

A COMPUTER IS NEVER LIFELESS

LILLIAN F. SCHWARTZ
AND LAUREN CORNELL

Lillian Schwartz has always been at the forefront of technological innovation; decades before digital art became a popularized form, she was employing the computer as a tool to create imagery and sound pieces, and even deploying it in the service of mediums such as painting and film. Her domain name itself speaks to her early arrival on the Internet: www.lillian.com. Her artistic practice began with drawing and moved through painting, kinetic sculpture, and sound before arriving at computer art, a field in which she made a dramatic impact. In the 1968 exhibition “The Machine as Seen at the End of the Mechanical Age” at the Museum of Modern Art in New York, Schwartz’s light- and heat-activated sculpture *Proxima Centauri* (1968) was one of a group of pieces that first introduced technology-based work into the broader arts world. Her films, such as *Pixillation* (1970) and *Apotheosis* (1971), pioneered computer animation by producing vibrant, mesmeric montages of color and form with software she built in collaboration with scientists at Bell Laboratories, where she then

worked. Devoted currently to electronic art analysis and the task of approximating her own vast life into various essays and retrospectives, Schwartz has carved a singular route between the fields of art and technology, one that blurs the boundaries between them and leaves a powerful legacy. Her history runs parallel to that of the development of the computer, and her art is born out of a deep and remarkably fearless engagement with its components, mistakes, and detritus. A few facets of her life, one which has yet to be fully examined, are pointed to below.

LAUREN: Until I read your book *The Computer Artist’s Handbook*, I hadn’t realized that your interest in painting predated your interest in computers and digital animation.

LILLIAN: My art went through a series of shifts before I arrived at making work with computers. During the Great Depression, I played with mud, slate, sticks, and chalk, because these were the materials available to me. I went to college through a World War II educational program, in which I trained to become a Navy nurse. But I hated the work; I couldn’t stand to see sick people, and I couldn’t stand their suffering. My time making plaster casts and drawing on patients’ casts to cheer them up was an art lesson in itself. My next lesson came when I was living in Japan and contracted polio. I lost the use of my right hand, and I was a right-handed artist. I underwent therapy by studying with a Japanese Zen master who taught me how to use a variety of calligraphy brushes, and later how to make inks. I was entirely focused on the act of creation during that period.

LAUREN: It’s interesting because your computer-generated work to me often looks like painting or collage. It truly seems as if you treated all of these materials—mud, chalk, paints—in the same way as you have worked with computers, treating them all as tools in the purpose of an ongoing vision.

LILLIAN: With any medium I used, I was always interested in pushing it further, and I was never happy with the instructions or set framework I was given to work with. Later, I utilized plastics. I actually worked out a deal with the owner of a plastics factory to get plastics for free, and I used those in sculptures. I got into kinetic art by way of Canal Street, where I ended up buying all kinds of electronics to make these sculptures come off the wall and start to move. These laid the groundwork for my first major piece, *Proxima Centauri*.

LAUREN: The MoMA exhibition in which *Proxima Centauri* was included was very significant for you, as it sparked your art career and was also how you met Leon Harmon from Bell Labs, who would later bring you on as a consultant. With Billy Kluver's *Experiments in Art and Technology (E.A.T.)* happening then, it seems like a unique moment of exchange between the art and technology fields.

You seemed to straddle working with artists and with scientists quite naturally, which surely had to do with the creative environment of Bell Labs at that time. But I'm wondering if you ever experienced any sort of difficulty being a woman working in technology. Men still outnumber women greatly in this field, and I'm curious if that ever impacted your work.

LILLIAN: I was very fortunate, actually. My work was being widely exhibited and acknowledged at the time. The difficulty was usually someone saying, "Oh, you did that?" or "Who helped you with it?" or "Who built it?" or that kind of thing, but usually I would just say, "I did."

LAUREN: What did your work at Bell Labs comprise?

LILLIAN: At first, the scientists there would talk to me about their projects, and I would listen and make suggestions. John Vollare, a technical staff member under Harmon, taught me how to use the computer, and soon enough, I became a consultant in computer graphics and was using it in film and video. I would go there on nights and weekends to work on my own projects.

LAUREN: It must have been difficult to balance your involvement in the art world with maintaining such a demanding position at Bell Labs.

LILLIAN: I couldn't have both, so I really had to make a choice to give up the art scene that I was just entering in New York. I instead chose the research environment, where I could continue my work and learning. The films

I made there did get a tremendous amount of publicity. Actually, the president of Bell Labs transmitted a message to me that we should cut down on the publicity around the films as I was getting more attention than the transistor did when it was invented!

LAUREN: You seemed to have created quite a stir at Bell Labs. I heard that when your film retrospective, "*A Beautiful Virus Inside the Machine*," was screened at Ocularis in Brooklyn, you talked about how you set a style trend at Bell Labs amongst the secretaries.

LILLIAN: Well, since I came out of the painting world, I was used to wearing slacks with paint on them to work. The secretaries noticed me, and eventually the look caught on, and they came to work in slacks as well.

LAUREN: Many of your films, such as *Juggler* (1977) and *Dancer* (1977), are driven by movement; they are made of bodies and shapes visualized with computer graphics. Why were you so interested in recreating the body's movement on film?

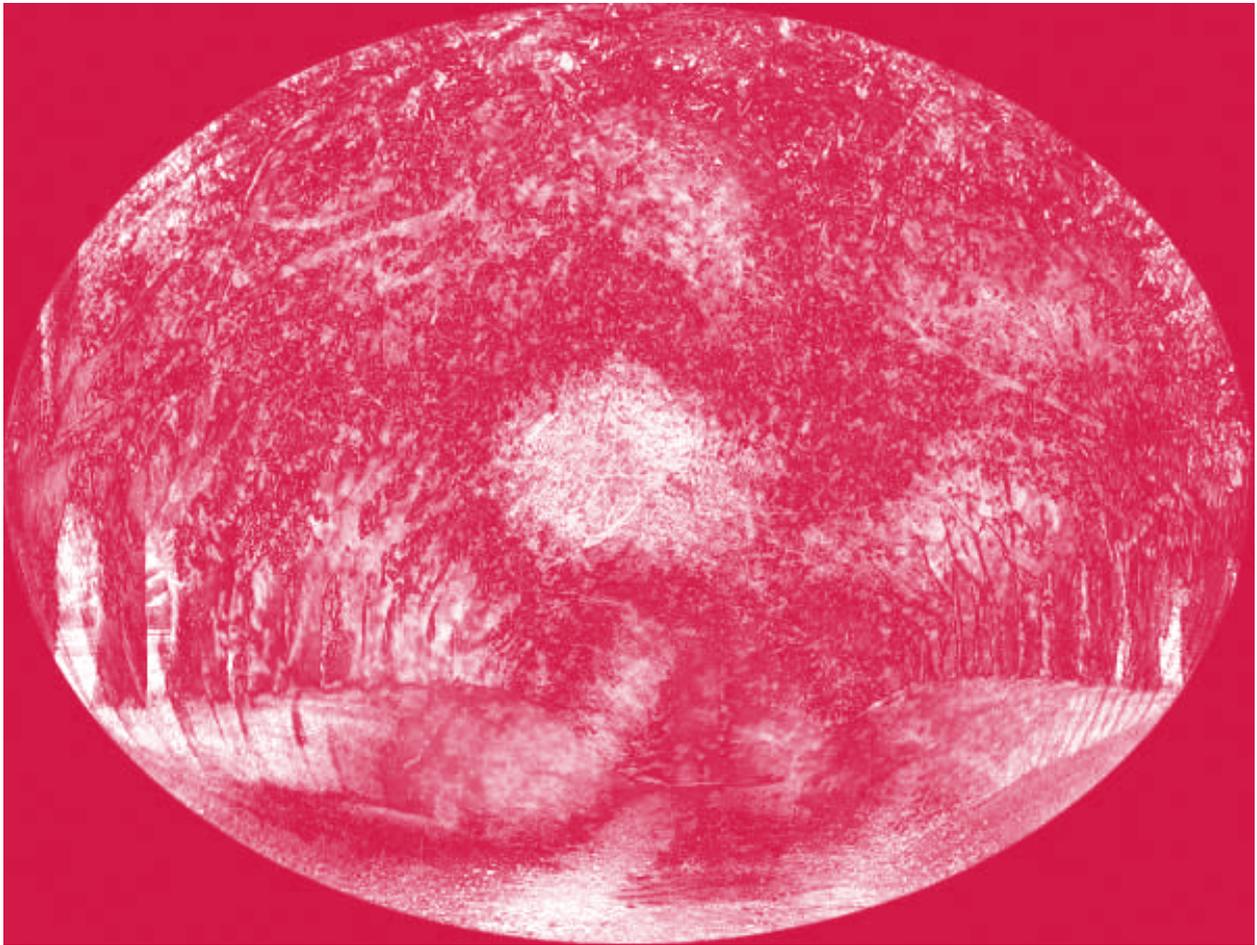
LILLIAN: I have always been interested in filming dancers. But for *Juggler* and *Dancer*, I was experimenting with a system that was built for the picture phone. A camera was hooked up to the computer; a colleague programmed the keyboard attached to the computer so that I could play it like a musical instrument. I could capture an image and combine it in many ways with an image already stored in the computer. I could also use light and colors in new and unique ways. This was very new in the early '70s. Many of the dancers became abstract shapes that I could manipulate, as well as bring back into reality.

LAUREN: You often take a very collaborative approach to making your work, and frequently call on other programmers and also composers. Is there something about working with technology that specifically calls for a team effort?

LILLIAN: The team effort resulted because we were making the tools ourselves. It took the expertise of many people working in many disciplines to pull this all together. We didn't have off-the-shelf software or hardware.

LAUREN: Do you feel that your work and this time period have received their due historical attention?

LILLIAN: More recently, and certainly within the last few years, there's been a tremendous interest in my work with retrospective exhibitions in England and throughout Europe.



Lillian Schwartz
Round Forest

I'm more particular about which interviews or articles I participate in now, because I like things to be accurate. History is so full of errors. This is an exciting period, and we're still going through it and making sense of it.

LAUREN: How do you see this time—the late '60s and '70s—as laying the groundwork for research and development today?

LILLIAN: At the moment, we have more than enough technology. Now we need conductors and composers and people to direct these things or make them sell. There's so much out there to be used and put together, for another era, another period.

It's not just Bell Labs that interests people, but really the birth of the medium of computer technology. As with any medium, with any movement, people are amazed when

they see what we were able to do in the beginning with so little, because today we have so much more memory and color and all kinds of bells and whistles that we didn't have years ago. And, of course, it's also important to know your history. In order to go forward, you have to go backward and see what was—or wasn't—there.

But I think one of the things you have to watch for, too, is that the on-the-shelf tools available now are made for commercial purposes, so the real trick here is to use these tools in ways you are in charge of and you can change. When I'm asked to judge a show, I get very upset when I look at a work and can say to myself, "Oh, that was made with Photoshop, using that filter," and I know exactly what they did.

The other ongoing problem is the fear of creating. However, you can't just tell someone not to be afraid. New technologies give us ways to see things that we wouldn't have seen before and they give us ways of creating things in

real-time that we couldn't possibly do by hand. But it takes the willingness to experiment outside of what is given to you; otherwise you tend to start to repeat yourself. ■■

Lillian F. Schwartz and and Laurens Schwartz, *The Computer Artist's Handbook: Concepts, Techniques and Applications* (New York and London: W. W. Norton & Company, 1992).