

6013A P.18

From the mid-1970s through the early 1980s, artist Steina Vasulka created a series of videotapes and installations she dubbed "machine vision." Using motorized devices, Vasulka rotated video cameras in front of varying optical tools including mirrors, video monitors and other video cameras. Central to Vasulka's project was the notion of the machine as a "performing system." Motors, mirrors, monitors and video signals functioned as an interconnected network that produced a complex electronic environment. *Allvision* (1976) consisted of two "live" closed-circuit cameras mounted on a large mechanical structure that rotated the cameras around a spherical mirror. What the machine "saw" as the cameras circled the mirror was displayed on two video monitors within the gallery. The gallery view that *Allvision* produced on

forms can achieve semi-independent movement, the area encompasses performance as well as installation. Internationally, the field is dominated by San Francisco-based artist Mark Pauline, founder and director of Survival Research Laboratory (SRL). Since 1978 SRL has launched numerous large-scale, outdoor robotic performances world-wide. Using an array of machinery—including teleoperated military weaponry, large remote-controlled vehicles and "reanimated" animal carcasses—SRL stages warlike spectacles in which machines engage in combat to the death. The result is a highly chaotic orgy of violence and destruction as machines spew fire and even launch rockets. Human operators direct the machine action, but there is a high degree of uncertainty to the events as machines break down or do not perform as anticipated. Human

## women artists are exploring & redefining technology's role in society and in art

the flat two-dimensional screen of the monitors differed radically from what the human eye encountered in the same space. Vasulka's work pointed to the possibility of other visual languages and experiences that are not wholly organic.

*Allvision* was recently exhibited at the San Francisco Museum of Modern Art as part of "Machine Media," a retrospective of work by Steina and Woody Vasulka. Revisiting Vasulka's early machine works seems particularly timely as a new generation of women artists venture into the small but growing field of robotic sculpture. These artists are building performing systems that move beyond Vasulka's pure machine constructs to engage the human form. Using a host of new technologies, including customized software, they are creating sculptural forms that simulate human movement, biological processes, emotions and experiences.

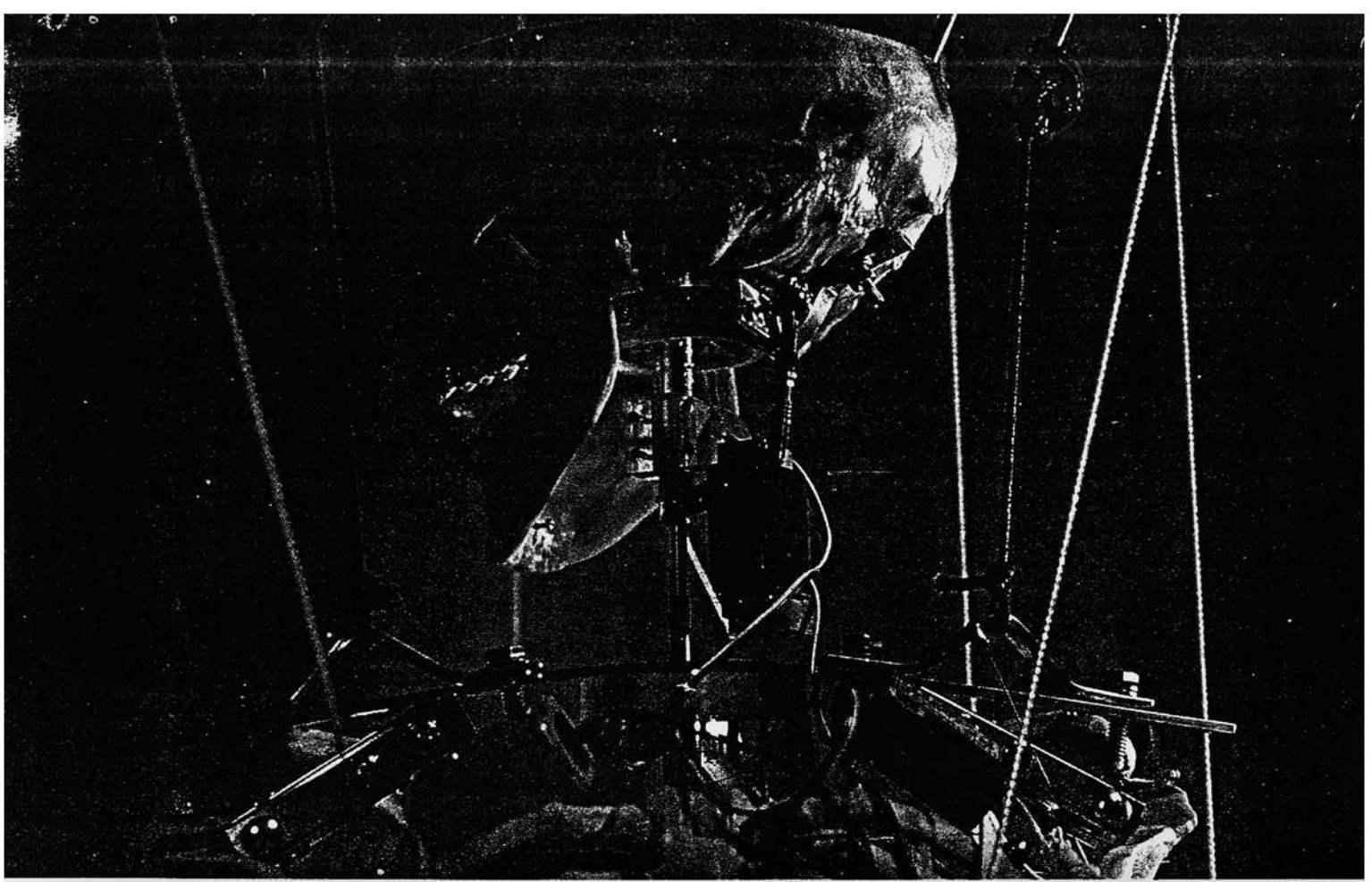
Robotic sculpture is still a somewhat murky territory. Because mechanical

spectators are understandably curtailed off, watching the pyrotechnics from a safe distance.

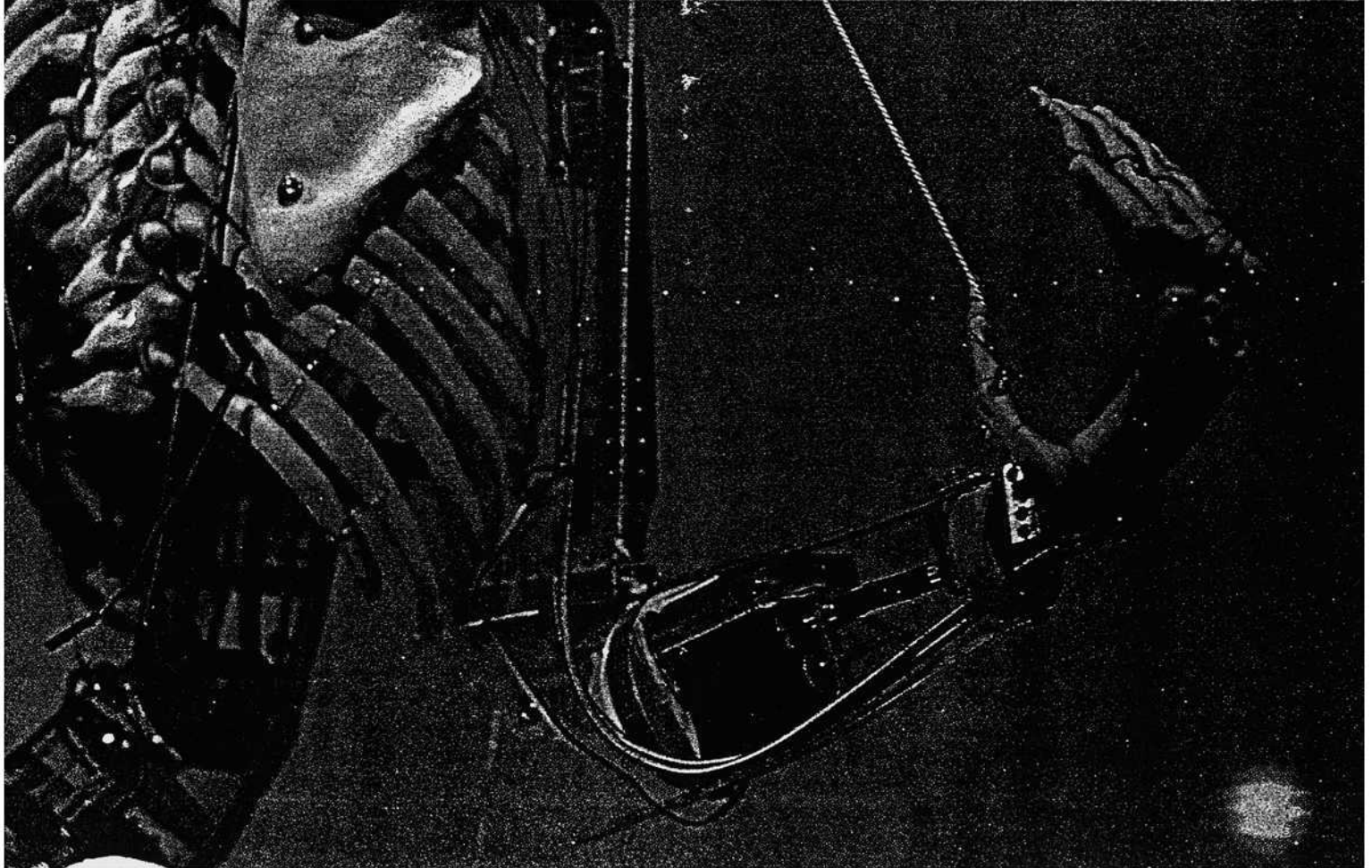
An SRL mission statement refers to these robotic performances as "socio-political satire." At first, viewing an SRL performance does seem a bit like experiencing a "smart" war gone awry. This is our dystopic machine future—beyond human control, irrational, violent and destructive. But there also appears to be a bit of an Erector Set mentality operating here, a technophilia that fetishizes the intricacy and power of machinery.

Something quite different seems to be at play in the robotic art produced by the four women artists surveyed below. In their works, machines and humans interact in a variety of ways that are not always threatening, destructive or irrational. These artists respond to the complexity of human/machine relationships by creating lively machines that fuse humor, whimsy and a strong sense of playfulness with per-

Right: Jennifer Hall, "Out of Body Theatre" (detail), 1992-96. Plastic, wires, hardware, radio controllers, pulleys, bailers, DC motors, MIDI controller, radio controller and MAC CPU, life-size.



envisioning our machine future *by laura megough*

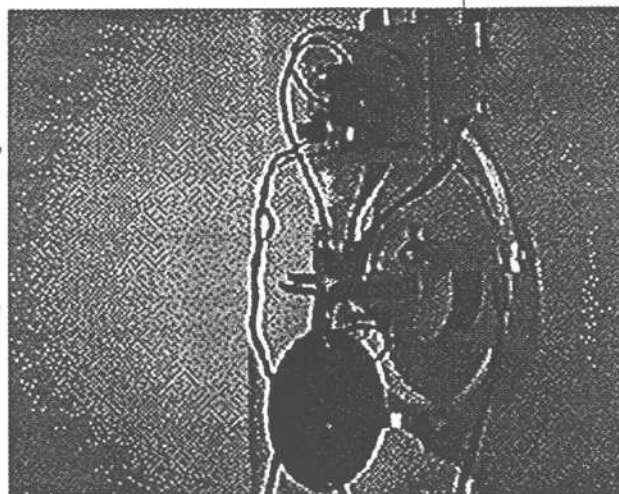
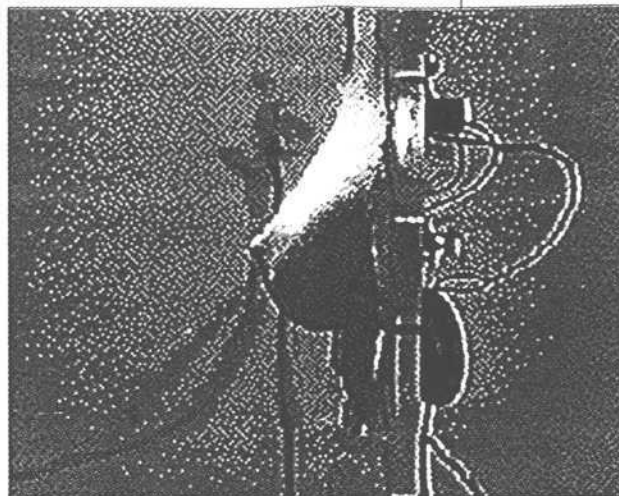


sonal, political and aesthetic concerns. By installing their projects within the walls of the gallery, the artists also allow viewers a more intimate, and often more interactive, experience than SRL's outdoor performances can provide. The result is an exploration of the relationship of human and machine that is thoughtful without being menacing.

Canadian artist Laura Kikauka has created a body of interactive electronic installations that is marked by a quirky vision and technological wizardry. In *Them Fucking Robots*, created with Norman White, Kikauka abandons the element of interactivity in an attempt to simulate the complex human emotions of attraction, desire and sex in machines. *Them Fucking Robots* consists of two separate robots, one male, one female, with individual power sources. Mechanical devices allow the robots to sense each other, read each other's emotions and ultimately make love. Constructed from a multitude of scrap parts (wood, metal, wires and tubing) and approximating human scale, the robots are technically quite impressive. They simulate human movement with incredible accuracy as their legs bend, arms wave and bodies gyrate in an awkward mating dance. When the robots finally meet and lock, fluid frantically pumps through tubing, sparks of electricity flow from their conjoined parts and a tongue-like appendage in the male robot wiggles wildly in delight. Like SRL's robotic theater, *Them Fucking Robots* reduces viewers to the role of spectator, but the effect of this performance is decidedly different, as Kikauka and White swap an orgy of machine destruction for an orgy of machine pleasure. *Them Fucking Robots* offers a "make love, not war" alternative to

Survival Research Laboratory's dystopic vision of a machine future.

*Mapping E-Motion*, an installation by Australian media artist Sarah Waterson, also uses mechanical

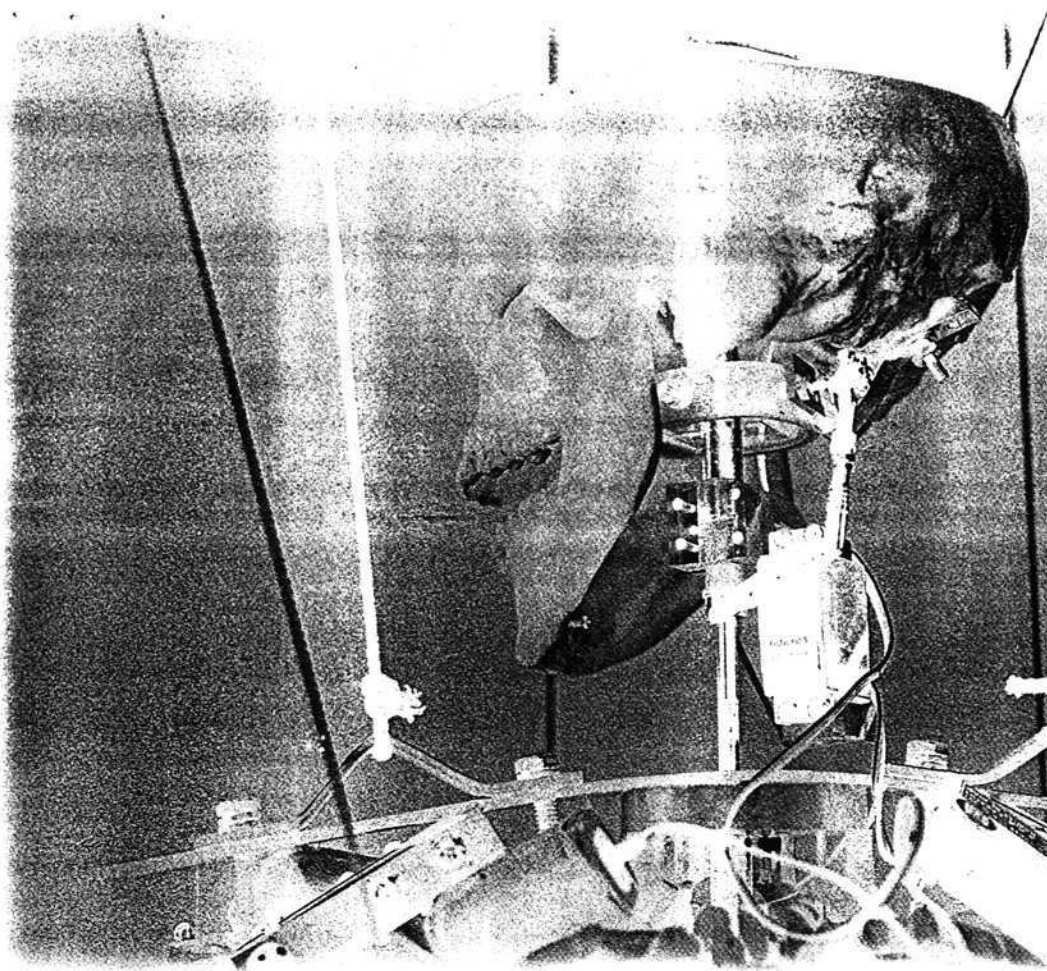


devices to investigate human biological process and sexual impulse. Specifically, Waterson is interested in mapping the effects of pheromones on biological attraction. Pheromones are chemicals released by an organism that serve as olfactory signals to other organisms of the same species. Since machines do not possess a sense of

Nine casts of latex breasts, with magnets embedded in each individual nipple, are mounted on separate Plexiglas plates suspended from the ceiling...a radio frequency (RF) modulator picks up viewers' movements and triggers circuits that affect the magnetic field surrounding each nipple...a speaker mounted within each latex form emits sound pulses also based on viewers' movements. The nipples respond to all this activity by erecting, pulsating and purring with pleasure.

Above: Sarah Waterson, *Mapping E-Motion*, 1993-94. Latex, perspex plates, magnets, speakers and cables, each plate.



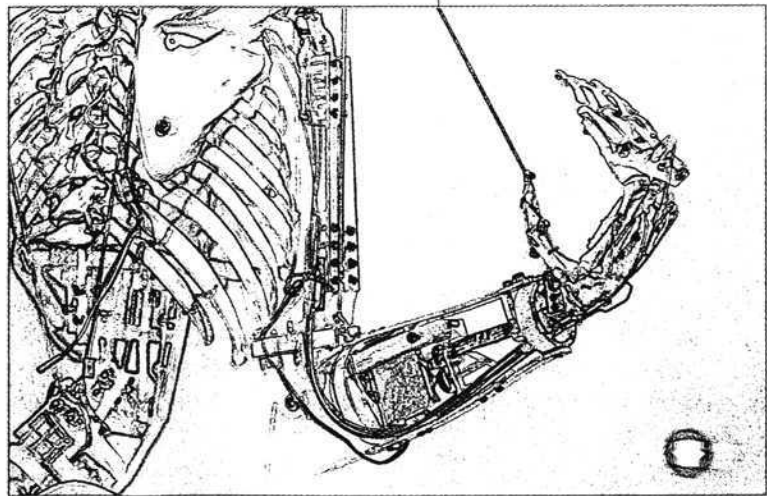


The marionette serves as a doppelganger for Hall that allows her to make sense of intensely intimate experiences while at the same time opening a dialogue with audience members about temporal lobe epilepsy.

smell, Waterson mimics the process of pheromone attraction via a network of magnets, circuits and radio signals. Nine latex casts of breasts, with magnets embedded in each individual nipple, are mounted on separate Plexiglas plates suspended from the ceiling. As viewers enter the gallery, a radio frequency (RF) modulator picks up viewers' movements and triggers circuits that affect the magnetic field surrounding each nipple. A separate circuit, attached to a speaker mounted within each latex form, emits sound pulses also based on viewer's movements. The nipples respond to all this activity by erecting, pulsating and purring with pleasure.

Upon entering the installation, viewers are unaware that their body movements will provide the latex forms with pheromonal signals. However, as they progress through the space, it becomes clear that certain types of movement directly affect both the action of the nipples and the sounds they emit. If, for example, movement is slowed down, the nipples stop moving entirely. Sound, on the other hand, is

determined by the proximity of the viewer. As one draws closer to the breasts, the sound pulse becomes both



faster and higher. With tongue-in-cheek playfulness, *Mapping E-Motion* gives a whole new meaning to the action of turning on a machine.

There seems to be a clever bit of bait and switch operating in *Mapping E-Motion*. Within nature, the organism secreting pheromones controls or alters

the behavior of the organism on the receiving end of the signal. In *Mapping E-Motion*, however, the behavior of the viewers is altered as well. The mechanical system operating in *Mapping E-Motion* somewhat coyly demands that viewers behave in specific ways in order to "interact" with the breasts.

Machines have traditionally acted as prosthetic devices, as extensions of ourselves, that allow humans to make up for a variety of physical shortcomings. Boston-based artist Jennifer Hall's work takes this notion in a new direction by using technology to break down the barrier between the human psyche and the exterior body. Hall, who has temporal lobe epilepsy, created "Out of Body Theatre," a series of eloquent robotic performances, these performances provide a space where Hall is able to externalize and communicate the intangible sensations she experiences during her epileptic seizures.

"Out of Body Theatre" incorporates a computer-controlled marionette whose resemblance to a medical

skeleton belies the intricate technical process (which Hall refers to as environmental tracking) that allows it to closely mimic human movement. Real human motion "data," which provides the marionette with fluid movement, is recorded, digitized and transferred to MIDI commands stored within a computer. The marionette's movement is then directed in one of two ways. The upper torso's movement is radio-controlled, which allows for the more delicate motions of the arms and fingers. The lower torso movement is operated from wires connected to individual pulleys, bailers and motors, which provide the marionette with the appearance of gesture and the ability to achieve aerial positions, such as flight. This dual process creates movement that is both fluid and strikingly human.

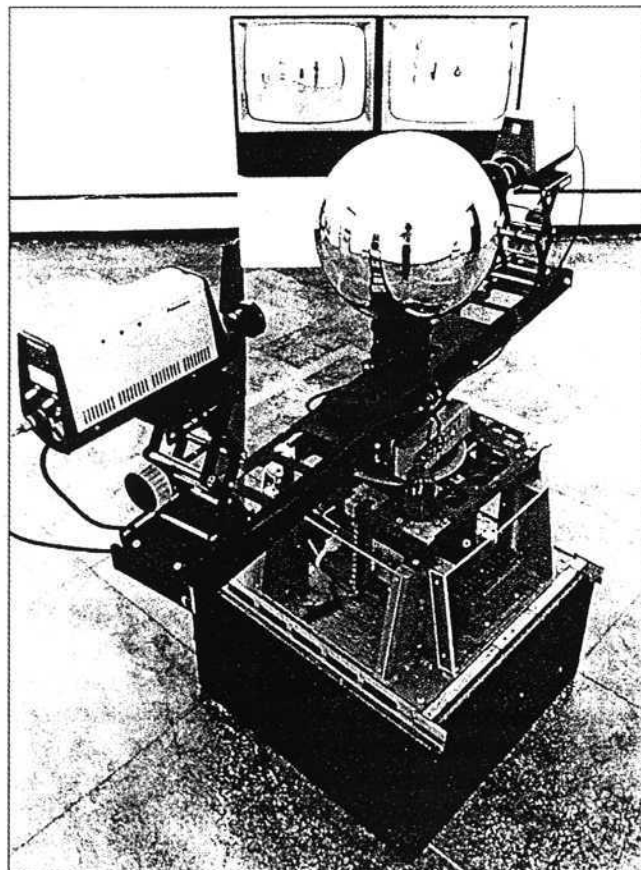
In "Out of Body Theatre" the marionette interacts with computer-controlled animations, video projections, shadow puppets and human performers in a fully scripted performance that recounts the story of a woman's personal journey through a

grand mal seizure. This combination of technologies creates a theatrical piece that is visually poetic and haunting as the marionette comes to life via color, light and shadow.

By fusing technology with individual experience, Hall is forging a private and personal role for technology that is missing from contemporary discussions: machines as sources for self-exploration, reflection and identity. The marionette serves as a doppelganger for Hall that allows her to make sense of intensely intimate experiences while at the same time opening a dialogue with audience members about temporal lobe epilepsy. The result is not only a highly personal artwork, but one that also reaches beyond itself to communicate to others.

Perceiving machines as extensions of ourselves also has political implications that operate both outside and within the personal realm. Canadian media artist Nancy Patterson has a long history of producing installations informed by feminism and humor that investigate the relationship between women and technology. In

Vasulka's work pointed to the possibility of other visual languages and experiences that are not wholly organic.



Steina Vasulka, *Allvision*, 1976. Mirrored sphere, cameras and monitors. Courtesy San Francisco Museum of Modern Art, San Francisco, California.



*Stock Market Skirt* reveals not only how women have traditionally been excluded from discussions of technology, but also how oblivious they are to its effects.

her work-in-progress *Stock Market Skirt*, Patterson sinks her teeth into the realms of capitalism, technology and fashion by manipulating a domestic object commonly associated with women, the dressmaker's mannequin, or "judy."

In *Stock Market Skirt* a woman's dress displayed on a wire-mesh dressmaker's form is controlled by an intricate system of hardware and computer software. Cables woven into the fabric of the skirt are connected to motors that are driven by a computer software program. The software program analyzes the rise and fall of the stock market by calculating the current value of a commodity (gold) and by comparing that number with the previous value. A command is then issued by the program to a simple controller that emits a series of pulses to the motor, the sequences of which determine the direction of the motor rotation—if the hemline of the dress will rise or fall.

*Stock Market Skirt* plays off the common lore that the length of women's hemlines is determined by the rise and fall of the stock market. Slave to both fashion and the economy, *Stock Market Skirt* is caught in a never-ending cycle of narcissism, continually adjusting its skirt length to keep up with current trends. The humorous action of the skirt rising and falling as the computer crunches numbers also suggests a range of vital concerns: how technological and economic forces combine to determine the fate of female bodies in subtle ways; the lack of control women are able to exert over tech-

nology; and the speed with which information can be gathered, analyzed and affect humans within the global market economy.

*Stock Market Skirt* reveals not only how women have traditionally been excluded from discussions of technology, but also how oblivious they are to its effects. Artists like Laura Kikauka, Sarah Waterston, Jennifer Hall and Nancy Patterson are actively rewriting this script as they experiment with new technology and create imaginative artwork with strong theoretical underpinnings. Unfortunately, within the United States there are few venues that exhibit robotic art and even fewer that offer support for the research and development that is crucial to the field. Countries such as Australia, New Zealand and Germany have taken the lead in this area, funding exhibitions, conferences and artistic research and development. Pockets of support do exist in North America at places like The Exploratorium in San Francisco, Do While Studios in Boston and Banff Centre for the Arts in Canada, which offer artists residencies and access to new technologies. Hopefully, exhibition opportunities will continue to increase as galleries and museums recognize that robotic art offers a powerful and imaginative resource through which artists and viewers alike can envision, manipulate and even influence our machine future.

Laura McGough is a writer based in Washington, D.C.

Nancy Patterson, *Stock Market Skirt* (under construction). Dressmaker form, dress, computers and cables.