DISTRIBUTED CHOREOGRAPHY
A Video-Conferencing Environment

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INTRODUCTION

In the last few years, a variety of computer-mediated tools have begun to expand the physical boundaries of where and how we interact with others. The rapidly evolving global network of interactive computer systems, known as the Internet, now provides unprecedented opportunities for connectivity and collaboration. The convergence of artistic practices with multimedia software, computer-mediated communication, distant education, multiple site performance, and collaboration, is bringing about dramatic change in many fields.

Janus/Ghost Stories, which I choreographed, was a networked dance performance articulating the concept of "distributed choreography."[1] The piece was presented at the International Dance and Technology Conference in 1999, distributed between two performance locations in the United States: The Web Café at Arizona State University and the Videoconference Lab at the University of California, Irvine. It used the technology of a two-way video-conferencing system over broadband networks, rather than Web broadcasts (i.e., one-way streaming media). In its creation of choreography in a video-conferencing environment, *Janus/Ghost Stories* can serve as a model for future explorations in structuring distributed choreography using the Internet.

WHAT IS A NETWORKED PERFORMANCE?

Networked performance is a synchronous approach to communication; that is, a shared activity between two or more people who are collaborating at the same time. Collaborators may be located at the same place or in different places. Using video-conferencing systems, people at different locations can see and hear each other simultaneously. This can be a two-way or multipoint method of communication. The basic system consists of computer, monitor, video camera, microphone, and speakers at each site.

Software such as CuSeeMe or iVisit provides video-conferencing capabilities over the Internet. The drawback of such systems is that image and sound quality can be

poor due to communication bandwidth limitations on the Internet. Basically, a networked performance serves to expand, on a global level, the "Active Space" environment for performers and the meeting place for audience participants. Active Space is a concept initiated by computer video artist John Crawford in 1993, referring to a computer-mediated environment, a space where there is mutual influence or collaboration between people and machines. I began working with Crawford in 1993 to develop and participate in a series of workshops and performances where dancers, actors, and musicians would interact with each other and machines to explore artistic applications such as live performance and installations.

As a consequence of their direct involvement in an Active Space environment, individuals have opportunities to collaborate and take responsibility for their own performance tasks while still being connected to a broad landscape of others interested in working on the same project. Text and images that are developed in parallel with the structured improvisation or choreography are cultural in origin, becoming important modes of communication that reflect the aesthetic sensibility of the artists.

In an article entitled, "Aesthetics of Telecommunications," Eduardo Kac suggests that performance applications of collaborative on-line technologies can be characterized as:

> employing computers, video modems and others devices—using visuals as part of a much larger interactive, bi-directional communication context. Images and graphics are created not simply to be transmitted by an artist from one point to another, but to spark multidirectional visual dialogue with other artists and participants in remote locations. This visual dialogue assumes that images will be changed and transformed thoughout the process as much as speech gets interrupted, complemented, altered and reconfigured in a spontaneous face-to-face conversation. Once an event is over, images and graphics stand not as the "result," but as documentation of the process of visual dialogue promoted by the participants.[2]

Kac's comment implies a kind of structured improvisation, one that is an iterative process between people and machines. As individuals all over the world become technologically-equipped and interested in the exchange of visual imagery and information, video and conferencing systems are becoming more well-suited to creating Active Space environments. Internet 2 is the next generation Internet, providing advanced networking capabilities for high-speed transmission of moving imagery and sound. This new version of the Internet is beginning to expedite research and creative activity partnerships for performers. The hardware components for an Internet 2 performance include media equipment such as audio processing hardware, microphones, speakers, video cameras, and projection equipment.

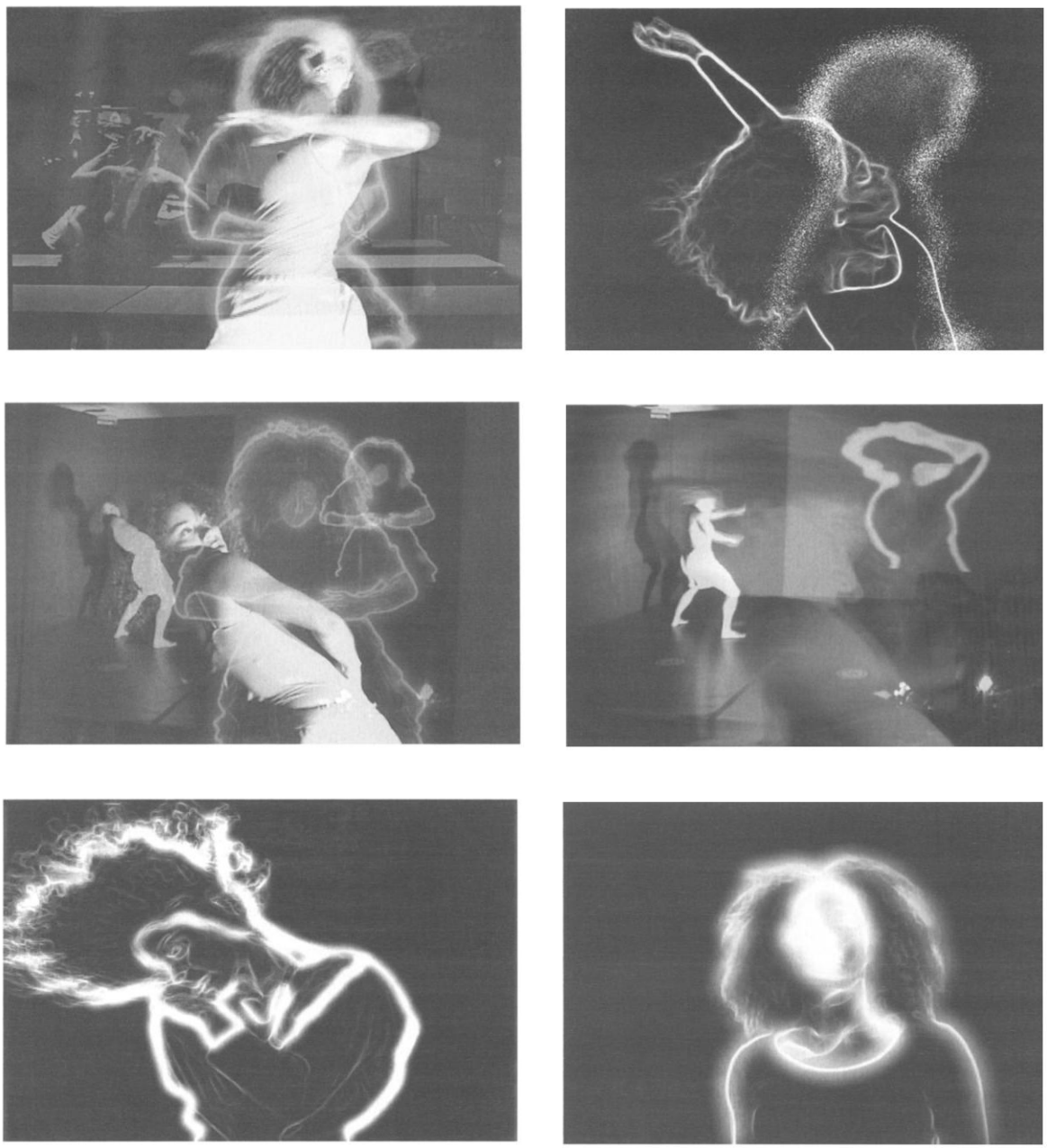
Examples of Internet 2 performances incorporating music, theatre, and dance include: *Technophobe and the Madman*[3] where artists at New York University and Rensselaer Polytechnic Institute collaborated for six months across 160 miles between Troy and Manhattan in New York, culminating in a performance on February 20, 2001. In the same year, on November 29, an historic Internet 2 performance took place between University of California, Irvine and New York University, *Songs of Sorrow, Songs of Hope*. This multimedia performance, which I co-directed, was in response to the September 11 terrorist attacks and subsequent events.[4]

JANUS/GHOST STORIES

The concept of bi-directional communication—a visual dialogue—was significant for the development of *Janus/Ghost Stories* as a telematic performance between the University of California, Irvine and Arizona State University. The piece was comprised of three sections totaling 12 minutes of live, synchronous, networked dance, music, and video. In realizing the choreography, it is important to consider the aesthetics of the environment—forms in the space—to determine what can happen there. Here, the appearances at one site became the silhouette for the dancer at the other site. Once the technical logistics were worked out, such as coordinating time differences between the locations for rehearsals and for performance, the speed at which images and sound could be transmitted, resolution of the images, and the timeline structure so that each site would know when to begin and when to end, the choreography with the dancers began. One by one, narratives were created that focused on the dancer's "internal atmosphere." During these working sessions, which were improvisational in approach, monologues of the dancers' remembered past were generated and key movement phrases were developed.

Large video projection screens were placed at each site and audio was amplified through a speaker system, one at each site. I collaborated with John Crawford to develop a structure incorporating two kinds of visual juxtapositions: 1) local video juxtaposed with remote video; 2) live video juxtaposed with prerecorded video. We preplanned certain aspects of the performance, such as content of the prerecorded video, length of time for each section, sound cues, and movement transitions. The dancers and musician were given motivations that involved "shifting states of being," as in having a vision, dreaming, shadow, and sleep. They were given spatial metaphors, such as riverbank, riverbed, and ghetto. The monitors and screens became like semi-transparent membranes or a looking glass where the dancers, while in a state of dreaming, could watch things happen.

In the two physical locations, the participating dancers were Lara James, Seth Williams, Ashley Holladay, Sara Reese, and Jennifer Brown, with musician Norman Beede, and video processing by John Crawford. Melanie Rosa manipulated the real time camera shots, transitions, and special effects (cut, dissolve, overlay, solarize, edge- detect) of the dancers using cameras in the video-conference room in



Janus/Ghost Stories. Choreographer, Lisa Naugle; digital video, John Crawford; dancer, Lara James. Left to right, top to bottom: emerging from the ghost bodies, interacting with other dancers in California; energy breaking away from the body; the beginning of confusion, flashes of red; confusion continued, flashes of purple, the strength of past experience or memory; pushing through boundaries; ghost figures join, Lara escaping in all directions, lights trailing, leaving parts of herself behind. Photos: Courtesy Lisa Naugle and John Crawford.

California while Crawford manipulated prerecorded dance video and captured live dance in Arizona. In this way, the interaction between live choreography and video sending and receiving from both locations was composited (designed and layered) during the predetermined length of the piece. Each layer of imagery provided a new level of abstraction in relationship to three main sections.

In the first section, "Dreaming," white outline and particles were used to represent energy breaking away from the body. In the second section, "Confusion," flashes of white, red, yellow, and purple outlines, indicating the strength of past experience or memory, follow the curves of Lara's body. Lara's live and recorded body pushed through an indistinguishable environment. In several instances, the video responded to the music transitions: jump, cut, dissolve, etc. These responses were real time editing choices made by Crawford during the performance to accompany the music. By the end of the piece, "Escaping," a collection of events has left its traces: the "ghost figures," having gone through various transitions, take on new qualities that were seen earlier as aspects of Lara's recorded body. The boundaries of the bodies are sketched in white outline. The end for Lara was somewhat different in that she entered a process we called "trailing" (this is a digital recording effect through which the video image leaves part of itself behind the actual movement of the dancer). They are traces of where the body has been and where it will go next. As Lara's body reach expands, the trails of colorful lines escape in all directions and we see that there is more color and vibrancy, the immensity of light passing through space.

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In developing the choreography, I worked with the dancers in a process-oriented way to create a kind of "mutual influence scenario." I asked them to respond to the sound and video images they saw on the screens, which were displayed around the rooms, and to each other. The visual feedback from the same-site monitors and from the remote participants allowed for intuitive and spontaneous response, even though there were a few constraints within the environment. Dancer Jennifer Brown made this comment about her experience:

> I climbed up and saw the others standing high above me. I looked to see where the cameras were focused, would I see myself on the screen? The cameras surrounded us. I jumped up, and was caught by someone who then pulled me onto the table [the riverbank]. I saw my own image and Lara in Arizona on the same screen. I tried to escape to the other table [the other side of the riverbank]. I sat down [on the table] and started rocking. I was embarrassed, not sure if anyone was looking at me. There was no "front." It was a very different kind of performance experience for me and took some getting used to.

This practice of distributed choreography characterizes an area of choreographic vision that includes the collective intelligence of people working collaboratively,

alongside the peculiar idiosyncrasies of telecommunication tools, for the purpose of a networked performance event.

Janus/Ghost Stories is art *in* the Net as opposed to art *on* the Net. Art on the net uses the Internet as a distribution medium, whether in the form of virtual galleries, i.e., displays of 2-D artworks or photography that in themselves bear no relation to the Internet, or in the form of a channel for conceptual artworks, in which case the Internet is an effective but potentially replaceable presentation tool. In contrast, art in the net is germane to the medium of the electronic network; it plays with its protocols and technical peculiarities, it exploits the bugs and pushes the potentials of software and hardware—it is unthinkable without its proper medium, the Internet.[5]

One of the goals of *Janus/Ghost Stories* was to learn how to adapt content from existing movement phrases and then redesign it into performance format for distant collaborators and audience. Another goal was to see how much dance information (video, sound, real time movement) we could share with a distant site. Could we share a performance without loss of visual or audio information? The answer is yes. Some of the fundamental attributes of distributed choreography are:

- Two or more performers are joined through broadband network connection.
- Performer bodies merge in a virtual, fourth dimension, which is projected onto large screens.
- A combination of choreography, visual imagery, sound, and real time video interaction.

Internet performance brings into question the body's relationship to physical and virtual corporeality, technology, and gravity. It also involves issues related to non-site-specific audiences on the Internet—audience members who may be invited to stay for an informal "televideo talk" or participate in Web-based discussion. It is clear that several important issues are at stake here: technological, aesthetic, pedagogical. The entire question of performer-audience relationships in relation to distributed choreography and Internet performance awaits further exploration. With a Web site component to the performance the interactive role of the audience is possible. Still, how does one who is surfing the Net understand the performance? And, what of the role of audience in video-conferencing?

NOTES

1. On "distributed choreography," see Lisa Naugle, "Digital Dancing," *IEEE Multimedia*, Vol. 5. No. 4. IEEE Computer Society, October–December, 1998.

2. Eduardo Kac, "Aspects of the Aesthetics of Telecommunications," originally published in *Siggraph Visual Proceedings*, eds. John Grimes and Gray Lorig, New York: ACM, 1992. Also online at http://www.ekac.org/Telecom.Paper.Siggrap.html.

3. Rowe, R. et al., *Technophobe and the Madman*, Internet 2 Music Performance, February 20, 2001. http://www.academy.rpi.edu/projects/technophobe.

4. For more information on examples of performing artists using high-speed Internet applications, see my forthcoming article, "Examining the Dimensions of Digital Dance for Choreographers and Performers," and doctoral dissertation thesis, *A Study in Collaborative Choreography Using Lifeforms and Internet Communication.*

5. A. Broeckmann, "Are you Online? Presence and Participation in Network Art" in *Ars Electronica: Facing the Future*, ed. Timothy Druckrey, Cambridge: The MIT Press, 1999. p. 438.

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