



PLUGGED IN

Dancers Turn to Technology to Amp Up Performances.

BY EMILY MACEL

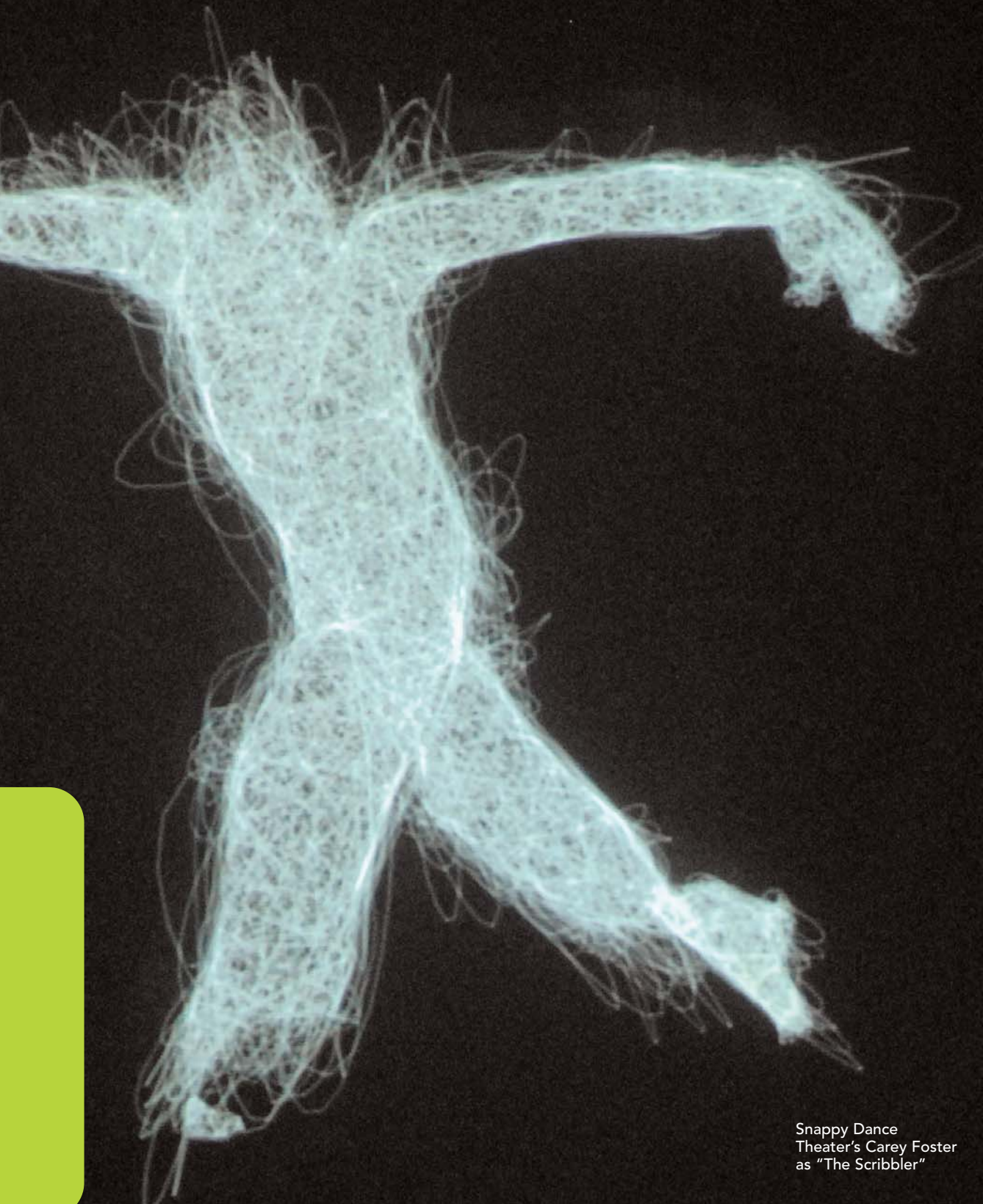
A magician's goal is to astonish an audience with seemingly impossible feats through illusion. There is a skill behind it, but the crowd only sees the magic. Dance, an art form sometimes built on pleasing through illusions, has reached a new level of sleight of hand.

Computers have invaded the scene. Stages become moving images—cars crash or rain falls—and the dancers perform through the elements. Bodies are duplicated, triplicated, contorted, and then paired with themselves through the power of projection. And digital dancers bend, turn, and jump on computer screens as they are choreographed on an X and Y axis before ever reaching the stage.

Welcome to the age of dance and technology. It's a magical place. It isn't a "new" era, but an ever-evolving one that is inspired by dance artists past and present. These include Loie Fuller and Alwin Nikolais, as well as current choreographers Merce Cunningham and Bill T. Jones, legends who pioneered metaphor using lights, cameras, and computers. But each new generation of dancers pushes the field's technological capabilities, like those today who tap their iPods. The groundwork has been laid, and the possibilities are endless.

Choreographer Dawn Stoppello and composer/media artist Mark Coniglio have been working in multimedia since they

DANCE & TECHNOLOGY
a special report on today's trends



Snappy Dance
Theater's Carey Foster
as "The Scribbler"

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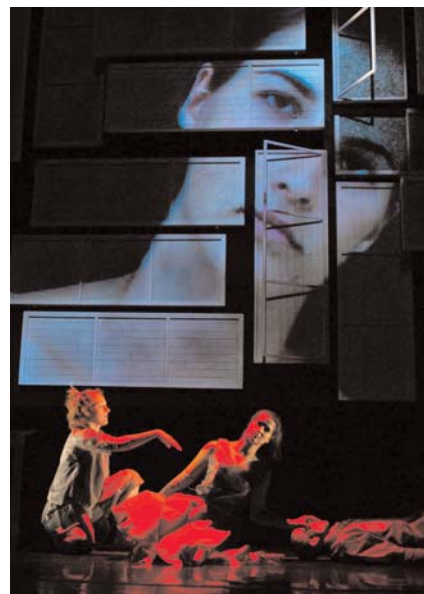
Above and right: Troika Ranch in *16 [R]evolutions* and *Future of Memory*. Below: Merce Cunningham Dance Company's Holley Farmer and Lisa Boudreau in *Biped*.

met at CalArts in 1989. Coniglio, a self-taught computer programmer, created the MidiDancer, a wireless movement-sensing outfit that transmits a dancer's positions to a computer. The information can be used to control video, audio, lighting, and set.

In Plane (1994) was their first piece with the MidiDancer. Stoppiello conducted an orchestra with the flick of a finger. Electronic drums and symbols crashed and echoed when she rolled a shoulder or lifted her arms. She could make instant choices in dynamics and silence with the real-time score. The computer was programmed to sense her movement phrases and detect when to begin the visual projection—when she plummeted to the floor, a prerecorded version of her leapt onto a screen. The result is a struggle between the performer and her virtual self.

"All of the music and video playback was controlled by the dancer's movements," says Coniglio. When the piece premiered at the Walker Art Center in Minneapolis, they knew they were onto something. A year later they founded their company in New York, Troika Ranch.

In 1999, Coniglio developed Isadora, a graphic programming environment that provides interactive control over digital media, with special emphasis on real-time manipulation of digital video. Isadora was first revealed at a residency in Nebraska, then at the Monaco Dance Forum in 2000. "We named it after Isadora because she was a pioneer. A radical," Stoppiello says. "We had no idea it would become the amazing force that it is," says Coniglio. It's now used in many companies across the world, including the Bebe Miller Company, Korea's Dance Company A-Soon, London's EDge Dance Company, and Seattle's Lingo dancetheater. The computer program allows you to build a series of interactive effects, using a scene editor and toolbox that can be manipulated by lighting, music, and other stage cues. A particular moment in the choreography, like a deep plié, will transmit the message from the dancer's body to Isadora, which then triggers a projected image. This image can be a real-time version of the dancer onstage, but further manipulated to change the appearance (slower, faster, repeated in loops, etc.).



That same year, the International Dance and Technology conference brought companies from around the world to Arizona. It's also the year that *Biped*, a collaboration between Merce Cunningham and multimedia artists Paul Kaiser and Shelley Eshkar, premiered.

In *Biped* live dancers partner onstage while a forest of thin, color-changing projected lines provide a maze for a virtual character to dance between and hide behind. The musical score is haunting, but what's more astonishing is the way the Cunningham dancers nearly meld into the digital dancer's world, and the projected figure into theirs.

Kaiser has worked mainly with



Top: Richard Termine, Courtesy Troika Ranch. Bottom: Stephanie Berger, Courtesy MDCD

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modern dancers because he finds that they have an affinity for the way a computer program might approach a problem. “Merce Cunningham and Trisha Brown make dances in advanced ways of thinking about organizing temporal sequences.”

Ghostcatching, a collaboration with Bill T. Jones, was also made in 1999. Jones appears onscreen as a chalk-like drawing—a beautiful web of colors weaving through each other as he dances. The accompaniment is his own voice: He hums and sings gospel hymns while the ghost-like virtual figure cuts through space with sinewy arms and legs.

“With Merce,” says Kaiser, “it’s relentlessly and purely about movement, stripped as much as possible of connotation. With Bill T. Jones, at his best it’s the opposite. The associations of a particular kind of body, in his case black male body, are key. We wanted to find out what would happen when you take away his physical appearance but keep his identity creating movement.”

In 2005 Kaiser, Eshkar and fellow interactive artist Marc Downie worked with Trisha Brown on *how long does the subject linger on the edge of the volume*. They developed it at Arizona State University, where live motion-capture of the dancers was projected in abstract



Jonah Bokaer in *Charade* for DTW’s Family Matters series

ways. Visually stunning computerized lines and shapes are spurred by the dynamics of the dancing. When you see the dance, the lines look like they are forming and re-forming in the air itself.

Jonah Bokaer, a Cunningham dancer, has been inspired by performing in *Biped*. Bokaer uses software called DanceForms to build his own choreography. DanceForms evolved from LifeForms, a basic 3D animation software developed by Credo Interactive that Cunningham first used in 1990. “With

blogging and YouTube it’s such a digital culture. Using technology brings dance up to date with other moving images,” he says. DanceForms allows you to start with a digital dancer that can appear as a series of circles, a skeletal figure, or a human one, and to move the figure using commands. You can create a virtual set of movements, and move the dancer along the horizontal, vertical, and three-dimensional planes.

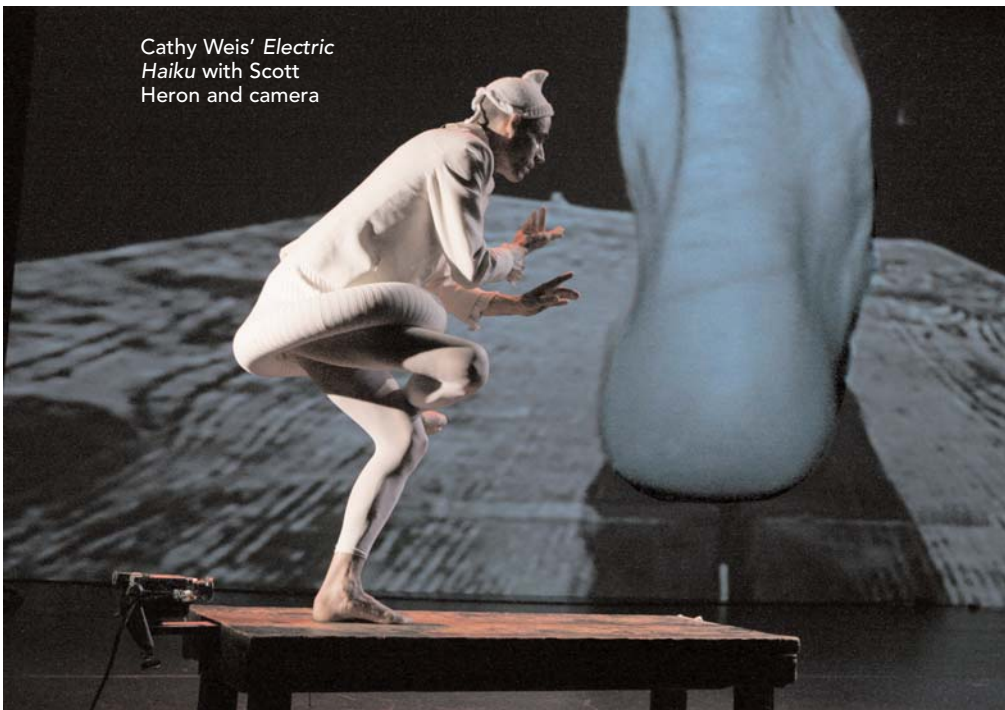
“The best kinds of media works are technically and artistically vigorous,” says Bokaer. “You can use techno gimmicks, but it must be rigorous.” Bokaer’s newest work, *Minus One*, premieres this March at the Danspace Project in New York City. It will reveal the accumulation of motion-captured movement taken over the course of a year.

Coniglio says that projection can fail. “A big mistake in technology is in projection—there is a giant image and no one is looking at the dancers,” says Coniglio. A more successful means is integrating them as characters. “When the screens aren’t so big, they become another dancer onstage.”

Cathy Weis has been integrating technology into her work since the 1980s. Weis says in terms of projections and using technology onstage, it’s essential to think about what draws the viewer’s eye. “If you put a big screen onstage everyone’s going to be looking at it. We all have the habit of staring into a television. When you put a big moving image onstage you dwarf your dancers.”

Yet more and more companies are

Cathy Weis’ *Electric Haiku* with Scott Heron and camera



From top: Steven Schreiber; Richard Termine for *The New York Times*; Courtesy Cathy Weis

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turning on the projectors to illuminate the stage with ever-changing scenic elements. Andrea Haenggi's multimedia dance company, AMDaT, uses both live feed and prefilmed images of her dancers in a kaleidoscopic fashion, projecting them onto three moveable vertical scrims in *Friction*. Influenced by Busby Berkeley, France's Philippe Decouflé performed simple movements for a camera onstage that sent hundreds of Decouflés twisting geometrically across a bright-colored screen. In Ballet National de Marseille's *Metapolis II*, the dancers' costumes became green screens for projections of city scenes.

Finnish choreographer Tero Saarinen uses technology to incorporate the theme of light into his work. "We Finns live with the extremities of light and dark," he says, "from the midnight sun in the summer to the darkness outdoors and artificial light indoors that is everyday life in the winter." He has worked with lighting designer Mikki Kunttu for more than 10 years, collaborating on innovative light-infused choreography.

When Saarinen created *Hunt* in 2002—his take on *The Rite of Spring*—he says he was looking for a power that would stand up to Stravinsky. "I wanted

to raise the question: 'Are we sacrificing ourselves and all our ancestral knowledge for the flood of new attractive information and inventions?'" says Saarinen. Integrating multimedia into the performance felt coherent and appropriate, he says. "It was a big work to find a balance and the right kind of dramatic flow between these strong elements."

"Dance and technology can shake hands but not at the expense of forgetting the essence of dance." —Tero Saarinen

While Boston-based modern dance troupe Snappy Dance Theater does not have a track record of using technology, this year artistic director Martha Mason created *String Beings*, a collaboration with Jonathan Bachrach, a research scientist at MIT's Artificial Intelligence Laboratory. "The intelligence comes in when the camera can actually track where people are onstage and make associations," says Mason. As a dancer moves, the projected version is a series of glowing strings that form the shape of the body. This effect, dubbed "the scribbler," takes human movements and redraws it

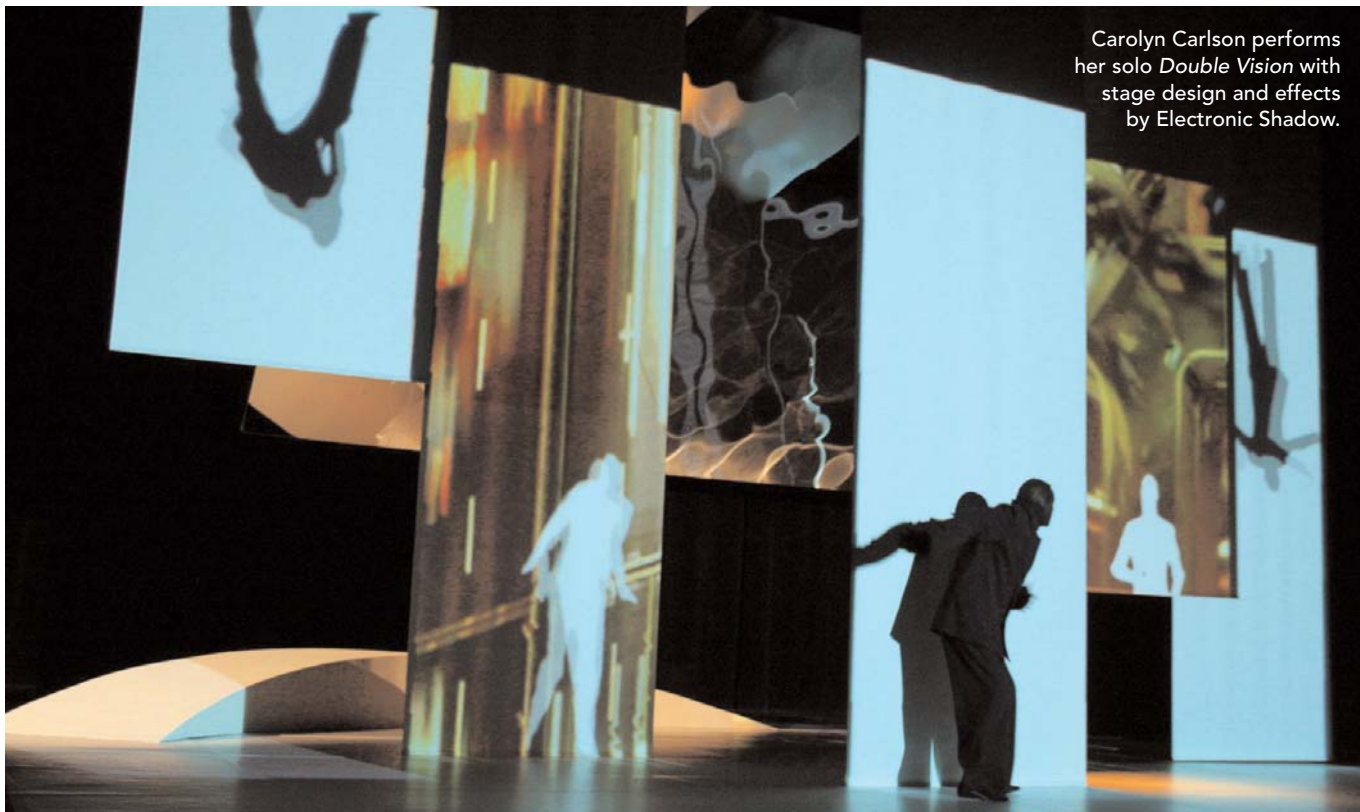
15 times a second. It's eerie, beautiful, and funny at the same time.

The results astounded Mason and her dancers. "First we had to get over being wowed by how cool the effects were. We had to make sure we weren't relying on the gimmicks." Mason says one of the drawbacks of using such advanced technology is limited availability. "We would

work once a week with sheets hanging down with a very small amount of rehearsal time."

The 40-minute work that emerged has 12 sections, some with the extreme technology, and the audiences were captivated. This kind of performance, she says, "inspires people to see computer technology in a new way. There's a computer phobia, but you can see what kind of art can be made that is emotional."

Last year the Monaco Dance Forum showcased the best and brightest of the stars in the dance and technology field. One performance that stood out was



Carolyn Carlson performs her solo *Double Vision* with stage design and effects by Electronic Shadow.

Electronic Shadow, Courtesy the Monaco Dance Forum

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Carolyn Carlson's solo *Double Vision*, a collaboration with architect Naziha Mestaoui and multimedia artist Yacine Ait Kaci.

At times, Carlson wore a white parachute-like dress that covered the entire stage. A camera onstage sensed her movements, which seemed to send ripples of water across the floor, reflected in the huge mirror that hung at an angle above her. As she thrashed around madly in the fabric, a lighting shift caused the stage to visually catch on fire.

Carlson had worked with Alwin Nikolais in the 1960s. "He was using UV lights and slides," she says. "I learned from Nikolais how to use those tools, and work with the choreography and the technology at the same time. I take care when I use video. It has to work with the choreography."

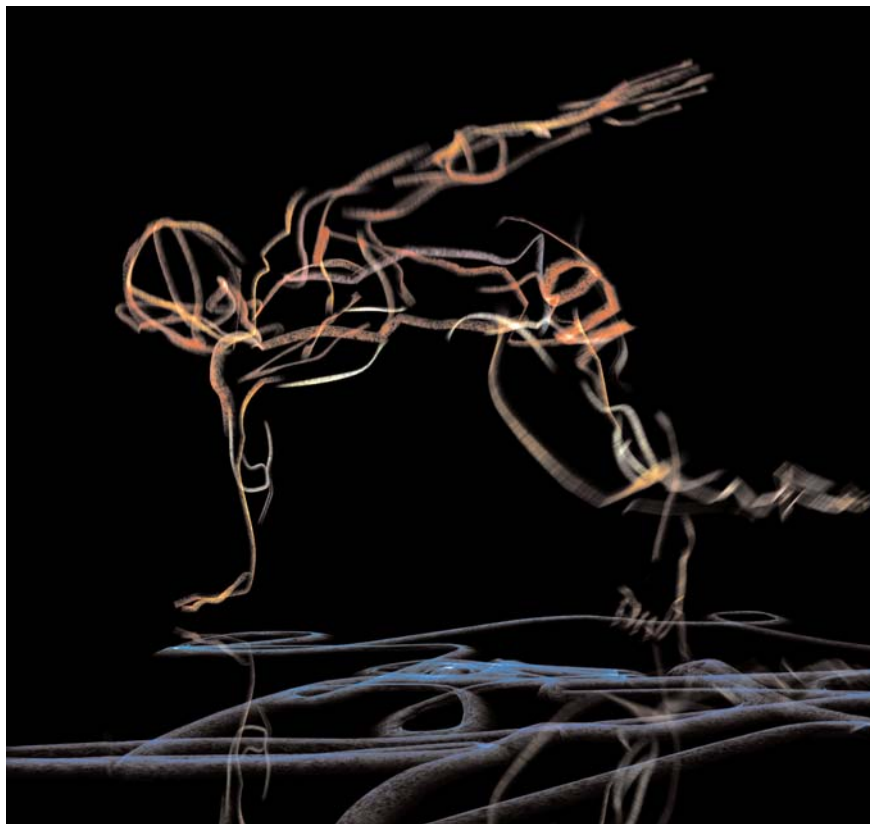
With all that is possible through the magic of computer programming, video projection, motion-capture technology, and artificial intelligence, it's fair to wonder if these tricks threaten the art form. But even those who are integrating technology into their work know that the dancing must take priority. "Our challenge as artists is to embrace technology but also humanity," says Mason. Carlson says that she enjoyed incorporating the technical feats into *Double Vision*. But, she says, "I would not use video in every piece. I love working with this media, but I feel I would repeat myself."

While some believe the future of the arts is moving toward film and away from performing, Weis says dance will become less familiar and people will become more alienated. "But technology has a potential to draw people in who would not have understood what a fabulous form this is. It's about something very different, more primal than just concepts."

Saarinen adds, "Dance and technology can shake hands but not at the expense of forgetting the essence of dance."

Coniglio is constantly surprised by the ways that performers use technology to make their own mark. "It's a bit ironic that with all this computer technology, human beings are the most interesting thing on the planet." Coniglio says. "What's important is the interactivity. The sound, the image, the lighting—they give power to the performers."

Emily Macel is a DM associate editor.



Top: Courtesy Paul Kaiser and Shelley Esthler; Bottom: Julietta Cervantes



Top: Bill T. Jones' *Ghostcatching*. Above: Philippe Decouflé's *Solo: Le Doute M'Habite (The Doubt Within Me)*.