

**Myron Kreuger***interviewed September 26, 1994*

One of the true pioneers in interactive computer-based art, Myron Kreuger has been experimenting with it since the 1960s. He coined the term "artificial reality" to describe a medium in which puts the human body at the center of a simulated world, with any electronic media potentially available to interact with. He was among the first to see that video could be used as an input device, and whole rooms could be responsive.

"When I started, the idea of using your body for anything to do with computers was completely alien -- the idea of using your body for anything to do with your mind.... At that time, I was rebelling against that -- the tyranny of the eyes and the intellect."



Our oldest most basic -- and still best -- way of experiencing the world is directly through our senses, rather than through iconic, symbolic or abstract concepts. Technology, as Kreuger observes, give us super-senses -- we see the universe through the electromagnetic spectrum; we see inside the body with ultrasound; we see temperatures using thermographics; we hear distant places using radar and sonar; CAT, MRI and PET scans show us our own brains; we talk to people on the other side of the world; and particularly with computers, we can simulate or represent almost anything, real or fantastic.

One of Kreuger's early works was called GLOWFLOW. It was an installation in a gallery. People entered a room lit only by glowing tubes of liquid -- phosphorous liquid lit from within. A DEC PDP-12 controlled the lights, as well as a Moog making swirling sound through six speakers. Sensors on the floor caused the computer to change the whole environment, depending on where people walked or stood. It was a living, kinetic sculpture, with humans the integral part.

His next work, PSYCHIC SPACE added a video projection. Then, in METAPLAY, on-site participants interacted, via a projection screen, with a remotely-located artist drawing on a data tablet; the computer imagery was superimposed on live video.

Kreuger tried turning the video camera directly onto the computer screen, and, with a remote collaborator, began to point at and discuss what they were seeing; the transmission time lag created an interesting effect. The result was a new work, VIDEOTOUCH, in which two participants interacted with each other through the screen. The "third place" created by the shared, mediated environment Kreuger called "artificial reality."

"It is a laboratory for philosophy," he writes in his book of the same name, "where we can ask basic questions such as, 'What is reality?' 'What is perception?' 'Who am I?' in fundamental new ways."1 Thus VIDEOTOUCH evolved into VIDEOPPLACE, a video-mediated "place" defined by information shared by all participants. On-screen, two or more remotely located participants could manipulate each other's images as well as computer-generated objects. But Kreuger was not intent on building a completely realistic world on the screen -- this is what differentiates his work from traditional VR. Rather, it was a place to suspend the laws and look of the real world; participants' image could be made to move or distort in endless ways, and space and time were malleable.

One day, an error caused fractal patterns to appear with the more literal body images. "This interaction is not one I would have created on purpose, since abstract geometric patterns are

not as involving as your own image," Kreuger wrote. "However, when the medium spoke so directly, I thought that it would be ungrateful not to listen."<sup>2</sup> "Two sets of address lines got added together," he says, "and it created this fractal pattern, which turns out to be a whole family of fractals, turns out to be a kind of mathematical function. If you're familiar with Carl Sims' work, he uses it for his adaptive graphics stuff. Artificial life, beautiful images."

Other variations of VIDEOPLACE created interactive Mondrian-like images or artificial life experiments (the classic "Game of Life" computer program).



It was philosophical, but most of all it was fun. Kreuger didn't specifically have children in mind as an audience, but was driven by the concepts of play, and exploration. "You can always get children to play," Kreuger says, "and they will find some way to take pleasure in it, almost anything. Whereas adults lose their sense of play. And I thought if I could reawaken that, and get adults to play even for a couple minutes, that that was a service. That was a part of art that interested me -- playing with reality. I have also thought that we were primitives in a world we had created, so the way to find out about it

would be to play in it. So this was a sketch, sort of the essence of that reality."

Another project that came out of the early METAPLAY interactions was VIDEODESK, in which participants use a light table with camera mounted above. These experiments with human interactions yielded interesting results.

"People start thinking about how to interact with each other. They do things that have significance... The thing is, if you see someone do something, you're talking to a different part of the brain than if I tell you how to do something. That's monkey see, monkey do, and that is much more natural than the cognitive symbolic translation that's required when I speak. It is extremely powerful, and that's why, in the VIDEODESK, having a 'hands teleconference' is better than using a cursor to do the same thing, because there is wiring in the brain to see the hand, understand it, and to understand when I see another person do something physically, I know what they did, and I can make my body do that. Especially children; adults lose the ability to some degree. As a kid, I learned to ski in a day, just by going down the hill after other people. Today, I could try for months and not achieve the same result.

"There's a circuit in the brain... If I put lights on your joints, and turn out all the other lights, so that all you see is a bunch of dots, anybody on the planet could look at that and see that it's a person. And they can tell if it's a man or a woman, they can tell if it's somebody they know... it's just very powerful machinery that is apparently innate. "

Art and technology have always been intertwined, Kreuger is quick to point out. Computers are merely the latest means of expression, and they allow incredible things to happen. Kreuger's use of the term "artificial" makes explicit that the reality we experience with computers is synthetic, although much of our "real" world is human-created, and becoming more and more so. "An artificial reality," he says, "is a medium of experience."

One of the lessons Kreuger learned was that interactive art is a medium in itself, apart from the content; therefore, the focus should be on the interactivity itself. "The only aesthetic concern should be the quality of the interaction," he wrote, "which may be judged by general criteria: the ability to interest, involve, and move people, to alter perception, and to define a new category of beauty."<sup>2</sup>

In interactivity, he says, "there are two sides, the input and the output. The output has existed for many years -- we've done realism with oil painting and film. If you're going to work on interactivity, the most immediate clue as to what the potential is, is what is the input side --

what does it know about the person's behavior? If it doesn't know what you do, it can't react to it. So the more it knows, and the faster it reacts, the clearer the sense of interactivity. "

The artworks that Kreuger's participants create are not intended to be saved as objects. "The whole idea of creating art should not be to save it, it should be the free experience of creation.... If we can do it easily, we should be able to do it when we want -- we don't have to save it."

To that end, he has always encouraged artists to use the tools he has developed. "There are a number of these interactions which I call mini-media. You learn, as an artist would in any medium, what you can do with this stuff. It's also part of the digital sandbox idea. Everybody respects the idea of sandbox play. Here, we're saying, what if there are other kinds of sand? What kind of play could you do?"

1. *Artificial Reality II* (Addison-Wesley, 1990), p. xvii

2. *Ibid.*, p. 17.

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Kevin Walker