MovieScape: Enactive Experience with Silent Movie: Audiovisual and Multimodal Installation

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MovieScape: Enactive Experience with Silent Movie

Audiovisual and Multimodal Installation

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ABSTRACT

The multi-modal installation MovieScape articulates sound, image and movement with the poetic frame of Silent Cinema. It is an immersive mixed-reality environment in which the boundaries between the real and the virtual are imprecise and ambiguous. In MovieScape, an audiovisual landscape is selected with an imaginary steering wheel that is activated when the visitor closes both fists. A sphere covered with images of silent cinema is modified with rotations and displacements that alter the succession of scenes, the musical track and the sound landscape. The interaction between perception and action/movement brings about an enactive experience in which the participant immerses in the possibilities of the silent movie. The creation of MovieScape is the result of a participatory methodology.

This proposal is linked to the article "MovieScape: Audiovisual Landscapes for Silent Movie" submitted to ARTECH 2019 by the same authors.

CCS CONCEPTS

•Information systems/Multimedia information systems • Human-centered computing • Applied computing/Arts and humanities

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KEYWORDS

Interactive Systems for Artistic Applications; Multimodal Installation; Silent Movies; Enactive Experience.

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1 Introduction

Our starting point was to articulate sounds, visuals and the human movement, in their respective fields of perception, to invite the visitor to an enactive experience within a multimodal installation. MovieScape integrates these three modalities to create audiovisual patterns using visitor actions. Thus, we understand that the meaning constructed through MovieScape experience emerges from the visitor's exploration of the dispositional states of this installation.

Interactions between the possible musical themes by the visitor-selected scenes and the real-time soundscape integrate the immersive scenery of MovieScape. The theoretical and poetic framework articulates action and movement, cognition and silent movie. In this sense, we approach the studies of Caruana &

Borghi, 2013, Varela et al, 1992 [7, 22], as well as silent movie, in the texts of Abel & Altman (2001), Altman (2007), Marks (1997), Gorbman (1987), Anderson & Bowser (1988), Barton & Trezise (2019) and Donnelly & Wallengren (2016), and also the interactive works of Weibel and Shaw [2–5, 9–11, 17].

In the creation of MovieScape we envision the interaction of ideas and processes in achieving an expressive artifact. The participatory method is the factor of knowledge construction and artistic expression and we share in the group previous experiences and studies [12, 13, 15, 16, 19].

2 Conceptual Fields

2.1 Cognition, Embodiment and Enaction

Although the embodied cognition paradigm encompasses different models and theories, the basic idea is that most cognitive processes occur through body control systems, in particular the interaction between higher cognitive functions and the sensorimotor system [7]. Enactivism, in turn, attributes an important role to perception as a particular type of exploratory activity also mediated by knowledge of sensorimotor contingencies [18]. According to Varela, Thompson & Rosch's enactive approach [22], an autonomous system (agent) has continuous interactions with its environment, so this process influences the configuration of the sensorimotor system [8]. Reflecting on these concepts, we propose that MovieScape takes the visitors/participants to an adaptation process using their body movements. This adaptation would be the result of the discovery of possible combinations of materials available in the installation: musical themes, soundscapes and silent movie scenes. The embodiment of these relationships unleashes new patterns of visitor action or performance: an "enactive continuum," a cycle of codetermination, here applied to the visual and sound manipulation of Silent Movie scenes.

2.2 Silent Movie

In its origins, around 1895, cinema was something between technological novelty and a magician act. Shown in cafes, amusement parks, fairs, cinema was just small moving pictures scenes lasting few seconds that could share the stage with dance, illusionism, animal or song acts in the form of a variety theater or vaudeville. Initially it had a discontinuity aesthetics: it was a cinema made to astonish, not to storytelling, to merit the lucky definition coined by Tom Cunning, *Cinema of Attractions* [10, 11].

It is no coincidence that during this period we saw the Hale's Tour, a 1906 installation using film and real-world effects to create a kind of virtual experience by the public. It consisted of a theater car where passengers were sitting. "The moving pictures that showed out the front end of the car offered a filmed point of view from the front or rear of a moving train. The goal was to create the sensory illusion of movement into or away from a scene, accentuated by mechanical apparatuses and levers that simultaneously vibrated, rocked, and tilted the car" [1]p. 421.

Around 1910 the films began to gain greater duration and autonomy, finally incorporating their narrative aspect. Music, while not the only form of accompaniment for the movies, eventually established itself as the standard accompaniment [2–4, 17]. This choice was mainly determined by the ability of music to create a psychological immersion, or a *Bath of Affection* as Gorbman called it [9]. Soon specific manuals and scores were created for standardize music to the movies, but the main aspect of the accompaniment of the films was the adaptation – in relation to the film, the public reaction, the score – and often the improvisation.

This double strand (the cinema of attractions and adaptive music) served as the poetic inspiration for MovieScape, which is an environment where a kind of Hale's Tour became interactive, now directed by the public, who chooses his path – editing fragmentary or narrative scenes, in a musical immersion.

3 MovieScape: Multimodal Installation

The MovieScape installation creates a unified experience where data and visitors are merged into a mixed reality experience. To this end, we use new sensing systems and multimodal effectors to increase the interaction and understanding of the data flow generated during human-machine interaction [15]. To enable the collaborative process we created a computer network and developed a motion capture technology. Network architecture enables circular causality, which is generated with kinetic quality data derived from the encoding of visitor movements, which is tracked with Kinect V2 or Leap Motion interfaces [13].

MovieScape covers a 5m x 5m area, a system for capturing and analyzing human motion (Kinect V2) and effectors (speaker system, video projectors). Thus, effectors generate audiovisual stimuli. A microphone and video camera setup can also be used as an audiovisual sensor and for recording new stimuli derived from visitor-participant action.

The interaction happens through an abstraction of an imaginary steering wheel, which is activated when the visitor closes both fists. After this initial gesture, it is possible to modify the audiovisual landscape with rotations and displacements that alter the sequence of scenes, the music track and the soundscape. Figure 1 presents the basic setup: the projection screen, the projector, the motion sensor, the speakers, and the visitor manipulating a virtual steering wheel. See the coordinates (X, Y, Z) for the movement in space: the value (0, 0, 0) is in the center of the installation.

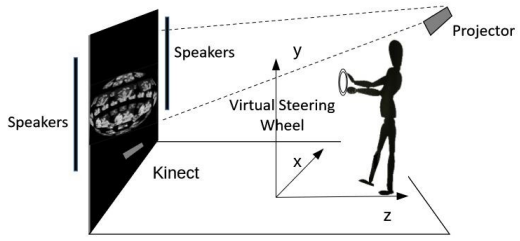

Figure 1: The MovieScape installation

3.1 Visualization

The visual part of the installation (developed in Processing) presents a sphere based on Ponce [21], on whose surface are distributed frames extracted from movies (Error: Reference source not found).

The order of distribution of frames is random, creating unique environments at each startup of the installation. After the initialization and calibration of the coordinate system, the visitor can walk around the room and explore the sound of the environment, and at any time the visitor can close the fists to control the imaginary steering wheel, starting the orbit in the sphere.

Figure 2: The sphere with the frames/icons

At this point the visitor can discover that the frames are scene icons of the same movie. A frame can be chosen by placing it in the center of the video, at the closest point. The frame widens and the reproduction of the scene starts with the corresponding musical theme, creating the moment of the silent movie. If the visitor moves away from the screen the process is paused, at any moment he/she can open the fists to cease control over the sphere, stabilizing it in the desired position (see Figure 3). We have also developed an algorithm to represent uncontrolled system movements giving a spinning kaleidoscope aspect to the visualization.

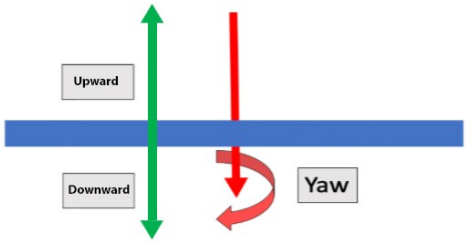

Figure 3: We chose the "Yaw" axis to rotate the Y axis of the sphere.

3.2 Sonification

MovieScape's sound environment has three layers. The first is the layer of musical themes, which were drawn from thematic musical collections [6, 20, 23, 24]. The themes were chosen according to the taxonomy of the collections, they were adapted and recorded in small tapes and play in loop. The second layer, called drone, was created from granular synthesis techniques, such as a continuous, ambient sound from a movie theater. Finally the third layer, called noise, produces discontinuous sounds in a movie theater, such as projector noise, door and chair creaks, audience comments and laughter (**see 2.2).** The sound environment of the installation is immersive, and has the potential to use up to eight speakers around. For this, we use the HOA6 library of MAX / MSP software, which enables ambisonic spatialization and granular synthesis. In our sound design, the visitor's proximity to the projection screen is used as the main factor of interaction with the sound. The closer to the screen, the larger the sphere and the more present the drone sound. At the closest point, the visitor can select one of the scenes and the music associated with the theme begins to play.

Video material about MovieScape installation may be seen at [14].

4 Conclusion

An enactive experience considers embodiment, sonification, and visualization rather than just the interaction that occurs between the installation and the visitor / participant. MovieScape integrates itself with the visitor's cognitive process and thus the concept of interaction is superseded in favor of an "embodied enactive immersion" process.

Finally, we can consider MovieScape as an environment of adaptation within a process of self-organization in which the visitor, together with the environment, enables the emergence of

a meaning, sometimes unexpected, as probably happened in small silent movie theaters. The common denominator is the body's willingness to experience and perceive both the inner and outer worlds in an enactive *continuum*.

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ANNEX – Requested Infrastructure

Necessary for the presentation of MovieScape:

- 1 dark room 5m x 5m;
- 1 projector;
- 2 to 4 speakers;
- 1 good quality sound system.

Supplied Equipment

- 1 laptop computer running the visualization and sound system;
- 1 sensor Kinect V2.

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