and noise, consequently becoming entangled in a “secondary conflict about authenticity, veracity, and interpretation.”⁷⁶⁴ Verification, as a practice presenting the relation between evidence or the ‘whole’ event, is distinct from authentication, which zooms into a single piece of evidence to establish whether it has been tampered with or manipulated. Weizman explains that authentication has both a vertical and horizontal dimension: the vertical concerns an investigation of the file in question (its format, size, resolution, pixels etc.), while the horizontal is based on lateral relations between evidence.⁷⁶⁵ Horizontal authentication compares multiple images and videos, including their views and perspectives of a single event. Usually, a video or image is deemed authentic when it can easily be linked or associated with others, while an outlier is often considered fake.⁷⁶⁶

For FA, the verification and authentication process happen within the 3D digital model, or what they refer to as ‘operative models.’ Re-working filmmaker Harun Farocki’s notion of ‘operative images,’⁷⁶⁷ which theorises images as a part of an operation, FA consider digital models as “more than mere three-dimensional representations of proposed structures—as they are typically used in architectural practice—but rather function as analytical or operative devices.”⁷⁶⁸ FA repurposes architectural modelling software and the digital model to restage events under investigation spatially. They use a combination of digital techniques to aid this process: they ‘geolocate’ an image or video to identify where it was taken from and from what angle, they ‘synchronise’ two or more pieces of evidence by identifying visual references and layering them up in the digital model, they rely on ‘remote

⁷⁶⁴ Weizman, “Forensic Architecture: Political Practice, Activism, Aesthetics,” 642,

⁷⁶⁵ Eyal Weizman, “Open Verification.”

⁷⁶⁶ Ibid.

⁷⁶⁷ Harun Farocki introduced the theory of ‘operative images’ through his three-part audio-visual installation ‘Eye/Machine.’ See also media theorist Jussi Parikka’s forthcoming book ‘Operational Images: From the Visual to the Invisual’ (July 2023), which extends Farocki’s initial concept by exploring how today’s data technologies continue to develop and disrupt our understanding of images beyond representation.

⁷⁶⁸ See footnote 14 in Eyal Weizman, “Open Verification.”

sensing' when they don't have direct access to a site and are operating from a distance, they practice what they call 'cartographic regression' where they overlay historic maps, surveys and aerial photography with contemporary imagery to track transformations, they 'ground-truth' a digital model to connect technical analysis to real world conditions, they use 'photogrammetry' to arrange large quantities of still images into a 3D model, they use '3D modelling' to aid the process of memory when listening to situated testimony, and they use 'virtual reality' to simulate realistic 3D environments and immersive experiences to facilitate witnesses recollections and accounts.⁷⁶⁹ In all cases, FA constructs digital and virtual models to look at specific events in new ways, with the screen serving as the apparatus through which they reconstruct and make visible unseen connections.

The primary technique of synchronisation comprises a combination of images and videos from an incident located in time and space. The lines of sight and cones of vision of the visual evidence are projected within the simulated 3D environment to reconstruct the event. This is seen in one of FA's earliest investigations, 'The Killing of Bassem Abu Rahma' (see Fig 8.16), which looked into the 2009 death of an unarmed demonstrator by a tear-gas canister fired across the West Bank barrier wall. Footage from three different camera angles was used to disprove the Israeli army's claim that the death was unintentional. The calibration of one video in time and space allowed for other sources to be matched and located within the model, creating a poly-perspectival assemblage. The denser this calibration within the model, the more "complete" the view of the event becomes.⁷⁷⁰ When metadata is unavailable, the timestamp of the image or video is established by simulating shadows or mapping the movement of clouds, matching them to those present in the images, thereby allowing geolocation in the model.⁷⁷¹ For instance, in the investigation of 'The Bombing of Rafah' in 2014, FA faced challenges accessing the Gaza strip to collect evidence and heavily relied on open-source information from

⁷⁶⁹ For an expanded description of each of the techniques deployed by FA see the exhibition catalogue: Eyal Weizman, Christina Varvia, Lærke Rydal Jørgensen and Mette Marie Kallehauge, *Forensic Architecture: Witnesses* (Humblebaek, Denmark: Louisiana Museum of Modern Art, 2022).

⁷⁷⁰ Eyal Weizman, "Open Verification."

⁷⁷¹ Ibid.

witnesses who experienced the traumatic event firsthand. Images and videos shared online by citizens and journalists were geolocated on a satellite image through the analysis of smoke clouds (see Fig 8.17), shadows, and any built form present in the footage (see Fig 8.18). This analysis located each image in time and space in a rendered digital model of the city, identifying the site and time of the strike, and thus constructed a narrative of the event.

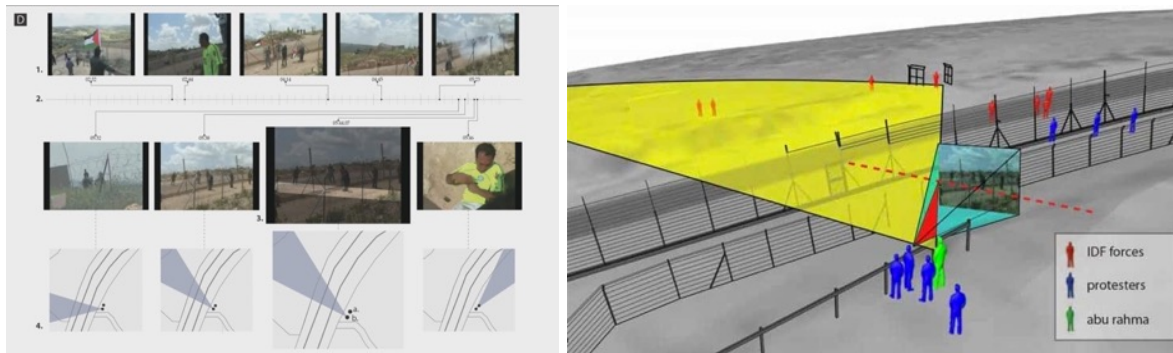


Fig 8.16 Two video stills from Forensic Architecture’s 2010 investigation *The Killing of Bassem Abu Rahma*. Source: Forensic Architecture, *The Killing of Bassem Abu Rahma*, 2010, video, Forensic Architecture, <https://forensic-architecture.org/investigation/the-killing-of-bassem-abu-rahma>.



Fig 8.17 A video still from Forensic Architecture’s 2015 investigation, *The Bombing of Rafah*, showcasing the analysis of smoke clouds. Source: Forensic Architecture, *The Bombing of Rafah*, 2015, video, Forensic Architecture, <https://forensic-architecture.org/investigation/the-bombing-of-rafah>.



Fig 8.18 A video still from Forensic Architecture’s 2015 investigation, *The Bombing of Rafah*, showing the analysed images situated in a 3D spatial digital model. Source: Forensic Architecture, *The Bombing of Rafah*, 2015, video, Forensic Architecture, <https://forensic-architecture.org/investigation/the-bombing-of-rafah>.

The digital model is inherently operative, functioning as a viewing machine into the event, or more precisely, as a form of spatial navigation. This is achieved by the placement of multiple pieces of evidence in relation to one another in the model, enabling movement between them and providing a virtual experience of multiple perspectives.⁷⁷² Furthermore, the time-space medium of the digital model allows one to inhabit the gap between the before-and-after in the architectural image complex. Moving around the images becomes a form of analysis, departing from the traditional approach of moving around a "design proposal" in an architectural digital model. The presence of a gap within the model itself becomes a means to further investigate what has been cropped out of the frame(s). In many cases, this gap may indicate activities correlating with state violations such as internet shutdowns, censorship, or the targeting of journalists, including citizen journalists who, in the first place, risk their lives when recording or capturing incidents in authoritarian states. When open-

⁷⁷² Eyal Weizman, "Inhabiting the Hyper-Aesthetic Image," *The Nordic Journal of Aesthetics* 30, no. 61-62 (2021): 239.

source data is unavailable, witness testimonies and material traces are used to ‘fill’ in the gap and “sharpen the model.”⁷⁷³

Using a digital model as a memory aid during witness interviews is another powerful technique employed by FA. The screen plays a fundamental role in this process, as the interviews are deliberately conducted in front of it. “We don’t look witnesses in the eye... Think about the psychological effect of looking in someone’s eyes, especially if they are a victim of any form of violence,”⁷⁷⁴ states Weizman, highlighting the liberating aspect of both sides sharing the same view – that of the screen. For instance, in the ‘Drone Strike in Mir Ali’ investigation in 2010, where a home in North Waziristan was struck by several missiles, resulting in five casualties, FA interviewed a resident who survived the attack. Unable to access the site and study the material traces of the strike, FA relied on testimony to reconstruct the destroyed home and event. Considered ‘situated testimony,’ FA interviewed the woman who lived in that house in front of the screen, where they were digitally modelling the house (see Fig 8.19) according to her recollection – “the model becomes a stage on which memories are accessed and performed.”⁷⁷⁵ There was a deliberate strategy to model in a very bulky way, with no realistic texture, to maintain some distance and ensure the model would not interfere with the witness’s memory.⁷⁷⁶ The video produced to document the investigative process of the ‘Drone Strike in Mir Ali’ sees the screen as the protagonist, either centred or taking up the whole frame, with the silhouette of the woman constantly pointing at it (see Fig 8.20). Her narration is updated by the 3D modeller sitting beside her, rearranging things in the model to match her recollections.

⁷⁷³ Fuller and Weizman, *Investigative Aesthetics: Conflicts and Commons in the Politics of Truth*, 6.

⁷⁷⁴ Eyal Weizman, *Forensic Architecture: Everything Records* (Berlin: Mono.Kultur, 2020), 34.

⁷⁷⁵ Forensic Architecture, “Drone Strike in Mir Ali,” accessed October 1, 2022, <https://forensic-architecture.org/investigation/drone-strike-in-mir-ali>.

⁷⁷⁶ Weizman, Varvia, Jørgensen and Kallehauge, *Forensic Architecture: Witnesses*, 130.



Fig 8.19 A video still from Forensic Architecture’s 2013 investigation, *Drone Strike in Mir Ali*, showcasing their applied methodologies of situated testimony and 3D modelling. Source: Forensic Architecture, *Drone Strike in Mir Ali*, 2013, video, Forensic Architecture, <https://forensic-architecture.org/investigation/drone-strike-in-mir-ali>.

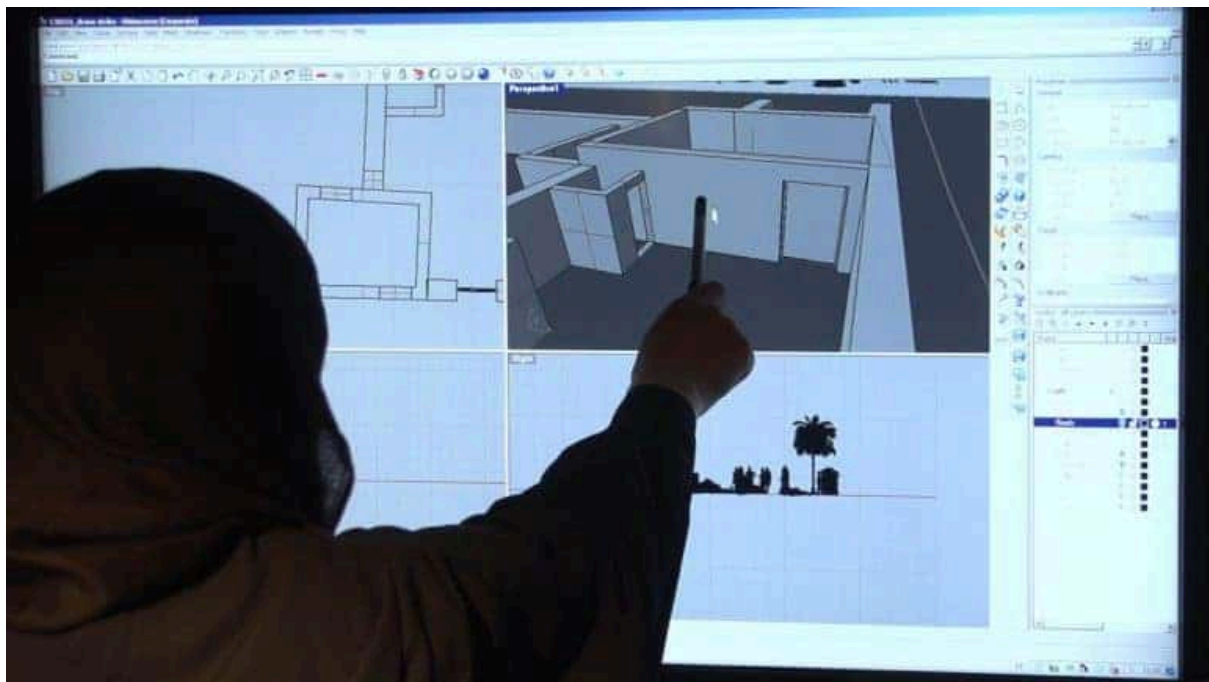


Fig 8.20 Image framing a witness directing the digital reconstruction of her home for Forensic Architecture’s 2013 investigation, *Drone Strike in Mir Ali*. Source: Forensic Architecture, *Drone Strike in Mir Ali*, 2013, video, Forensic Architecture, <https://forensic-architecture.org/investigation/drone-strike-in-mir-ali>.

A similar methodology was undertaken to investigate the ‘Torture in Saydnaya Prison.’ Since the Syrian Civil War in 2011, thousands have been detained, tortured, and executed at Saydnaya Prison, constituting a violation of international law. As the prison is physically inaccessible to journalists, and images of it are not publicly available, FA, in collaboration with Amnesty International, met with five survivors and once again built a digital model based on their memories. The detainees were held in darkness and under a strict protocol of silence, meaning their experience of detention was mainly influenced by sounds (footsteps, water leaks, etc.). A model of the prison was reconstructed using architectural and acoustic modelling guided by witness testimonies – “On the screen, we either play sound – reconstructing audio memory, echo, reverberation – or we slowly build the spaces... we measured the space of the prison from the floor tiles outwards, and then we figured out how the rest of the space was put together through echoes and hearing.”⁷⁷⁷ A compelling scene in the video produced by FA to document the investigative process is one that sees a cloth being lifted up and over the screen, slowly unveiling the digital model (see Fig 8.21). Initially appearing as an unintentional resemblance of some sort of sacred worshipping of the machine, it is nothing but that. It is here, a view into the counter-narratives being constructed in the digital model on the screen, under the direction of FA’s critical spatial practice, that an alternative narrative of the digital in architecture is taking place.

⁷⁷⁷ Weizman, *Forensic Architecture: Everything Records*, 34.



Fig 8.21 Video still showing the reconstruction of Saydnaya Prison in Forensic Architecture’s 2016 investigation, *Torture in Saydnaya Prison*. Source: Forensic Architecture, *Torture in Saydnaya Prison*, 2016, video, Forensic Architecture, <https://forensic-architecture.org/investigation/saydnaya>.

8.8 Conclusion

This chapter has established both the CRA and FA within a constellation of pedagogies and practices emerging from the 2000s, sharing a common interest in exploring architecture’s relationship with technology, media, and politics. Notably, Laura Kurgan’s research lab at Columbia University’s GSAPP is part of this network of institutions operating as critical spatial practices. They advocate for the role of activist-architect and for an expansive recognition of architectural production, moving beyond the discipline’s conventional role in the production of buildings – a position that differed from the prevailing post-critical agendas of the time. This chapter has argued that through CRA and FA’s critical pedagogy and practice, a renewed critical engagement with the screen, and consequently the digital in architecture, emerged in response to new aesthetic and geopolitical concerns. The architectural and media techniques employed by FA constitute a retooling and rethinking of the screen within the field. This counters the digital design techniques that were once limited to the “innovation” discourse of the pro-practice stance at the turn of the century. For FA,

the screen is not a tool for the production of buildings; rather, it serves as the apparatus through which digital 'operative models' synchronise evidence and restage events under investigation spatially. Furthermore, these investigations are made 'public' through their screen-based exhibitions. Engaging in this critical practice aligns with a decolonial way of reading, transforming, or intervening in space. It sets up the foundations for the ongoing exploration of an alternative engagement with the digital in architecture – one situated at the confluence of media and politics, recognising the empowering role the screen can play today.

THESIS CONCLUSION

‘Screening Architecture’ has attempted to thread a discourse between architecture, media, and conflict by providing a critical account of the screen since the 1990s. The thesis has assembled diverse material – ranging from architectural theory, pedagogy, and practice to media theory and cultural events – around the question of the screen to foreground the interface through which ‘the digital’ manifests and is engaged. While existing scholarship on the digital in architecture in the 1990s has mainly focused on the digital design theories and techniques influencing the production of architectural form, with particular attention drawn to the software that enabled the then-new techno-formal language, this thesis has re-oriented the discourse towards the hardware – the screen itself and consequently, its material, spatial, and mediating effects. An expansive account of the screen, including its objecthood on our desk and in space, the material quality of its surface and imagery, as well as its mediating capacity, has been prioritised over an analysis limited to the generation of architectural form behind the screen. This reorientation has, in turn, opened up the field of architecture to a more critical engagement with technology.

Situating the screen within a broader cultural and media theory context of the period under investigation has contributed to two interlinked levels of argument. Firstly, establishing an expanded view of the screen has repositioned architectural production and representation at the confluence of media and conflict. Consequently, it introduces new ways for architecture to critically engage with concerns raised by current events, such as conflicts and their mediation. Secondly, this reorientation outlines a new trajectory for the digital in architecture, one that is less concerned with the formal and tectonic capabilities of the screen and more focused on how the screen organises and questions relationships between aesthetic practices and geopolitical concerns. Although this alternative account of the digital in architecture has been primarily constructed through the analysis of two events in the 1990s linked by CRT screens, the themes discussed throughout the thesis contribute to thinking about contemporary ways in which architecture can critically engage with the screen and its broader cultural entanglements today.

Many questions have emerged from this research, pointing to, and warranting further exploration of architecture's contemporary relationship to the screen. The first question revolves around the inclusion of the screen as a part of the architect's toolkit of the present, considering how it can be used to engage with current events and discourses. The second question, aligned with the thesis' focus on foregrounding the effects of the screen, such as liveness and simulation, prompts an inquiry into issues of access and reconfigurations of time and space. This is particularly relevant today, given the common practice of working at a distance and through screens. Lastly, the thesis' most recent account of the screen in the field, heavily influenced by the rise of citizen journalism and the portability of screens, prompts a new appreciation for the screen's synchronising and democratising role in constructing counter-hegemonic narratives of space, especially during times of conflict. This prompts the need to conceptualise the screen as a tool for exhibiting and making matters of public concern visible, or, to borrow Bruno Latour and Peter Weibel's phrase, 'make things public.' The thesis, through its case studies focusing on the screen in cultural events and architectural pedagogy and experimental practices, asserts that the technology of the screen is neither neutral nor self-evident, and its use is constructed around a whole series of problematics. Therefore, alongside an appreciation for what a critical inquiry into the screen and its effects can offer architectural pedagogy and practice today, a clearer understanding of the questions arising from a contemporary engagement with the screen needs to be formulated – ranging from its inclusion in the architect's toolkit of the present to the implications associated with using the screen as a tool when working at a distance and as a display mechanism when making things public.

Toolkit of the Present

Making visible the heterogeneous engagements with the screen in architectural pedagogy and practice since the 1990s, along with those intertwined in the dominant narrative surrounding form and computation, has revealed ways in which the screen was used as a tool to address broader questions regarding vision, surveillance, and mediated space. Experimental screen-based practices, such as Diller Scofidio,

deliberately incorporated the screen into their architectural toolkit to explore the intersection between architecture and media. They aimed to draw attention to and materialise the spatial and mediating effects of the screen, mainly at the scale of the body. The screen served as the vehicle through which architecture's relationship to media was speculated on. More recently, the increased pervasiveness and availability of screens have unavoidably embedded them in the architect's toolkit today. This naturalisation only reinforces the thesis's core concern, which has been to explore the effects of the screen on architectural representation and production. The analytical techniques employed in the thesis support a critical inquiry into how the screen presents both challenges and opportunities in terms of the way we teach and practice today.

The omnipresence and increased accessibility of screens of all types, ranging from computer screens to iPads to mobile phones, have reconfigured the architect's desk and workspace. The multi-screen arrangement comprising an architect's desktop today has transformed studio spaces into mediated environments. Screens zoom us in and out of our physical locations, connecting us to other geographic sites, events, and people. This condition simultaneously presents a heightened sense of corporeal detachment and intense virtual interconnectedness. The multi-screen format has also defined an entirely new visual system – one that is post-perspectival. If perspective is commonly understood as a technique that renders depth, as seen in architectural drawings, for instance, then this new screen space completely destabilises this form of representation. What is “rendered” in depth is no longer fixed or framed by a single image. Instead, we are constantly looking at multiple “windows” on the screen, across many screens, whilst teleporting in and out of our physical coordinates. This fragmented condition is further exacerbated by the temporality embedded in screen spaces, as documents, images, and “windows” are in constant motion.

Furthermore, these screens, which are less bulky than the CRT technology of the 1990s and early 2000s, have entirely redefined the “material” bounds of the desk. The concept of a “dedicated workspace” and “hardware clusters,” often associated

with the introduction of computers in design studios as seen in the Paperless Studios, has dissolved. The portability afforded by flat-screen LCD monitors has presented a new material and spatial arrangement. These lighter, flatter, and faster screens have enabled the ability to work and connect with others at any time and in any place – a condition that is likely to persist with the recent transition to, and rise of, remote working as a consequence of the COVID-19 pandemic. Although this mobile “desktop” or studio, as facilitated by the laptop, smartphone, and Zoom interface, can be characterised as a general global phenomenon transforming the ways in which many disciplines and professions operate, it has undone the several century-long tradition of the architectural studio as the primary space of speculation and production. In doing so, amusingly realises a 1990s “paperless” moment.

The screen enables global collaboration, remote learning, and educational access (though it’s crucial to acknowledge this as a privilege in itself). Departing from the traditional model of architectural education, which centres on specific institutions and locations, marks a move towards democratising access to architectural knowledge. This shift not only fosters inclusivity and accessibility for individuals from diverse backgrounds and locations but also provides an opportunity to showcase varied histories and experiences inherent in different spaces. Consequently, it points towards a decentralised and, to some extent, non-hierarchical model of working and learning, challenging the historically entrenched master-student power dynamic within architectural culture. While transforming these deeply ingrained power relations takes time, reflecting on the implications of the changing nature of the architect’s and student’s desktop hints at alternative spatial models for teaching and practising.

These are important points to raise in the context of the current discourse on what it means to decolonise architectural education and practice.⁷⁷⁸ There has been a

⁷⁷⁸ For a more comprehensive exploration of the intersection between decolonisation and architecture, see the following: Alessandro Petti, Sandi Hilal, and Eyal Weizman, *Architecture after Revolution* (Berlin: Sternberg Press, 2013); Alessandro Petti, “Decolonizing Knowledge,” *Volume*, no. 45 (2015): 72–76; Lesley Lokko, “Decolonising architecture with Lesley Lokko,” interview by Danielle Mileo, *Assemble Papers*, September 4, 2019, <https://assemblepapers.com.au/2019/09/04/lesley-lokko-decolonising-architecture/>; Huey Copeland, Hal Foster, David Joselit, and Pamela M Lee, “A

recent urgency to decolonise the architectural curriculum⁷⁷⁹ and to re-tool⁷⁸⁰ the field to welcome decolonial desires, methodologies, and practices. This commitment comes from a collective dedication to dismantle colonial influences, biases, and perspectives that have historically shaped the training of architects and architectural discourse. To 'decolonise' architectural education means to critically examine existing norms, canons, and power structures (such as the master/student relation), along with a general redefinition of architecture's role in fostering a more equitable future. This involves various practices, including incorporating diverse voices in architectural education, highlighting non-Western contributions in architectural history, theory, and design, re-orienting the curriculum to address social and environmental justice, and integrating local and indigenous knowledge, among others. Beyond the foundational ideological underpinnings, the recent push to 'decolonise' architectural education has also been driven by a recent surge of open

Questionnaire on Decolonization," *October* 174, no. 174 (2020), https://doi.org/10.1162/octo_a_00410; Itohan Osayimwese, "From Postcolonial to Decolonial Architectural History: A Method," *Kritische Berichte* 49, 3 (2021): 16-38; Lesley Lokko, "The more questions you throw at the canon, the shakier it becomes," *ARQ* 110 (2022): 16-27, <http://dx.doi.org/10.4067/S0717-69962022000100016>.

⁷⁷⁹ The following recommended texts offer insights into the discourse on decolonising architectural education: Pelin Tan, "Decolonizing architectural education," *Quaderns d'arquitectura i urbanisme*, no. 266/267 (2015): 90–93; Pelin Tan, "Decolonizing Architectural Education: Towards an Affective Pedagogy," in *The Social Re Production of Architecture*, ed. Doina Petrescu and Kim Trogal (London: Taylor and Francis, 2017), 77–92; Lesley Lokko, "Decolonising architecture with Lesley Lokko," interview by Danielle Mileo, *Assemble Papers*, September 4, 2019, <https://assemblepapers.com.au/2019/09/04/lesley-lokko-decolonising-architecture/>; Sandi Hilal and Alessandro Petti, *Permanent Temporariness* (Stockholm: Art and Theory Publishing, 2019); Francesca Hughes and Lesley Lokko, "A School willing to take risks," *The Architectural Review* no.1486 (November 2021): 32-25; Beatriz Colomina, Ignacio G Galán, Evangelos Kotsioris, and Anna-Maria Meister, *Radical Pedagogies* (Cambridge, Massachusetts: The MIT Press, 2022); Harriet Harriss, Ashraf M Salama, and Ane Gonzalez Lara, *The Routledge Companion to Architectural Pedagogies of the Global South* (Milton: Routledge, 2023); and Sónia Vaz Borges, and Léopold Lambert, *Schools of the Revolution: Radical Education and Pedagogies around the World* (Paris: The Funambulist, 2023), among others.

⁷⁸⁰ The notion of 're-tooling,' as well as the broader exploration into what comprises the architect's toolkit today in this sub-section of the conclusion, has been heavily influenced by feminist and civil rights activist, Audre Lorde. She astutely wrote, "For the master's tool will never dismantle the master's house. They may allow us to temporarily beat him at his own game, but they will never enable us to bring about genuine change." Simply put, the main idea is that the tools used to create and maintain systems of oppression (by the master) are insufficient for dismantling that very system. As an extension of this thinking, this thesis calls for the need to re-imagine our toolkit as architects and educators – how we draw, design, and construct narratives, and for whom and for what purpose? See Audre Lorde, "The Master's Tools Will Never Dismantle the Master's House," in *Sister Outsider: Essays and Speeches*, ed. Audre Lorde (New York: Crossing Press, 1984), 110-114.

letters, petitions, and discussions⁷⁸¹ in response to global events and social movements such as the assassination of George Floyd and the rise of the Black Lives Matter movement (BLM) in the US or Deaths in Custody movement in Australia.

The screen, while not a definitive solution to the decolonisation of architecture, serves as a catalyst, unsettling some of the long-standing power structures and methods that have perpetuated a 'colonial' approach within architectural education. These issues, as highlighted, include the historical concentration and control of knowledge production within specific geographic "centres" and the exclusion of certain "bodies" and histories from the canon of architecture. As studio walls dissolve and screens offer collaborative opportunities to work across scales, time zones and geographies, the question of whom to collaborate with and what to foreground and represent becomes paramount. This aligns seamlessly with a decolonial approach to both thought and practice. Framed from this perspective, the recent re-configuration of the architect's desktop is not merely a functional adjustment but also a conceptual exercise in considering what to assemble on and around it, especially as working remotely and from a distance via the screen has become common practice. Contributing to the architect's toolkit of the present, the screen, when used thoughtfully and critically, can be a powerful tool for challenging and transforming traditional power dynamics in architecture, fostering inclusivity, and contributing to the ongoing process of decolonisation.

⁷⁸¹ For instance, in 2020, students and faculty members throughout the U.S. released letters and statements advocating for fundamental change in response to the Black Lives Matter movement. Notable instances include a statement titled 'On the Futility of Listening' from the Black Student Alliance at Columbia University's Graduate School of Architecture, Planning, and Preservation (GSAPP), a 12-point plan titled 'Unlearning Whiteness' from the Black Faculty at GSAPP, urging the incorporation of the work and histories of Black designers. Similarly, statements like 'Notes on Credibility' from the African American Student Union and AfricaGSD at Harvard University and an open letter signed by Yale School of Architecture alumni highlighted the need for reform. Statements from four East Coast deans followed, including Dean Sarah M. Whiting of Harvard University Graduate School of Design (GSD) with 'Toward a New GSD,' Dean Deborah Berke of Yale School of Architecture with 'Black Lives Matter,' Dean Monica Ponce de Leon of Princeton University School of Architecture with 'Hearing the Call for Structural Change,' and Dean Amale Andraos of Columbia University GSAPP with 'A Message of Solidarity.' Additionally, in May 2021, Architects and Planners Against Apartheid initiated a petition open to global school endorsements, titled 'Stand in Solidarity for Palestine,' urging collective responsibility to support the Palestinian struggle for decolonisation.

Close Up at a Distance

The implications of what it means to operate from a distance have been an undercurrent in the thesis, especially as the screen has been defined as a “distancing” device that contributes to the lost dimension of space. The theories developed in the thesis regarding the screen’s contribution to the lost dimension of space, as well as its influence on simulated representations of space – as predominantly analysed through CNN’s live coverage of the Gulf War – are useful when exploring what it means to be operating through a constant state of mediation via our screens. Recent advancements in spatial technologies, crossed with the proliferation of new media, have provided greater visual access to parts of the world and, therefore, have facilitated a view “up-close” from anywhere and at any time. This instantly challenges the long tradition of being physically “situated” in architectural sites as a form of critical inquiry – a model that can be traced back to the eighteenth-century Beaux-Arts Prix de Rome. This contemporary condition of being able to view up-close from a distance, or to borrow Laura Kurgan’s phrase, “close up at a distance,” presents its own challenges regarding the politics of representation, especially in the context of today’s wider discussions on fake news.

Although the increased availability of high-resolution satellite images, for instance, has been instrumental in making certain injustices and crimes against humans and non-humans visible, the immeasurable amount of visual information our contemporary mediascape presents and the continual access to views “up-close” warrant further investigation. In a post-truth context, image manipulation, post-production techniques, deep fakes (as enabled by recent advances in artificial intelligence and machine learning), and different forms of censorship are radically transforming the way we see and experience reality. Therefore, the ability to view many things “up-close” at any time does not necessarily provide more detail or clarity. Instead, it raises questions of excess and the consequent limits of absorption, of authorship and the ability for anyone to produce online content or alternative facts, and of ethics, as what we are looking at may not be “objective” in its recording reality. In a world dominated by two extremes, image excess and censorship, and

where a question of ethics is very much entangled with aesthetics, what it means to "look" today needs to be reconsidered. This not only becomes a question of what is visible and on show but, more importantly, what is hidden, cropped, or completely absent from the frame of the screen.

This call to interrogate visual information, both its abundance and absence, is both a response to post-truth practices and a recognition that what we are consuming "up-close, at a distance" might contain critical evidence that aids in understanding contemporary events. In the context of current socio-political events, the screen is the very site where the confluence of media and politics collide, and conflicting narratives on space are presented – whether they are "official" hegemonic geopolitical representations promoted by state-led media or more "informal" accounts disseminated from personal mobile phone devices. The latter is often seen through social movement activism and "on-the-ground" citizen journalism in urban conflict zones, where it is often difficult to access sites and/or media blackouts prevent any form of "ground-truthing" from occurring. Recording and circulating any form of evidence in these cases becomes a powerful act of political activism and resistance.

As political violence becomes more complex and diffused across urban space, and the tension between what is on 'show' and what is hidden from our screens continues to grow in the post-truth context, there is a certain ethical and social responsibility attached to the way we operate "up-close from a distance" as spatial practitioners. One approach is to turn to a more investigative spatial practice and focus on assembling evidence that renders visible abuses of power – against both humans and non-humans. This approach begins to ask how we can exercise our architectural skills and techniques, specifically our expertise in spatial research and analysis, to assemble evidence that may facilitate the production of "truths" or "other" narratives. This redefines the architect's role as one more akin to that of an activist and recognises their capacity to engage in politics. It also redefines the types of architectural documents being produced, as often the spatial and material complexity involved in analysing and assembling evidence, which is diverse in nature and can

include large data sets and videos, cannot be captured through the flatness of conventional architectural drawings, such as an architectural plan. The spatio-temporal capacity of the screen, however, enables the comparison, analysis, synchronisation, and assemblage of a diverse range of evidence, for instance, by reconstructing the event virtually in a 3D digital model. In this case, there is an opportunity to repurpose the screen and digital architectural techniques and software to facilitate a more critical inquiry and facilitate the production of counter-hegemonic narratives that destabilise “official” narratives often disseminated by the perpetrators themselves. Although viewing up-close from a distance offers its own challenges, it also opens the possibility of developing techniques of activism and political engagement via the screen that contribute to the ongoing process of decolonisation in architecture.

Making Things Public

This new appreciation for the screen’s role in synchronising counter-hegemonic narratives also demands to make visible or “exhibit” these matters of public concern or, to borrow Bruno Latour and Peter Weibel’s phrase, “make things public.” In advocating for making things public, Latour and Weibel propose the establishment of alternative platforms for engaging with public concerns outside of official political structures. This act, in itself, is political and resembles decolonial practices that seek “other” sites of knowledge production. Viewed from this perspective, making social and political issues public not only involves assembling an audience around the matter of concern but raises questions of access and legibility – how are these very complex issues re-presented to a general audience? What medium is used for this translation? And where are these alternative platforms situated?

The experimental art and architectural practices examined in this thesis offer valuable insights in this regard. Central to the 1960s and 70s video artists and architects studied, as well as the screen-based architects of the 1990s, was the utilisation of installation art as a means to directly engage with an audience. This engagement involved either using the audience as the subject or directly implicating

them directly into the work, with the latter relying on the audience to complete the work of art. Three interlinked observations can be drawn from this practice. Firstly, by involving the audience in the work of art, the broad and almost immaterial concerns raised and speculated on by the artists – such as questions of surveillance and voyeurism – were manifested at the scale of the body. This begins to engage with the question of access in the sense that the installation becomes the actual site for narrative and corporeal experience. While it may not offer a direct translation of the agenda behind the work, given the inherent subjectivity, it does invite audiences into a performative, spatial, and material relationship with the displayed content.

The second observation is that the screen was used as the very site through which broader questions were put on display or redefined. There is inherent power in employing the same medium that is being scrutinised, as it advocates for repurposing the medium under examination – in this case, the technology of the screen – for “other” means. In the context of video artists from the 1960s and 70s, this involved challenging the one-way spectatorial relationship set up by the institution of TV during that period, thereby fostering alternative audience engagements with the screen. Lastly, implicit in installation art is its capacity to be site-specific and, in turn, to transform the space where the work of art is exhibited. For the post-war body of video art and installation work, exhibiting in institutional spaces like galleries and museums served as a form of resistance against the detached modernist “white box.” If we extend the decolonial thread that has been a subtle undercurrent to the themes raised by questioning architecture’s contemporary engagement with the screen, there arises an opportunity to deeply consider the site of display when making things public. For instance, counter-hegemonic accounts can be displayed in the site(s) that are under contestation to directly engage and include a local audience. Institutional venues may also serve not only to synthesise and reframe the narrative for a broader audience but also to introduce “other” knowledge and representations into the spaces that have historically been in control of authorising and disseminating cultural production.

The End of the Beginning

These “closing” notes on how the screen has expanded the architect’s toolkit and reconfigured the “desktop,” touching upon the implications associated with using the screen as a tool when working from a distance, and acknowledging its empowering, democratising, and decolonial potential when it is used to construct and display counter-hegemonic accounts through installation works, serve as entry points into addressing architecture’s contemporary relationship with the screen. By situating the screen in a broader cultural and media theory framework, the thesis has presented an alternative account of the digital in architecture, repositioning architectural production and representation at the confluence of media and conflict through the screen. These reflections, which have raised more questions than offered definitive solutions, sharpen this repositioning by highlighting the urgency to consider how architecture can critically engage with the geopolitical and aesthetic concerns raised by a culture increasingly driven and shaped by the mediation of current events, particularly conflict. This is the end of the beginnings of a contemporary exploration and formulation of the digital in architecture – one that avoids a techno-determinist or techno-solutionist approach (and dominant narrative), and continues to critically interrogate the material, spatial, and mediating effects of the screen on architectural production and representation.

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