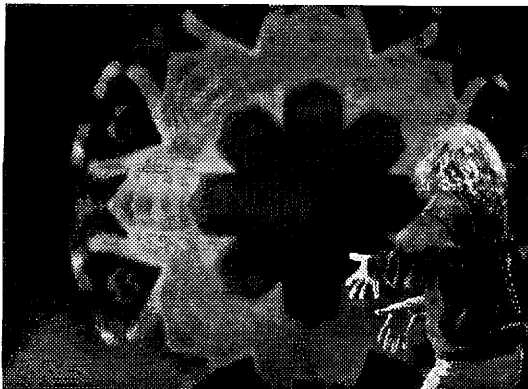


Iamascope: An Interactive Kaleidoscope

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The Iamascope is a highly interactive multimedia interactive art piece. It uses a video camera lens as the eye of a kaleidoscope and projects a kaleidoscopic image of the user onto a large screen at 30 frames per second. A vision subsystem is coupled to the electronic eye to control musical tones using a sustain algorithm at 15 fps. Finally, a wireless microphone is attached to the performer which produces echoes corresponding to the audio analogue of the kaleidoscopic reflections. Once inside the Iamascope, users can gesture, dance, sing and speak to control and choreograph the imagery and music in *real-time*. Instantly, participants are engulfed in beautiful images and music which are reflections of themselves. The figure shows a single frame from the Iamascope in grayscale. Both the audience and the user experience a rich aesthetic interactive experience. In addition to being ubiquitous, the computer interface supports intimacy between the user and the system.

There are three main perspectives which the Iamascope may be understood from that are discussed in the poster: application of art and technology, intimacy with the interface and ubiquitous computing [1] [2]. The Iamascope is an example of using technology for an interactive work of art. When computers are used for artwork it is often difficult to assess the "usefulness" and "applicability" of the work with respect to computer technology. This is probably a function of the subjectivity with assessing the "usefulness" of art in general. The assessment difficulty is exacerbated by the fact that the artwork must be interpreted in the jargon of computer science where it becomes a "device". First, it must



be agreed that providing an aesthetic experience is a useful "function" of a "device". Second, the degree with which a "device" can achieve its aesthetic function is a measure of its usefulness. Third, when people appreciate artwork they are "users" interacting with the "device". If these three properties are agreed upon, then it is reasonable to assert that we can learn about human computer interaction from artwork which is created with computer technology. In the case of the Iamascope, the images that are produced provide an aesthetic experience for the participant(s) in front of the screen. Further, as the participants move and dance the image responds to them giving an intimate encounter with the whole system; further enhancing the aesthetic experience and thus the success of the system as an interface. One can consider the experience to be similar to playing a musical instrument where the emphasis is on how body movements create auditory effects, except with the Iamascope the emphasis is on the visual effects; thus it can be thought of as a *graphical* instrument.

The Iamascope demonstrates some of the principles for creating a computer interface which supports intimacy. Some of the factors are:

- providing feedback in real-time
- providing new functionality for the user
- supporting integration of the device into model of self
- providing a learning path which supports development of highly skilled users to finely control the images allowing for personal expression

The Iamascope is also an excellent example of ubiquitous computing. To use the Iamascope the user does not have to learn new skills. However, the nature of the interaction allows the user to improve their skills to a very high degree to finely control and synchronize the images produced by the Iamascope which allows them to use the Iamascope as a new medium for human expression.

References

- [1] J. Cooperstock, S. S. Fels, W. Buxton, and K. C. Smith. Reactive environments: Throwing away your keyboard and mouse. *Communication of the ACM*, to appear.
- [2] M. Weiser. Some computer science issues in ubiquitous computing. *Communication of the ACM*, 36(7):75-83, July 1993.