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REFLECTION ARTICLE

Archiving Visual Effects: Filling a Digital Void in the Documented Memory of Film and Television

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Abstract

Digital visual effects emerged onto cinema screens during the mid-20th century and have now become an essential feature of contemporary film and television production. Notwithstanding the rise and prominence of visual effects in the telecinematic discourse as a key visual storytelling tool, there is currently a visual effects gap in audiovisual archival collections, and a digital void in the documented memory of film and television. Why are there no visual effects records in our moving image archives?

This reflection will explore the above question by sharing some findings from my doctoral research about records and archiving in the global film and television visual effects industry.

Keywords: *Archives; Film; Special effects; Television; Visual effects.*

Introduction

Before entering the archive profession in 2013, I muddled my way through various media advertising and production jobs following the completion of a media production undergraduate degree. Despite my failings to establish a genuine career in the media industry, my affinity for screen production did not waver. So, when a new screen animation and visual effects school opened at the University of Technology Sydney, I jumped at the opportunity to join its research cohort to undertake a PhD about visual effects records and archiving.

For almost 4 years, I embarked on an inclusive doctoral research study with the film and television visual effects industry to document its unique recordkeeping landscape. My goal was to determine how improvements (which align to archival theory and methods and established cultural heritage collection practices) could be effectively adopted in the industry, to support the ongoing business of visual effects production and to encourage the formation of archive collections. As part of the research, I investigated the collections of 10 major international film and television archives to determine if they were collecting visual effects material. I was surprised to discover that visual effects records are barely seen in any of their collections. How could this be?

While visual effects copyright plays a sizeable role, my research uncovered other reasons, all of which I will present in this reflection, to illuminate and hopefully explain why – despite

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having existed as part of mainstream film and television production for decades – visual effects records have not been duly archived to date.

Before embarking further into this reflection, some terminology requires addressing. Visual effects and special effects are terms used in the context of film and television production to denote 'artificially contrived effects designed to create the illusion of real (or imagined) events'.[1] In contemporary industry vernacular, 'visual effects' or 'VFX' are the processes through which imagery is *digitally* altered, created, or enhanced, while 'special effects' or 'SFX' are practical effects that are *physically* implemented directly on set and captured during the live-action shoot. Given contemporary visual effects work is inherently a digital creative and technical process, predictably, records of the visual effects industry are predominately created and managed in digital formats.

Now that the lingo has been established, I will now provide a very brief history of visual effects to provide important context and illustrate its long-standing place within telecinematic discourse,[2] history, and culture.

A brief overview of visual effects

The very first example of digital effects in a film is the opening credits of Alfred Hitchcock's 1958 film Vertigo. Tom Sito describes the computer animation sequence as 'complicated graphics that spiral out from still photos of actress Kim Novak's eyes, all set to the eerie music of Bernard Hermann'.[3] The designer of the sequence, Saul Bass, insisted that the spirals be accurate and not be drawn freehand. John Whitney was hired to help Bass bring his design into fruition by developing an animation rig using a World War II, 850-lbs anti-aircraft targeting computer.[4]

Following this innovation, many others soon followed from Whitney and other digital pioneers such as Douglas Trumball and John Dykstra; until digital technologies started to become more standardized, and audiences began to grow accustomed to digital visual effects through the success of science fiction films such as 2001: A Space Odyssey (1968), Westworld (1973), and Star Wars (1977).[5]

As Shilo McClean indicates, it was during the 1980s that the use of digital visual effects began to really take off, through accelerated advancements in computer software and hardware.[6] Then, in the 1990s, as the technologies became more affordable, the digital spectacles accelerated and translated to lucrative box office success through titles, such as Terminator 2: Judgement Day (1991) and Jurassic Park (1993), as well as Toy Story (1995), which was the first feature film produced entirely from computer animation technology.[7,8]

While practical special effects are still adopted, in the 21st century, visual effects are now a commonplace and necessary feature of film and television. As the Executive Creative of Zoic Studios says, 'Creative crossover between feature film and television is reaching its peak, […] upp[ing] the game in creative visual problem-solving for VFX […]'.[9]

Overall, the visual effects industry holds both financial and cultural importance in Australasia and other regions of the world. On average, 20–25% of production budgets are spent on visual effects.[10] In 2019, the global visual effects services market worth was $3.9 billion USD and is forecasted to reach $8.9 billion by the end of 2026.[11] The industry employs thousands of digital artists to generate imagery for wide-reaching media content for big and small screens. Using an array of ever-developing digital technologies, commercial software, and bespoke tools and code; visual effects practitioners craft and combine 3D models, animations, environments, and lighting elements output as 'shots'[12] for film and television productions.

Searching for digital visual effects records in moving image collections

For my research, I searched for visual effects records in the following libraries, archives, and museums (LAMs), selected for their extensive experience in collecting moving image records, and their availability of resources in the English language (see Table 1).

Table 1. Libraries, archives, and museums investigated

Name	Country
Academy of Motion Picture Arts and Sciences' Film Archive, Museum and the Margaret Herrick Library	United States of America
Australian Centre for the Moving Image (ACMI)	Australia
British Film Institute (BFI)	United Kingdom
Deutsche Kinemathek	Germany
Eye Film Museum	Netherlands
Institut national de l'audiovisuel (INA)	France
Lucas Museum of Narrative Art	United States of America
National Film and Sound Archive of Australia (NFSA)	Australia
University of California Los Angeles (UCLA) Film and TV Archive and Library	United States of America
University of Southern California (USC) School of Cinematic Arts collections including Hugh M. Hefner Moving Image Archive	United States of America

When my searches across catalogs and available literature proved inconclusive, I emailed collection specialists from the LAMs to obtain definitive information about whether they had digital visual effects records in their collections.

Through the investigation, I found that the LAMs appear to have a proclivity to acquire *material* film and television effects-related records and artifacts (this even applies to records about digital visual effects). Examples include production photographs of models and sets[13]; film still prints featuring visual effects[14]; correspondence, scripts, illustrations, and budgets concerning special effects[15,16]; breakdown documents about scenes requiring special effects[17]; original hand-drawn sketches for various matte shots[18]; camera and projection devices and equipment such as Dave Drzewiecki's horizontal VistaVision projectors and 35 mm film clips used on various film effects shots.[19]

The limited examples of digital visual effects records I could identify included a showreel from VFX company Animal Logic in Media Exchange Format (.mxf) and MPEG-4 (.mp4) formats at NFSA,[20] and VFX image sequences in Digital Picture Exchange (.dpx) format from two film projects in the Eye Film Museum collection.[21]

In addition, records from a single film or television title tended to be dispersed between studio archives, university and public LAMs, and private collections. For example, when searching for relevant Star Trek records, I had no luck in finding any digital visual effects records. However, I did find that the hand-crafted U.S.S. Enterprise Model from the original Star Trek television series is held in the Smithsonian's National Air and Space Museum collection.[22] A photo mechanical print of the Enterprise model is located at the Academy's Margaret Herrick Library.[23] An original matte painting from the series can be found at the commercial Science Fiction Archives in Hollywood,[24] and numerous other matte paintings from the various iterations of the television series have been sold to private collectors at auction. Furthermore, the UCLA Library has a unique collection of hardcopy production papers from Dan Curry, the Visual Effects Producer of Star Trek: The Next Generation, Star Trek: Deep Space Nine, Star Trek: Voyager, and Star Trek: Enterprise.[25] With all these Star Trek records being geographically dispersed among multiple collecting institutions, provenance and original order are considerably compromised.

Why are contemporary, digital visual effects records missing from LAM collections? The following section of the reflection will explore this question by presenting 4 reasons.

Reason 1. Copyright and intellectual property

Copyright legislation in both Australia and the USA indicates that the producer of a film or television project (generally a studio, network, or streaming platform) is the 'owner' of the project's visual effects work. The work of visual companies and their staff is considered 'work made for hire'.[26] In the Unites States, work made for hire projects has a copyright period of 120 years after creation or 95 years after publication, whichever is shorter.[27]

Because the studios, networks, and streaming platforms are the 'owners' of film and television visual effects work, the visual effects records are considered their intellectual property. Hence, it is not in their economic interest to make their records available freely to archives. For example, Disney Marvel employs Digital Asset Coordinators to help the studio collate and organize their 'asset'[28] records and associated metadata in their Marvel Asset Library.[29] Collecting the asset records protects their intellectual property and helps facilitate their reuse on multiple films. As a visual effects practitioner explained to me:

> Anything that is a franchise [the studios] will care [about], so on Deadpool they really want their stuff, they want all the effects for X-Men. Whereas something like True Grit [the studio will] not ask for their snake. Because they don't care.[30]

However, given the fast rate of technology obsolescence, digital files are unlikely to be readable and usable after a decade. So, their value to the studios, networks, and streaming platforms will quickly diminish. If placed in custody of an archive with established digital preservation programs, digital visual effects records are more likely to be managed, preserved, and accessible over time, than if they remain under their owner's control. This approach is also supported by the fact that there is already an established precedent for film and television records to be donated to publicly accessible LAMs. For instance, the University of Southern California has a huge collection of Warner Bros. paper records in their collection.[31]

Arguably, copyright and intellectual property are major factors contributing to the lack of available visual effects collections. However, there are other reasons, which I uncovered during my research.

Reason 2. Acquisition policies: The missing backbone

As the Canadian Council of Archives describes, a collection policy, or acquisition policy, is:

> [An] instrument which provides the archival institution with the direction for making appraisal and acquisition decisions and allocating resources. It is the backbone around which the archival institution can acquire comprehensive holdings in a planned, coordinated, and systematic manner.[32]

Without this 'backbone', it would be difficult for visual effects records to be identified and transferred into collections. Hence, as part of my research I examined, if 'visual effects' were mentioned in the acquisition policies of my selected 10 moving image LAMs. I located policies for 8 of the 10 LAMs, and only one – the Academy of Motion Picture Arts and Sciences, included a section on screen effects records: 'Special effects demonstration reels and elements' that were submitted as part of the Academy's Scientific and Technical Awards.[33] Disappointingly, these records solely relate to the development of visual effects software and tools. Visual effects records created for specific film and television production projects are completely missing from the policy.

Interestingly, policies from ACMI, BFI, EYE Filmmuseum, and NFSA do include remits to collect video games and/or immersive media (virtual, augmented, and mixed reality) – works

encompassing digital records that have the same, or similar qualities and technical requirements to film and television visual effects records.

In addition to copyright legislation and acquisition policies, the remaining two notions presented in this reflection diverge into the intangible realms of human psychology and culture.

Reason 3. Material records foster engagement and the numinous experience

Another reason to explain the lack of digital visual effects records in collections is that they do not foster engagement and the numinous experience, like material records do.

Emmanuel Tsekleves suggests that the 'physical is deeply imprinted in our biological and psychological makeup'; hence, even though we live in a digital world, the appeal of analogue is more akin to who we are and 'how we make sense of our world'.[34] In a study comparing user experiences with physical archival records and their digital surrogates, Anastasia Varnalis-Weigle found that material records tended to provide more engagement and provoked a stronger emotional response in accordance with the complexity and level of interest in the record.[35] It was also discovered that a numinous affect was only experienced with a physical object.[36]

Maines and Glynn describe the numinosity of an artifact as having a real or imagined association with a person, place, or event bestowed with 'special sociocultural magic' and which 'carries emotional weight with the viewer'.[37] The numinous experience is transformative and mysterious, and the personal connection forged with an object not only manifests admiration and wonderment but can also produce 'deep engagement, empathy or spiritual communion'.[38] For example, in a study about the numinosity of museum objects, Kiersten Latham noticed that all the participants were 'deeply touched by the experience, describing connections that transcended memory, time, and self'.[39]

Furthermore, interviews with VFX practitioners, which I conducted as part of my research, also revealed that they too have an affinity for physical records:

> Visual effects people tend to hold in very high regard the people that do, special effects – practical special effects. Which is why, we love having like swords [or] prop[s] [from] film[s] that we worked on […] We love having these things around, that tangible aspect to it.[40]

The material record no doubt has some qualities that its immaterial, digital counterparts do not possess. What does this mean for an entire field of film and television production practice that predominately generates digital records? Will records of the visual effects industry ever appeal to LAM audiences? Perhaps more time needs to pass, so that there is more of a historical quality to the visual records. Yet, the longer we wait, the more likely the records will become unreadable and inaccessible due to technology progression and lack of available legacy tools and software.

Reason 4.VFX gets a bad rap (or is rendered invisible)

The final reason I would like to present to explain why digital visual effects records are missing from collections, relates to longstanding negative generalizations and erasure afforded to visual effects work.

As Sonya Teich notes, in the moment when Star Wars (1977) was awarded Best Visual Effects at the Academy Awards, it was also 'being pointed to as the destroyer of the auteur renaissance'.[41] Then, as digital visual effects flourished in the 1990s in films such as Jurassic Park (1993), they were considered by some as dwelling on 'visual spectacle for its own sake'.[42] Visual effects during this time were described as 'a hallucinatory excess'[43], 'an eclipse to narrative, plot and character'[44], and 'the antithesis of narrative'.[45]

These negative generalizations have continued to present day. For example, when describing Avengers: Age of Ultron (2015), Variety critic Brian Lowry indicates that the computer-generated imagery 'wizardry' has 'become a curse', and 'while the results can be visually astounding, the movies regularly feel as lifeless and mechanized as the technology responsible for bringing those visions to fruition'.[46]

Moreover, even film directors speak of them negatively:

> While [JJ] Abrams touted 2015's Star Wars: The Force Awakens as a return to the practical aesthetic of the original trilogy, roughly 2,100 shots in the film used VFX. In reference to 2017's Dunkirk, [Christopher] Nolan said: 'The older techniques are working better. With visual effects, after a while the contemporary tricks look cheaper'.[47]

While visual effects have received negative critique, at the same time, it is often erased or unacknowledged – it is a hidden job.[48] With regard to media coverage of visual effects work, Mihaela Mihailova highlights:

> Crucial information, such as the nature, extent, and relative importance of animators and visual effects artists' specific contributions is typically glossed over or completely omitted (except in specialized trade publications such as Cinefex and VFX World Magazine).[49]

Similarly, the extent of visual effects motion capture work required to bring computer-generated characters to life can be brushed off. Actor and director Andy Serkis, known for his work as the Gollum character in the Lord of the Rings films and Caesar in the Planet of the Apes movies, has stated that 'the authorship of performance – everything you watch on screen that you feel and think about a character – comes from the actor'.[50] This act of claiming responsibility for the entire performance does not acknowledge that motion capture work is actually a collaboration between the actor and numerous visual effects artists.[51]

Overall, these generalizations and erasure of VFX labor spouted by film critics and practitioners have unfortunately entered the collective societal psyche, affecting the comprehension and appreciation of visual effects work.

Visual effects are worthy of collecting

In this reflection, I have presented four reasons, uncovered during my doctoral research to explore why visual effects records have not been duly archived to date.

It is my hope that archivists, librarians, and curators will begin the journey toward addressing the visual effects gap in our film and television cultural heritage collections and realize that visual effects records are worthy of collecting. I encourage readers in these positions to make connections with studios, networks, streaming platforms, and visual effects companies to explore ways to document the memory of visual effects and collect and share visual effects records. So, the history and legacy of this significant half-century canon of our digital screen history and culture will not be lost and forgotten.

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Notes

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23. Margaret Herrick Library, 70121493 Photomechanical print of the U.S.S. Enterprise, Star Trek (c1967).
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