A Gesture-based Hyperrealistic News Space

Blake Dworaczyk, James Creel, Babatunde Azeez, Andruid Keme

Department of Computer Science
Texas A&M University
College Station, Texas USA
{ blake, jsc6064, tuniks, and ruid}@cs.tamu.edu

Brooke Beane
Department of Architecture
Texas A&M University
College Station, Texas USA
bbeane@viz.tamu.edu

ABSTRACT

In this paper, we describe an interactive installation that allows participants to use gesture-based movement to manipulate a recombinant information space consisting of news media. By recombinant information space, we mean a composition of media elements (text and image) from various sources with a navigable, visual representation. participant experiences a hyperrealistic representation of current events. By a hyperrealistic space, we mean an experiential space in which digital representations take on significance which immerses the participant in a mediated reality. We employ the combinFormation project to retrieve and present semantically significant media elements. The participant interacts with the system by walking in a physical space that is mapped to the information space and gesturing with colored paddles. The system employs Max/MSP, Jitter, and a custom Max/Java patch to process video input, recognize gestures, and relay messages to combinFormation system. By permitting participants to interact with visual compositions in a kinesthetic manner, the installation physicalizes and socializes the experience of authoring visual compositions with combinFormation. The installation draws audiences through the inherently social aspects of gesture and image. Participants can take turns manipulating the information space, allowing for collective authoring. The goal of our project is to encourage many participants to join together in a social setting to create collective meaning through visual composition.

Categories and Subject Descriptors

J.4 [Arts and Humanities]: Interactive Art

General Terms

Interactive Media, Semiotics, Interactive Art

Keywords

Recombinant Media, Information Spaces, Max/MSP, Jitter

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1. MOTIVATION

Our goal is to make visual composition a more engaging and intuitive experience by eliminating the need for traditional desktop interaction devices in the composition process. Additionally, we want the compositions to serve a social function by allowing an audience to observe the composition, encouraging participation. Furthermore, participants could be permitted to take turns modifying the composition.

To this end, we have developed an installation that utilizes color tracking to receive input in the form of gesture-based motion, and uses this movement to control a combinFormation recombinant information space of news media.

We project the information space onto a surface for public viewing. The participant may experience temporary immersion in the information space as she *walks within it*. The visual surrogates serve as simulacra [1] for events and news. The end result is a visual composition, a simulacrum of the author's intended meaning. We observe layers of semiotic structures in our visual compositions within the combinFormation space. In this way human motion and public display can make the combinFormation experience more hyperrealistic [1]. News itself can be seen as a hyperrealism that distorts or embellishes actual events. Our installation provides a further hyperrealistic view into this hyperreality. Through this nested hyperrealism participants can experience multiple levels of immersion.

We intend our art to permit participants to express whatever viewpoint they desire on news topics. The installation is designed to provoke collective thought on the subject matter of compositions and to encourage people to vocalize and express their viewpoints in a public forum.

2. INSTALLATION FUNCTION

We use Cycling 74's Max/MSP [4], which provides the signal processing facility for gesture-based interactions. The Jitter [3] plug-in provides visual processing of participant movement by means of color tracking. Additionally, a Max patch written in Java enables the video input, as received by Max/Jitter, to be decoded and translated into gesture-based messages. These messages are then communicated to the combinFormation system. Max/Jitter captures movement with a ceiling-mounted camera that monitors a bright color on top of the participant's head. A delineated rectangle on the floor gives the participant orientation and allows them to understand the camera/information space boundaries (see fig. 1). There is a direct mapping between the rectangle on the floor and the visual composition projected in front of the

participant. In this way, the participant takes the place of the mouse. They have the feeling of "walking" within the information space.

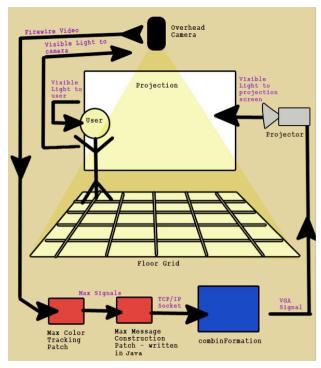


Figure 1: Flow of Interaction

Max/MSP/Jitter and Java

A ceiling mounted camera provides input to Max/MSP/Jitter, which tracks the position of various colored artifacts on the participant's person. Interactions are achieved with simple gestures. An orange dot on a hat corresponds to a cursor in the combinFormation window. The orange dot is tracked by Jitter as the participant faces the projection, producing 2dimensional coordinates corresponding to the participant's position in the information space. In addition to orange, the patch tracks the colors red, green, blue, and yellow for gesture interpretation. The Max/Java patch is a Java object embedded within the Max/MSP/Jitter environment. The Java patch takes tracking data from the Max/MSP/Jitter environment and makes decisions about what information (messages) to relay to combinFormation. The Java patch opens a socket connection with the combinFormation remote daemon and sends regular tracking updates via TCP/IP to move the cursor and perform operations as the participant desires.

combinFormation

combinFormation [2] is a tool for interactively creating recombinant information spaces and collections. In our system, these are ultimately visual compositions consisting of images selected by the program and presented to the participant. combinFormation offers a variety of facilities for interaction; we use a subset of these tools.

combinFormation uses an agent that learns the participant's interests in information elements through expressions of

interest. Interest is enumerated as *negative*, *neutral*, and *positive*. The participant sets the interest level that she desires and interest is expressed automatically with each operation on a media element. The interest level can be changed at any time throughout the participant experience; in this way the participant trains and informs the agent about her preferences and intentions. The agent uses algorithms that use the participant's expressed interests to crawl and download appropriate web media.

We utilize two tools from combinFormation's toolset: grab and cut. The grab tool, as the name implies, allows the participant to move media elements within the information space. Media elements can be arranged and stacked in any way with the grab tool. The cut tool provides the means for eliminating unwanted elements. Both the cut and the grab operations express interest in their target media elements based on the current level of interest.

3. CONCLUSION

Participants were able to personalize the meanings they expressed, while preserving previous themes if desired. The compositions emotionally influenced the audience members, who in turn communicated their own interests in particular media elements.

Our decision to use news media in our installation proved successful in permitting varied and provocative participant responses. Furthermore, the installation facilitates composition in a manner suitable for collective consideration. This is ideal for a topic such as news, which is always of collective interest.



Figure 2: Sample User Composition

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- [4] Max/MSP. http://www.cycling74.com/products/maxmsp.html.