Riverbed
Multimedia Artists Enhance the Dance with Compaq Workstations and Discreet Software

Situation

When a friend-of-a-friend introduced multimedia artist Paul Kaiser to dance legend Merce Cunningham, who would have guessed that the chance meeting would result in Biped, a dance performance lauded by audiences worldwide.

Kaiser and fellow artist Shelley Eshkar have been collaborating on interactive multimedia art since 1995. A few of their notable projects include Hand-drawn Spaces, a virtual dance performance created with Merce Cunningham; Ghostcatching, a virtual dance installation with dancer Bill T. Jones; and visual projections for Biped, the new Cunningham dance piece.

Kaiser reports that Intel Pentium-based Compaq SP700 workstations and software from Autodesk's Discreet division are the tools that enable him, Eshkar, and other artists to realize their visions. "Until recently, special effects were created on high-end workstations that were beyond the financial reach of independent artists," Kaiser says. "Today, Compaq Professional Workstations, coupled with 3d studio max® and character studio® software, offer extremely sophisticated yet affordable animation solutions on the desktop."

Problem/Challenges

When Cunningham invited Kaiser and Eshkar to create the stage decor for Biped, which was named after a module of character studio software, the idea of flickering channels on TV or the Internet was their only direction. According to Kaiser, Cunningham choreographs independently of the music and the set design to see what emerges from serendipity.

Kaiser and Eshkar were honored to work with Cunningham, whose groundbreaking choreography spans 50 years and who regularly collaborates with notable contemporary artists like Robert Rauschenberg and Andy Warhol. Yet, going into the project, the artists wanted to create interesting visual motifs that would not distract from Cunningham's renowned choreography.

Solution/Benefits

After sharing a few sketches with Cunningham, they got the go-ahead on the concept. Next, Eshkar and Kaiser had optical cameras record dancers performing about 20 Cunningham movement sequences. By placing reflective markers on three dancers, they were able to capture their movements and create a three-dimensional data set. Next, Eshkar and Kaiser fed the data into character studio software, where the motion-capture information was complemented with hand-drawn figures. The result is a complex rhythm of images that are projected during the performance. All of the images were created and rendered on a few Compaq workstations.

At times during the dance performance, which has been performed at Lincoln Center and is now touring Europe and North America, the artists alternate projections of hand-drawn human figures with hand-drawn abstract spaces. Throughout Biped, live performers share the stage with animations of 20-foot-tall dancers. Projections from a Compaq workstation bleed through the scrim, hitting strips of white reflective paper and creating a 3D effect on the stage.

"The history of 20th century art has been about abstraction," Kaiser concludes. "Yet, in computer graphics it's been the quest for photo-realism that has pushed the technology, not only in entertainment but also in research. Now, as artists, we can take advantage of the advances in that technology to create new forms of abstract visual expression. And we can bring computer graphics to whole new areas, such as the dance stage of Biped."

All Images Courtesy of Riverbed.