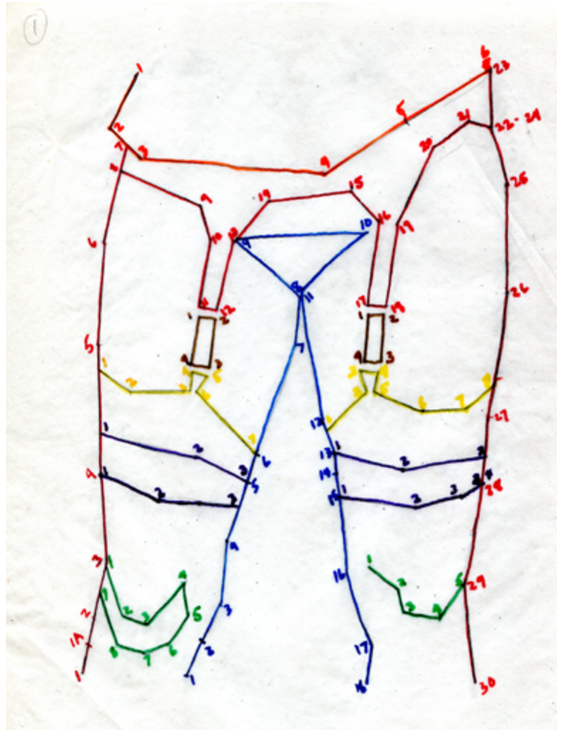
Rebecca *Allen*

On Technology and the Body

In conversation
with Caterina Avataneo

Rebecca Allen, Rebecca with Kraftwerk Head, 1984. Courtesy of the Artist and Arcade, London & Brussels. Photo: Linda Law



Rebecca Allen, Girl Lifts Skirt, 1974. Drawing from Allen's first computer animation. Courtesy of the Artist and Arcade, London & Brussels

Rebecca Allen is an artist inspired by the aesthetics of motion, the future of the body, the study of human perception and the potential of advanced technologies. Since the 1970s she has interrogated what it means to be human in relation to technologies: how machines affect individuals and society and how technological development affects human's understanding of machines. Approaching the computer as an artistic tool, Rebecca Allen has produced experimental videos, large-scale performances, live simulations and virtual and augmented reality art installations. With her work, she has brought together the worlds of fine art, performing arts, pop culture and technology research, often collaborating with scientists, technologists and colleagues such as Kraftwerk, Mark Mothersbough, John Paul Jones, Peter Gabriel, Carter Burwell, Twyla Tharp, Joffrey Ballet, La Fura dels Baus and Nam June [redacted] Independent curator Caterina Avataneo speaks to pioneering digital artist and researcher Rebecca Allen about her wide-ranging career, the intersection of art and technology and how this can influence human perception of technological development.

CA Let's start from the beginning: could you please introduce your work, and how this has been unfolding throughout your career?

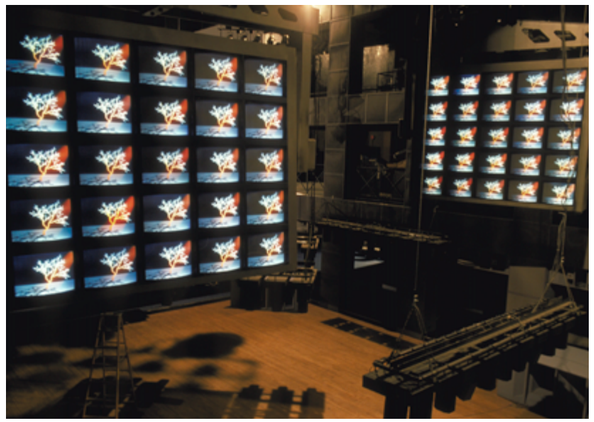
RA I began to explore the relationship between art and technology as an art student at Rhode Island School of Design (RISD) in the early 1970's. I was inspired by early 20th century art movements such as the Bauhaus, Constructivism, Futurism, Dada and early Kinetic Art. They were looking at the technologies of their time, using new tools to make new forms of art but also thinking about how these machines were affecting society. I realized that computers and the electronic age were going to be the technologies of my time and I decided that's what I wanted to focus on. Using punch cards and a computer system called Vector General, I realized my first computer animation in 1974.

Throughout my career I worked with interactive media, computer animation, virtual reality, augmented reality, AI, artificial life... but I want to clarify that although exploring cutting edge technologies, technology itself is not my main focus. It has an auxiliary role, providing an impetus for new forms of art that address issues of identity, gender, perceptual and cognitive processes and what it means to be human as technology redefines our sense of reality.
Very early on, when the computer still seemed such a foreign thing, I had an interest in inserting human presence into the computer – human motion, human behavior – so that the computer would have a human face and form. For example, for my first computer animation titled *Girl Lifts Skirt*, I had an interest in inserting sensuality and the female form into the computer. In the 1980s I worked with the very first 3D model of a female body and focused on the difficult research task of getting her to move, bringing her to life. And by the mid-1980s I started working with a new area of generative motion, using "physics-based" software to create complex natural organic movements such as that of water, fire, clouds, plants, trees. This led to an area of AI that was also being invented in the 1980s called "Artificial Life"; where one could define the behaviors and personalities of computer models and then set them to life to perform in ways that were complex and unpredictable. I've continued with all of these areas over the years with a current focus on artworks that explore the way that artificial lifeforms can learn to move like humans and AI can evolve and learn to look and behave like our natural organic world.

CA What does it mean for an artist to work with advanced technologies?

RA In the early days it required a great deal of technical knowledge, access to equipment and funds. After my time at RISD I was admitted to the Architecture Machine Group's new graduate programme at MIT where I was involved in a group investigating new ways to think about maps beyond 2D graphics. Then I ended up at the Computer Graphics Lab at the New York Institute of Technology, which was the premier place for computer graphics and animation software development at that time. I had to work at a lab to create the art that I envisioned, because there were no commercial software programmes, no personal computers, and costs for computers and computer graphics were astronomical.
This lab was well equipped and our mission was to invent, design and build the graphic and animation software systems that we use today. It was so exciting to be there and make an impact as an artist at this stage of invention. To ponder how light reflects off virtual surfaces, how to add textures and shadows and figuring out how to animate models in three-dimensions and bring them to life. My artistic projects have also served as a way to test out new software systems...
Very often I've been working in research labs, universities, or tech and video game companies; environments where it can still be rare to see a woman or an artist.

But I want to clarify that although exploring cutting edge technologies, technology itself [redacted] is not my main focus.



Rebecca Allen, Creation Myth, 1985. Documentation from Palladium Club. Courtesy of the Artist and Arcade, London & Brussels

Rebecca Allen, Kraftwerk Portrait, 1986. Courtesy of the Artist and Arcade, London & Brussels
Rebecca Allen, Kraftwerk Reflection, 1984. Courtesy of the Artist and Arcade, London & Brussels

Rebecca Allen, Labertint, 1992. Still from Video. Courtesy of the Artist and Arcade, London & Brussels

I've considered myself to be an *infiltrator*, someone different, bringing other visions to the table. To work legitimately in these areas meant that I had to learn a lot about the technology and I realized that too often computer scientists think in the same restricted ways as they design our new technologies. But artists are inventors too; coming up with different ways to see the world and new forms of expression.

CA Your practice is often presented as being inspired by the aesthetics of motion. Some of your early works such as *STEPS* (1982) and *Catherine Wheel* (1983) – made in collaboration with choreographer Twyla Tharp – but also *Musique Non-Stop* (1986) – your collaboration with Kraftwerk – show a research and a method linking specific movements with technology: specifically dance and singing, human movements which can be considered poetic. To me this is very interesting because in Art History the aesthetics of motion have been associated with technological development, let's think about Futurism for example, or more recent cultural movements such as Accellerationism, linking technology with speed and progress. Could you say a few words on the works I mentioned and give your take on the encounter between "aesthetics of motion" and technology?

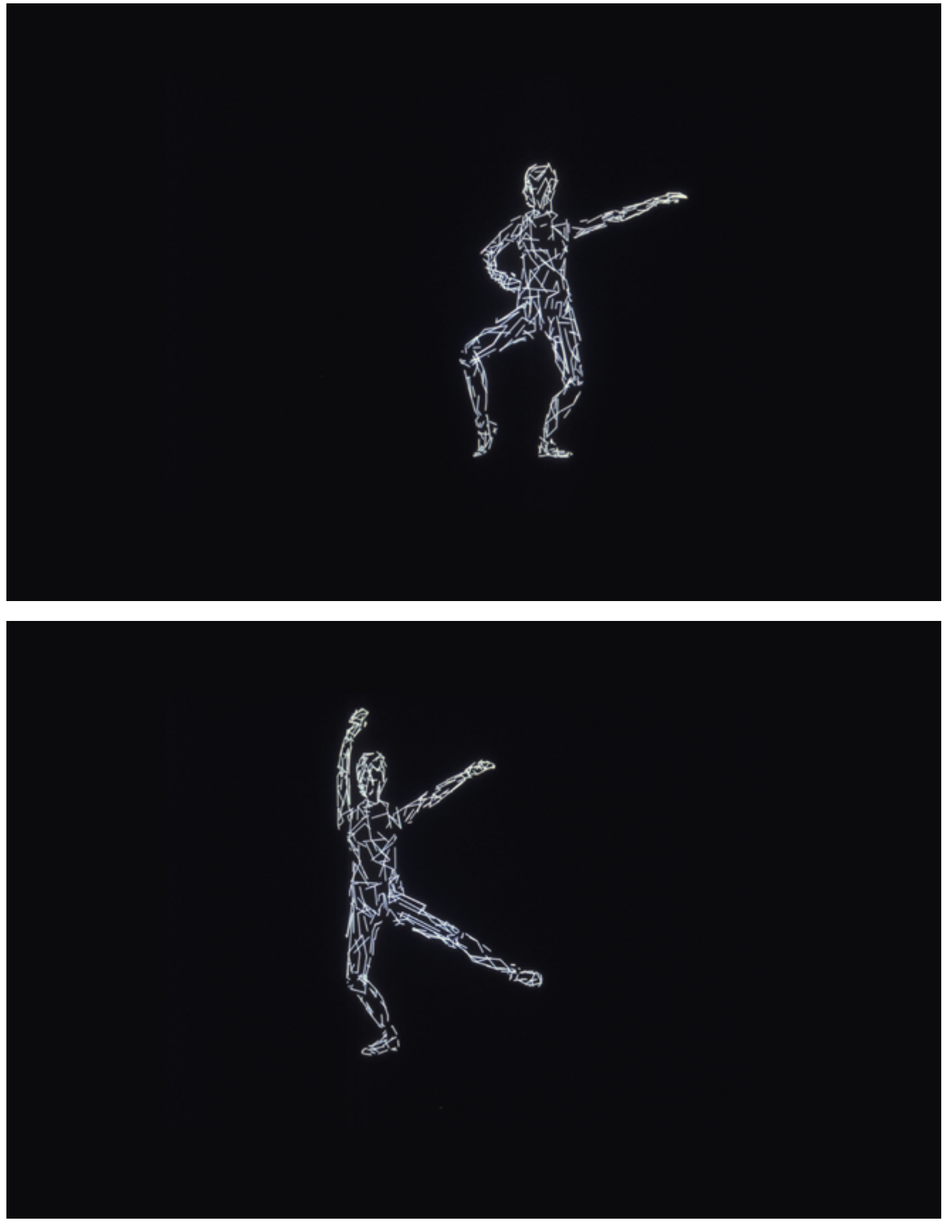
RA By 1972 I was no longer interested in static images, I wanted images to move, to come to life. And I wanted to explore the dimension of movement in an abstract way as its own aesthetic. My role models were Duchamp, Oscar Schlemmer and the Bauhaus Theater and other artists who had experimented with motion and Kinetic Art. The artist Gyorgy Kepes wrote a book in 1965 called *The Nature and Art of Motion* that also inspired me. But you're right that most of these art movements were focused on mechanical motion; and I was thinking of the simulation of human and natural organic movement.
I changed my field of study to film animation and video in order to explore the aspect of motion and even proposed an independent study called Computer Animation to RISD through Brown University. My RISD advisor was very skeptical about the idea, saying artists shouldn't work with this kind of technology, but they eventually agreed. I knew the computer could be a good artistic tool for a focus on motion-based art and human movement. STEPS, with its homage to Bauhaus Theater, was my first work involving 3D computer graphics of a dancing human figure. I then realized a computer-animated dancing figure of St. Catherine for Twyla Tharp's performance film The Catherine Wheel.

It was the first computer generated human to appear on television moving and dancing!
Kraftwerk contacted me after seeing my work and we discussed a collaboration. I told them I wanted to bring them to life on video as virtual bodies, which required something that was very difficult at that time - the animation of facial movements and expressions of the face. I knew they used simple physical robots in live performances and loved the idea of making a computer simulation of their heads, not from their real heads but from their mannequin robot heads - a simulation of a simulation. In return Florian from Kraftwerk created my voice singing "Musique Non-Stop".
The *Musique Non-Stop* video is now considered one of the icons of techno-culture.

CA Could you please talk about *The Bush Soul*, the series of interactive artworks you made between 1997-1999?

RA In the late 90s I received a grant from the Intel Corporation that allowed me to put together a team of computer science and design students. Using PC computers, we developed an early kind of game engine, a system called *Emergence*. Having previously worked in the game industry proved very useful for me. Yet this time the goal was not to create games, but new art by applying AI and Artificial Life technology in a generative and interactive environment. We started working on a complex virtual world inhabited by mysterious creatures with unexpected behaviors. This is how *The Bush Soul* was born.
The Bush Soul #3 is the third and most complex work in the series of interactive artworks that explore the role of human presence in a virtual world inhabited by artificial life.
The overall theme of *The Bush Soul* is energy, in its different manifestations, and the role of the body and soul as one enters a virtual world inhabited by artificial life. The piece was influenced by the idea of sacred places, animals and people that are believed to have a special energy. But also by certain cultural beliefs that a person has more than one soul and that there is a type of soul, called the "bush soul" that dwells within a wild animal of the bush. As you explore the environment your soul may inhabit the body of certain artificial life forms, seeing the world from its perspective, and you may also be expelled from a creature's body if it so desires. Unlike video games, *Bush Soul* contains no ending or closure... there is not a specific goal, it is rather an exploration unfolding through embodiment. People are wandering souls in a world that they can interact with. But unlike most video games, it's not there for them to manipulate and leave their human footprint.

CA I find *The Bush Soul* series so inspiring. The force-feedback joystick which allows the viewers to navigate the virtual world and experience tactile sensations opens some interesting points too. In her book "Matters of Care, Speculative Ethics in More Than Human Worlds", professor Maria Puig de la Bellacasa refers to some technologies of touch as having the potential to open to epistemological intimacy. As she writes, one can see without being seen, but cannot touch without being touched. To touch brings who touches at the same



Rebecca Allen, Dancing St. Catherine, 1982. Still from Video. From Twyla Tharp's The Catherine Wheel, a dance film for television aired internationally. Courtesy of the Artist and Arcade, London & Brussels

level of what's been touched. It's very different from mere observation, it affects both parties. This aspect is so pertinent to The Bush Soul, where embodiment is a very important aspect: ideas are communicated through experiencing other subjectivities...

RA As you say, in *The Bush Soul* the user often experiences physical sensations, vibrations and movements by means of a force-feedback joystick. Haptic interfaces are used in gaming, but in this work I wanted to create an empathic connection. The tactile response occurs as you approach areas of special energy. You can literally feel the energy. It also occurs with "psychological" states such as when your "soul" enters or is rejected from a creature, or when you enter areas full of lifeforms with intense, chaotic energy. This informs the user about the creatures and their relationships in a way that clearly differs from just watching them visually. Tactility continues to be a key issue in my work; it links with my long-time interest in the relationship between the body and new technology. I have always asked myself "as we spend more and more time in virtual worlds, what happens to the body? where is the body within technology?"

I've considered myself to be an infiltrator, someone different, bringing other visions to the table.

Rebecca Allen, Laberint, 1992. Still from Video. Courtesy of the Artist and Arcade, London & Brussels

I did experiments with tactility, and wearable displays in other works, for example in *Coexistence* (2001) an early augmented reality work in which two people are sitting facing each other at some distance, wearing head-mounted displays with video cameras attached to them. They see the surrounding physical environment and each other mediated by the cameras and interaction occurs through breath. When blowing into a small microphone sensor, the users see their breath visualized as a stream of digital particles that can move and affect the virtual objects. And you can feel your partner's breath through a haptic gamepad. At times colorful shapes appear that transform, move and rotate as you blow on them. You and your collaborator may work together to create an animated play on form or to blow away the virtual objects that obscure your view of each other. During the early 2000s I became very interested in biosensors, sensors that you wear on your body, and their possible application to art, as well as the creation of new interfaces for haptic and remote bodily communication at a distance..

CA And thinking about "affecting parties": having often explored how machines affect individuals and society, did you also have the chance to observe how society and culture affect machines and their development?

RA I have always been intrigued with the notion that the computer is a partner of mine. I continue to focus on behaviors and relationships, including our relationship with the computer. These are ideas that have concerned me all along - relationships between humans, the meaning of human presence in a virtual world and the fact that we are going to relate to artificial life forms more and more.
The computer can be a powerful tool for creativity and for the efforts to improve the quality of life on earth and expand our potential. Yet digital technology can cause a lot of damage if its dangers are ignored as we can clearly see. People often think that computer technology somehow invents itself and forget that all technology is invented by humans and of course it depends on who is in charge of programming these technologies, and for what purpose. After all these decades new technology is still predominantly being invented by one type of person, a male computer scientist or engineer, which is tragic. Diversity is still so desperately needed in this invention of technology that is completely changing all of humanity.

Rebecca Allen, Life Without Matter, 2018. Still from VR Installation. Courtesy of the Artist and Arcade, London & Brussels

CA In some of your recent works such as *The Observer* (1990-2019) and *landscape / enter / life* (2020) the human is made less present; landscape and nature seem to take over. Could you say a few words about these works and elaborate further upon the encounter between nature and technology in your practice?

RA My interest in the body, ultimately implies nature too. So the same question I have always asked myself is valid for nature as well: "what happens to nature? where is nature within technology?". The works you mention all have an artistic approach merging a synthetic and a natural kind of look. They are mountains, swamps and other "organic" landscapes, but with synthetic and painterly colours. But I think that the best work to mention here is *INSIDE* a virtual reality that I developed in 2016. It consists of three worlds: the Night Desert, the Brain Cave and Nature. It begins in the desert where a mysterious presence appears and enters our personal space then transports us to a place inside the brain, entering MRI data of a virtual human brain. As we explore this primordial cave of the mind, we discover deeply ingrained images and sounds based on universal hallucinations.

Our journey continues with a ride through the optic nerve to arrive at what appears to be a soothing natural landscape. My initial inspiration came from an interest in the mysteries of the brain and how virtual reality can confound our minds and distort our sense of reality. But there was also an interest in the effects on the body and mind when entering a simulation of nature. Can we feel the profound peace and humbling sense we feel in nature in a simulated natural world? As I fear that this could be part of our future.

CA Is there a particular work of yours that we have not yet mentioned and that you would like to talk about?

RA In my work I have always wanted to focus on a feminine way to approach technology, with a focus on the body but also warmer and softer ways to look at computers and technology. I was able to create a series of artworks in the late 80s-early 90s that were commissioned, mostly in Spain, that addressed themes of behavior, gender and identity as we evolve towards a future of mixed reality. So I want to also mention my 1992 video titled *Laberint* based on the Platonic myth that woman and man were once one androgynous form. Zeus split them in half and they forever searched to find their other half, to find fulfillment and become whole. In this work, live-action and computer generated characters weave between real and virtual worlds, moving beyond binary thinking about both gender and reality.

CA What are you currently working on, and what are your upcoming projects?

RA Currently I'm working with AI and machine learning. I received a grant from the "Artists + Machine Intelligence" group at Google and have been exploring how AI driven computer models can learn to move like humans. I want to consider embodiment and technology. In my earlier work with human movement I was more like a puppeteer, but now it's about helping the computer learn to move in a human way. A result of my recent experiments is *Limbo*, an animation loop that reflects on the current state of AI and humanity. A computer model, dressed in a hazmat suit, is learning to do a backflip but seems to be stuck in limbo as much of humanity has been. There is another new work that I can't reveal too much at this stage but it involves the concept of camouflage, and how it is used by nature to preserve the species and evolve. It's about prey and predators, becoming invisible and helping technology learn how to become more like nature.