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Tracing Moments

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TRACING MOMENTS

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Abstract

The interactive art system *+now* captures moments in the past and present for dreamy, reflective play. It is composed of sand, imagery and interaction. This paper traces the creative process from initial landscape studies to museum installation in 2008. Key design concepts discussed include the origin and use of sand and emergence. *Key words:* Emergence, interactive art, practice, perception, ambiguity, sand, Tangible User Interface, Augmented Reality.

Description of Art System

Plus minus now (+now) is an interactive art system that was installed at Beta_space at the Sydney Powerhouse Museum in 2008 [1]. The work uses sand as an interface to interact with two images. One image is monochromatic and projected on a wall screen while the other is colourful and projected directly onto fine, white sand. The sand surface can be described as a tangible user interface [2] while the use of real-time, virtual imagery on the sand further defines the work as augmented reality [3]. Gestures in the sand result in imagery projected on the sand and the rear-projected screen (Fig. 1.) The imagery behaves like visual echoes, mimicking the shape, direction and speed of a gesture in the sand with repeated renderings. On the wall screen these monochromatic layers add up in opacity to create areas of increased brightness that can be interpreted as new shapes. The imagery also persists, enabling interaction with a history of one's gestures.

Tracing the Creative Development

+now is inspired by a natural landscape with a pond. I initially conducted a site analysis to study the character of this place. This included land and water features as well as less tangible aspects. I interpreted the place to have a dreamy, reflective quality and this 'poetic' analysis of my experience led to two key concepts. They are:

- (1) a lost, reflective type of interaction at the water's edge; and
- (2) an ambiguity of imagery seen on and through the water.

The remainder of the paper explains how these concepts inform the design of *+now*.

Lost Interaction

As I reflected on my impressions of the site I found them to resonate with Martin Heidegger's concept of 'dasein'. The quietly reflective and slightly dreamy experience was generalized to a way of 'being in the world' similar to 'being in love' and different from the type of being such as 'being in a vessel' like a room or a car [4]. I interpreted this as describing highly involved interaction, perhaps to the point of 'losing oneself' in what one is doing. This kind of 'deep involvement' became one of my design objectives.

Sand

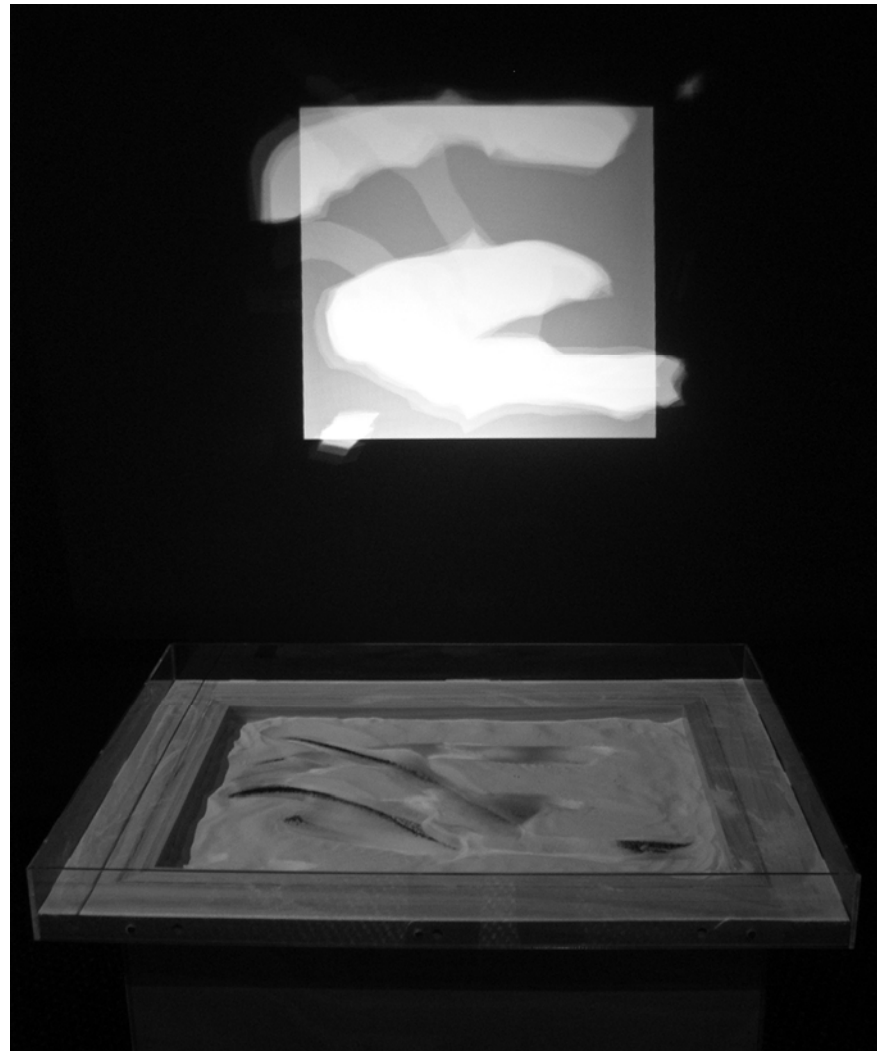
Sand was among several natural artifacts collected from the site. It was used for the interface because it was a rich reminder of that place and because of its affordances: sand is familiar to people,

they understand how it behaves and know what they can do with it. It supports natural, intuitive interaction. I reasoned that these qualities would support a participant 'losing themselves' in the work. Its associations of the beach also encourage a sense of play.

Sand is a continuous medium. Gestures are sampled as a whole, including direction, speed and a range of other details usually excluded from discrete inputs such as button pushing. In *+now*, sand records traces of events past, like footprints on the beach. This aspect of the interface has been tightly integrated with the imagery which also 'persists', or retains a memory of events past.

The use of sand supports a highly involved interaction because the material is intuitive and a participant can leave detailed traces of their interaction and themselves behind.

Fig. 1. *+now*, installation, .75 x .9 x 1.2m high pedestal interface with rear projection screen behind, 2008. (© Jen Seevinck)



Perceptual Ambiguities

While visiting the landscape I found that the reflective experience was accompanied by a ‘softening’ or blurring of my visual focus. When I shifted my focus I could construct (imagine) new objects. This was particularly noticeable at the water’s edge. For example, reflections and shadows on the water surface combined seamlessly with floating leaves and silt on the base of the pond (Fig. 2). In Fig. 3 I explored the eye’s changing focus as attention shifts between different objects, to combine views of these objects and construct new images or objects. In this way ambiguity is leading to the perception of something new.

Emergent Shapes

More recently I experienced another slightly different, ‘perceptual ambiguity’. I found that in the afternoon light the aerial roots of a Bald Cypress swamp tree protruding through the water’s surface can combine with their shadows to manifest diamond shapes (Fig. 4). These diamonds are similar to the triangle in Fig. 5 because both are instances of emergent shapes. Emergence occurs when a new form or concept appears that was not directly implied by the context from which it arose [5, 6].

New shapes can also emerge during interaction with the art system *+now*. Persistence of the imagery (its ‘echo’) means that the images of several gestures can overlap. Since the imagery is transparent, overlapping areas accumulate opacity and have greater brightness. The brighter areas can be perceived as emergent shapes (Fig. 6). Seevinck and Edmonds [7] describe this method of constructing emergence in detail.

Site analysis of the water landscape revealed an active process of perception. Changing focus affords the construction of new imagery, including reflections on the water’s surface and underwater views; and the emergence of new shapes. The ability to perceive emergent shapes in *+now* is facilitated through layering gestures. Like seeing figures in the clouds, it is hoped to support a reflective, dreamy experience.

Summary

The paper traces the creative evolution of the interactive art system *+now* from poetic site analysis, through extracted concepts, to the design installed at

Beta_space in 2008. I have aimed to build a system which is capable of supporting an involved and lost type of participant experience. Emergent imagery and a tangible, intuitive and impressionable interface originate from landscape studies to support this objective. The resultant aesthetic ‘whole’ lets a participant leave traces of themselves in both material and image. These traces of past actions accumulate to create new images, encouraging the participant to dream and reflect in the ‘now’.

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Fig. 2. A photograph from the site combines water surface (e.g. reflections) and sub-surface imagery (e.g. leaf litter) to form a single composition. (© Jen Seevinck)

Fig. 4. Diamond shapes emerge in nature. (© Jen Seevinck)



Fig. 5. A triangle shape emerges from 2 overlapping squares. (© Jen Seevinck)

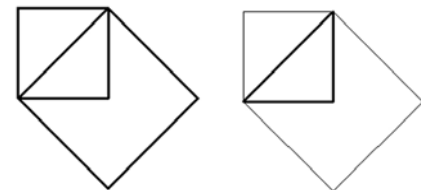


Fig. 3. The ambiguity of images on and through the water. (© Jen Seevinck)

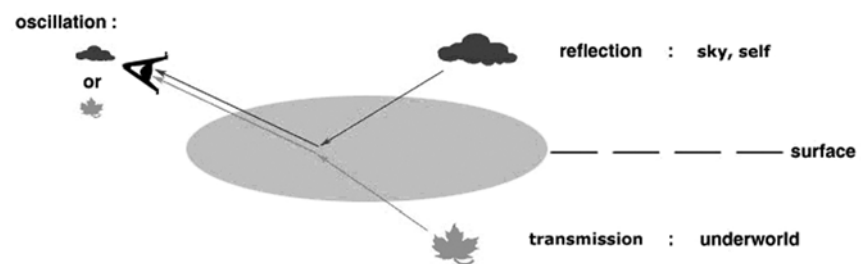


Fig. 6. *+now*, installation, 2008. Rectangular shapes emerge in frame 4 from overlapping gestures. (© Jen Seevinck)

