Beall Center for Art and Technology
University of California, Irvine

Active Space: Interactive Videodance

by Lisa Naugle and John Crawford
with Frédéric Bevilacqua

Exhibition: May 12-28, 2004
Premier Performance: May 12, 2004

Press Briefing
May 11 10:00 A.M. -12:00 P.M.
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Directions:
http://beallcenter.uci.edu

Project Description

Active Space: Interactive Videodance is a unique computer-mediated environment premiering this spring in a performance and installation sequence at the Beall Center. During the performances, dancers and choreographers will showcase the artistic potential of the system. In the installation component, visitors can dance with the projected figures, star in their own performance art show or just "play" the space like an instrument.. The Active Space represents an exciting new area of digital arts research: interactive interfaces that create new forms of communication between people and computers, freeing us from the bonds of mouse and keyboard. Active Space illustrates the Beall Center's continuing commitment to developing new modes of artistic expression and experience through the use of technology; UCI arts researchers, John Crawford and Lisa Naugle, through a two-year residency in the Beall Center to continue their development of the Active Space, have focused on the advanced uses of video-based motion tracking, motion capture animation, real-time computer graphics and special effects to generate visual imagery and sound.

Artists' Statement

"A central objective of our Active Space research is the development of imaginative forms of performance and installation where artistic vision and technical innovation share the spotlight. Motion capture is the technique of capturing movement in 3D space and representing that data within a computer system, usually as part of a computer animation pipeline. Motion tracking involves real-time sensing of location, speed, duration and various other characteristics of movement, often as part of an interactive system. Typical applications of motion capture tend to result in realistic animations, but the aesthetic focus of our work goes beyond realism to explore notions of imagistic association, embodiment and reflexivity. . We are particularly interested in the dynamic that develops between improvisational and compositional elements. For performers, the Active Space is a different

environment than they are used to working in. Traditionally, when technology is used in performance, it is common for performers to feel that the technology is "happening to them", out of their control. Our approach in the Active Space is to provide an environment that allows performers to influence and interact with technical elements in a direct, immediate way. The qualities of this interaction can generate new internal imagery and enhance the performers' motivation, stimulating new forms of interaction between the performers themselves as well as with the technical elements."

Technical Specifications

One of the key components of the Active Space is a video-based motion tracking system that senses and measures the quantity and characteristics of people's movement in the space. These measurements are analyzed over time to create interactive video and audio accompaniment to the movement, combined in real time with the live video feed and drive the playback of video and audio clips from a library of animations and music. stored on a DVD. The video clips are combined in real time with the live video feed from the sensing cameras and resulting "music video" is projected on screens and walls for visitors to see and interact with. The resulting movement of participants calls up new sequences of sounds and images. This responsiveness from the environment inspires further improvisational exploration of movement within the environment. In addition to its use in dance and other types of live performance, the research results of this project are also applicable to other areas, such as interface design for indoor "sensing" spaces, installation, game interfaces, and film special effects.

Performance Equipment:
2 Macintosh G4 computers, VNS motion tracker, Aurora video capture card, MOTU sound module, DVD players with computer interface, video mixer with computer interface, 5 video projectors, 3 rear projection screens, 5 video cameras, audio mixer, 6 JBL speakers

Performance Software:
Max/MSP, SoftVNS, Active Space software by John Crawford and Frederic Bevilacqua

Development Environment:
Macintosh and Windows computers, Vicon 8 motion capture system, 3dsmax, Character Studio, After Effects, Final Cut Pro, DVD Studio Pro, custom animation software by John Crawford

About the Artists

Lisa Naugle, Ph.D. is Associate Professor of Dance in the Dance Department of the School of the Arts at the University of California, Irvine. She holds a Ph.D. and MFA in dance from New York University, and has performed and choreographed throughout Europe, Canada, and the USA. Her articles have been published in numerous journals, she serves on the Board of Directors for the International Dance and Technology organization, and is a founding member of ADaPT (Association for Dance and Performance Telematics).

John Crawford is a digital media artist, interactive performance director, software developer and interaction designer. He teaches videodance, motion capture animation and digital arts at University of California, Irvine. Since 1992, his video animations, projection designs and interactive performance systems have been featured in venues across North America and many European countries, and he has taught performance and technology in California, New York, the Pacific Northwest and China. He originated the Active Space concept in 1993.

Frédéric Bevilacqua was born in Lausanne, Switzerland, in 1967. He has earned a degree in physics engineering (1991) from the Swiss Federal Institute of Technology (EPFL) and a Composer's Certificate from the Berklee College of Music in Boston (1993). He worked at EPFL on an industrial project with Haemonetics SA to develop optics sensors. He is a Post-doctoral Fellow at the Beckman Laser Institute and Medical Clinic, UC Irvine. Currently, Frédéric is working on multimedia music installations at IRCAM, Paris.