dream.Medusa: An interactive multimedia performance

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Abstract

dream.Medusa is a multimedia piece combining performance, responsive video, and audience feedback. Live vocalization and participant controlled devices provide interaction into a simulated lucid dream environment created with Max/MSP and Jitter. We discuss the concept of the piece, the interaction technologies, and the experience of performing with interactive participants. This document provides an overview of the concepts we would like to discuss in article-length format if our submission is accepted.

1. Concept

The *dream.Medusa* performance was conceptualized as part of an installation exploring the stages of sleep and dreaming, created for the all night art festival *Nuit Blanche* in Toronto, Canada [1]. *dream.Medusa* uses live performance, video visualization and participant interaction to lead participants and observers through a simulated lucid dream. In a lucid dream, the dreamer becomes conscious that s/he can interact with and control events in the dream environment. In our performance, four participants holding specially created interactive objects become capable of interacting with the performing musician to create a visualization in a collaboratory fashion.

The fifteen-minute piece begins with a singer guiding the development of the performance by using her voice to control a responsive video. As it progresses, the participants realize that they can effect change in the video visualizations by manipulating their abstractly designed controllers. The technology simulates the experience of lucid dreaming, in that the participants drift in and out of control of the dream-like experience. The result is an audio-visual performance that non-participatory audience members can observe in the manner of a traditional concert-style performance. The imagery and music is created with the goal of transporting both participatory and non-participatory observers into a dream-like, calm, and peaceful state, using videos of rhythmically moving jellyfish and a relaxing soundscape in order to encourage a restful and serene mood.

2. Voice-controlled Visualization

The live music component of the piece allows a singer to manipulate the video imagery using her voice as a control mechanism. The vocal visualization software is adapted from the software used to create a previous multimedia performance, *Deep Surrender* [2]. The feature extraction system is developed in Max/MSP [3], and uses Puckette, Apel and Zicarelli's fiddle~ object [5] to extract the harmonic spectra of the singing voice. The overtones in the vocal input are mapped to the RGB components of a Jitter [4] video stream, and in this way, the singer can modify the colour of the video composition by modifying her vowel choice or manipulating her pitch.

Performing with this type of responsive system requires the artist to interact with an analogue control system – she can only broadly control the values present in the harmonic spectrum of her voice by manipulating vowel or pitch, and must evaluate during the performance how her subtle vocal manipulations control the visual output in order to more precisely refine the visualization and present pleasing results. This system of feedback responsive interaction makes the artist necessarily attuned to the real-time progression of the performance, and ensures that each repetition of the piece is unique.

3. Wiimote Interaction

The onstage participants are each given an object with which they are told that they can effect change in the virtual environment. The objects are cylindrical tubes, covered in highly reflective mirrored paper. They are purposely mysterious, with no defined orientation or interaction features. The tubes' decorative casing conceals a standard Nintendo Wiimote with three-dimensional accelerometer and force-feedback capabilities.

The participants are told that their object represents an indicator of the lucid dreaming state. At certain points in the performance, their object begins to pulse with a simulated heartbeat, which is their cue notifying them that they are able to interact with the video environment. The objects' responsivity is triggered on and off during the performance, much as a lucid dreamer's control of his/her dream environment intensifies and recedes during the course of a lucid dream.

When the Wiimote controllers are enabled, the participants' manipulations of the objects are mapped to aspects of the video manipulation routines. Each participant controls a specific aspect of the responsive visualization (edge detection, image colouration, colour saturation or video mixing) and when they move their object, the video is manipulated in response. The participants are not instructed as to how to move the objects, rather they are encouraged to experiment with the abstract interface, observe how their interactions modify the video environment, and try to learn how to interact with the object in order to create pleasing visualizations.

Figure 1 – Participants interacting

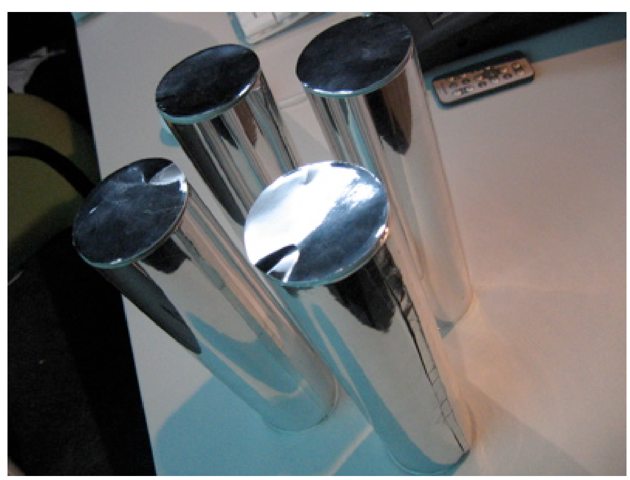

Figure 2 – The interactive objects

4. Performing with Participants

Creating a performance that is responsive to the actions of participating audience members is interesting both from a design perspective and a performance perspective. When designing the participants' interaction mechanism – the Wiimote interface – care had to be taken to make the interaction object and interaction strategy accessible. It could not be too complex, since the goal was that participants would be experiencing the system for the first time while participating in the performance, and that as the performance developed, they would obtain enough understanding of how their actions manipulated the the video control system in order to feel that they could consciously control the interface and manipulate the video effects in order to create visual images they found pleasing. After some experimentation, we found that a simple mapping between the orientation of the Wiimote and the video effect parameters produced a control parameter that the users could learn to manipulate in order to deterministically trigger an aspect of video manipulation.

The participants were performing simultaneously, however, which made the appearance of the manipulated video contingent on numerous factors: the input from the four Wiimote participants, as well as the input controlled by the live singer. When devising the design of the system, we wondered if the participants would intentionally collaborate in order to develop visual effects, or if they would focus on their own control mechanism and operate independently. Informal discussions with the participants revealed that they were, in fact, choosing to watch each other's actions when trying to determine how their actions were affecting the system, and as they became familiar with their control mechanisms, they would try to combine their visual effects with those of their neighbours in order to see what resulting visual manipulations could be produced. Similarly, the singer controlling the colour balance of the jellyfish image tried to collaborate with the participants in order to create the most interesting and dynamic visual results based on the input parameters they were providing.

In the future, we would like to investigate these user-reported responses through a formal participant study. Interactive performance in which novice users take a participatory role offers the opportunity to examine how technology can be used to facilitate expressivity, and we would like to deepen our understanding of how our participants perceived the collaboratory performance process in order to better understand how we can customize environments for participatory creative expression.

Figure 3 – The performance environment

References

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