

Imagination Environment: Using the web as a source of popular culture

David A. Shamma*
Intelligent Information Laboratory
Northwestern University

Kristian J. Hammond†
Intelligent Information Laboratory
Northwestern University

1 Introduction

In this installation, we explore a new role for the computer in art as a reflector of popular culture. Moving away from the moreso static audio-visual installations of other artistic endeavors and from the traditional role of the machine as a computational tool, we fuse art and the Internet to expose cultural connections people draw implicitly but rarely consider directly. The online world is a reflection of these links, this connectivity, and the shared culture that built them.

The Imagination Environment reflects these links back to us; from the virtual world into the real. Using any video stream as its starting point, it discovers images linked to the words being said, and shows us the flow of connections between ideas and images that we ourselves crafted. Exploiting the connectivity of the Web and the core technologies of information retrieval, it opens a window to our world that is a machine's "imagination" of who and what we are.

2 Information In-The-World

Search engines, web logs (blogs), web portals, and individual web sites are reflections of our cultural reality. They represent a set of created systems that expose and heighten the connections we use, but rarely see, both in our minds and in the online world. The images and media online are linked and indexed by how we refer to them in a variety of contexts: blogs, news feeds, and web pages. By exposing both their results and processes, these systems reflect and reuse the mundane, the available, and the purely popular as art. In doing so, the system itself is an artistic agent, gathering, sifting, and presenting our own reality back to us as it moves through the web, seeking information.

The Imagination Environment uses advanced information retrieval techniques on media streams that are invisible to us. When we "watch" TV, the TV receiver is reading (actually decoding) the closed captioning (CC) stream and using it to identify what is being said. Then, by exploiting indexing mechanisms within search engines, it finds distinct images and displays them as juxtaposition, to externalize either the canonical or the popular culture.

The driving system is an autonomous agent. Each performance is different in both pace and content. The speed of a slow dramatic movie monologue does not match that of a live speech or a fast hip-hop video. Imagination Environment balances its rate of image presentation based on the pace of the content and the available presentation space (number of available monitors). Our introductory work in this area creates a model of presentation complementary to the source media. As a result, an effective flow state for the overall installation is automatically achieved.

The actual accounting method varies depending on the structure of the source. Imagination Environment looks at how many words are in a caption and how many captions are on the screen at once, since each line counts as a caption. It then determines salient words by removing stop words, recognizing characters' names, and so on.

*email: ayman@cs.northwestern.edu

†email: hammond@cs.northwestern.edu



Figure 1: The Imagination Environment running a performance on the wall while watching the 2003 State of the Union address.

Once it determines the set of terms to display, it looks at the number of available monitors and loads new images over the screens that no longer apply to the current video's context. The rate at which this happens is synchronized with the speed at which the captions are sent in the video stream. To keep the flow state engaging, thresholds are set to keep the images from changing too fast or too slow, which prevents the audience from being overwhelmed or becoming bored. This is a new application of software agents and artificial intelligence technologies.

3 Network Arts

This project creates a new area that we call *Network Arts*. At the core of network arts are technological advancements in information retrieval, social networks, and semantics, and a new cultural understanding of meaning, impact, and artistic portrayal. It is important for the portrayal to be meaningful to the culture it represents and not esoterically complex. Our goal is that in this new form of art and technology, we introduce the machine in art; a role in which the machine is used to expose the world of communication and cultural connections that are linked together and within the grasp of online systems. Doing this creates a new breed of artists who are able to harness the power of these interconnections to not only create art with the machine, but also create artistic agents that themselves are active in the creative process.

References

- SHAMMA, D. A., OWSLEY, S., HAMMOND, K. J., BRADSHAW, S., AND BUDZIK, J. 2004. Network Arts: Exposing cultural reality. In *Proceedings of WWW Conference*, ACM, World Wide Web.