Displays on Display

1988 SIGGRAPH Art Show, a Review

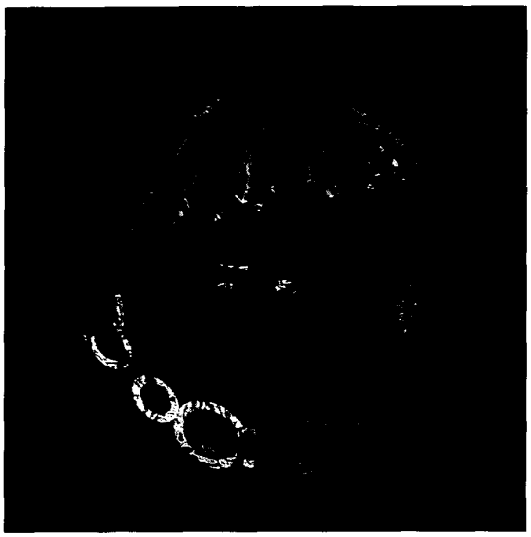


Figure 1. 1988 William Latham

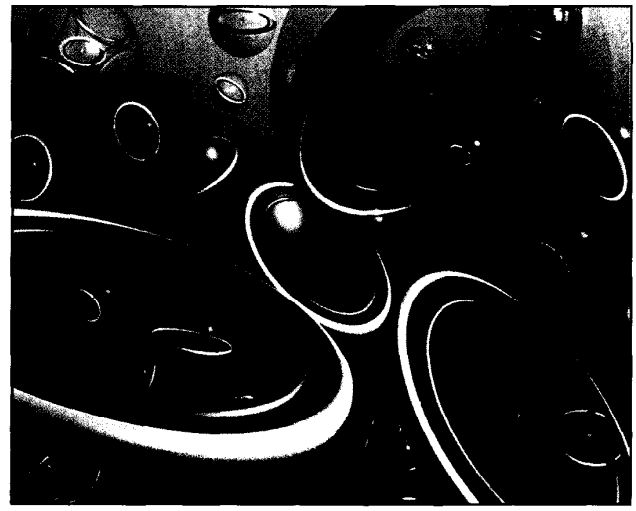


Figure 2. 1988 Kenneth Snelson

Parts of the 1988 SIGGRAPH Art Show will move into the Computer Museum in Boston as a permanent installation. We bring you here some pictures of the installations at this show: You can enjoy hearing about them all and seeing some of them for the first time, or you can enjoy another trip through the gallery, remembering things you were there to see when SIGGRAPH 88 took place from July 31 to August 5 in Atlanta.

Patric D. Prince
Fine Arts Administration

Art Show Chair Lucy Petrovich intended the exhibition to reflect her interest in the dynamic possibilities of using the computer to create art experiences. This SIGGRAPH Art Show demonstrated the power of the computer as an imaging tool and the capacity of artists to create new art experiences with it.

The annual SIGGRAPH Art Shows give viewers the opportunity to see the most advanced computer-assisted visual research. Art exhibitions have been associated with ACM conferences since 1970 and have been seen annually at SIGGRAPH since 1981. They are akin to the independent art exhibitions created by a group of artists at the end of the Nineteenth Century in France. We now call those artists the Impressionists. Controversy is associated with the inception of a new art. Computer art has had its share of "issues" in breaking away from conventional art.

Lucy Petrovich, an art professor at the University of Wisconsin at Madison, formed two juries, an Interactive Art Jury for experiential and environmental work and a Visual Art Jury for 2D, 3D, and video art work. The jurists were Frank Dietrich, Kenneth O'Connell and Edward Pope (visual work), and Patricia Harrison, Sally Rosenthal, Dan Sadowski, Kathleen Tanaka, and Jane Veeder (experiential work).

The 1988 Art Show committee wanted to show only advanced art ideas. They did not want "cross-over works," those that imitate conventional art forms. The art show was dominated by digital resources and featured mixed-media art forms combined with those aesthetic elements unique to computer art.

The illusion of 3D is now a reality

Stereoscopic slide art works were created by Vibeke Sorensen, who has been working in this medium for several years. Her work, *It's Not a Bug, It's a Creature*, was also seen in the recent computer art show at the IBM Gallery in New York. Her images are rendered, recognizable objects that reflect her witty

0272-1716/88/0900-0015$01.00 1988 IEEE

Figure 3. '1988 (Art)"

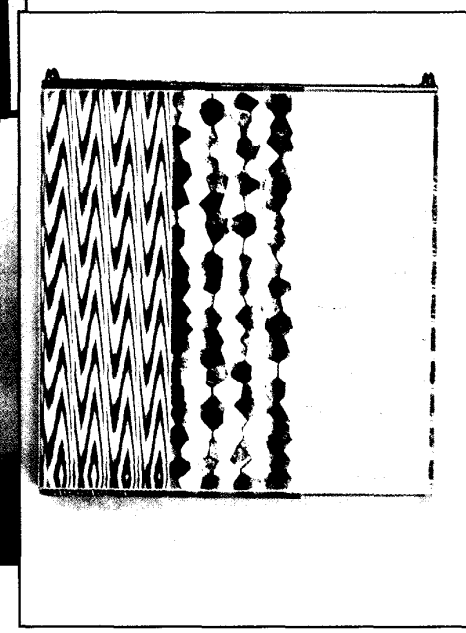


Figure 4. '1988 Sydney Cash

approach to imaging and include strong conceptual/literary elements in the titles.

Another stereoscopic work was by British artist William Latham (see Figure 1). Latham is a visiting fellow at the IBM Scientific Centre in Winchester, England. He uses 3D solid modeling and rendering techniques to create his *Computer Sculptures*, which have a picture quality, he says, "comparable to Dutch still-life painting." His organic forms have an exquisite sensibility in rendered light. He studied at Christ Church, Oxford, and at the Royal College of Art, London.

Other stereoscopic work was *Worlds* by Kenneth Snelson (see Figure 2), along with his *Polescapes*.

Jim Dixon and Karen Schnelder created a printed image, *White House*, which was covered with a transparent screen that combined with special viewers giving a 3D experience.

Members of (Art)" Lab, situated at the Illinois Institute of Technology in Chicago have developed pioneering work in 3D photographic techniques. (Art)" Lab consists of visual researchers Dan Sandin, Ellen Sandor, Randy Johnson, Stephan Meyers, and Jim Zawai. They had been using images created in part by Donna Cox and scientists Ray Idaszic, and George Francis at the National Center for Supercomputing Applications, Champaign, Illinois, for several years in their art works, which they call *Phscolograms or Real Time Objects*. An example of this process, *Apollo*, has already become a new art icon or archetypal image. (Art)" Lab's entry in the SIGGRAPH 88 Art Show is titled *Messiah* (see Figure 3). It is a large, 72" × 97" powerful 3D work consisting of a number of forms having reference to the fields of faith and medicine.

Holographs

Holographic works included *Still Life* by Wendy Plesniak and Michael Klug, and *Taj Dancing* by Alice Rosen, Tony Lupidi, and Sharon McCormack. McCormack also contributed holograms to SIGGRAPH Art Shows in 1986 and in 1987.

Wall hangings

Sydney Cash's refined, optically kinetic wall-hanging sculptures were featured in a recent Bronx Museum show, *The Second Emerging Expression Biennial: The Artist and the Computer*. Cash was represented in the SIGGRAPH 88 show by his *Winken, Blinken & Nod* (see Figure 4), along with other works. His mixed-media works are small in scale (about 12" wide), and they are made from glass, computer draw-

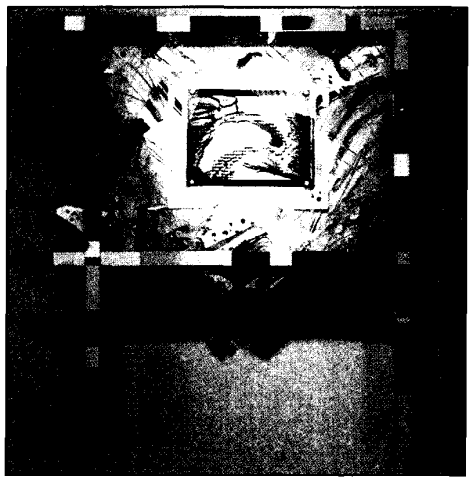


Figure 5. ©1988 Robert Martin

Figure 6. ©1988 Richard Voss

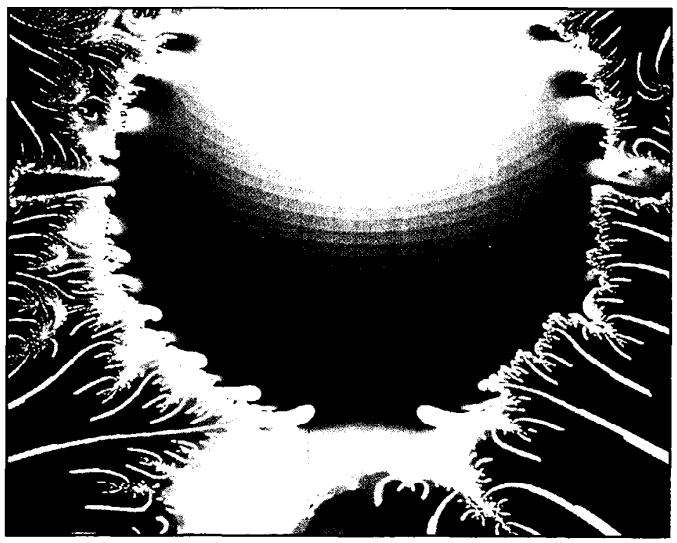


Figure 7. ©1988 Jeffrey Ventrella

ing, paint, and steel. As the viewer moves in front of the work, the image appears to change in scope and shape. The perceived dimensionality of the work is part of its richness.

Another wall hanging, *Boomerang*, in the Neo-Ex style was done by Robert Martin (see Figure 5). The media in this are fluorescent lights, plexiglass, and paint on wood. The hanging has a brilliant, animated use of color. As lighting effects change, the tone of the piece shifts, creating movement.

Sculpture

Bruce and Susan Hamilton's sculptured works have been featured in several SIGGRAPH art shows. This year's work, *Floating Dragon*, is made of wood, cable, and acrylic, and was completely modeled with a computer. Plotter drawings add color and texture to the work.

Karl Hauser and Andy Rosen created a moving neon work, *Cowdance #2(bovine[pie]ce)*. It consists of a simple, humorous linear representation that boogies to a bovine beat.

Whole rooms

A cylindrical room was designed to house *Tikal*, a 3D video installation by Maurice Clifford. Images are displayed on a suspended stereo viewer attached to a rotating chair. The images displayed to the eyes can be stereo pairs or single works. The experience causes artificial composite images.

A Laser Fantasy by Robert Mueller was a continuous 3D stereoscopic laser performance, choreographed to music set in a special sound-proofed, light-proofed room. Each viewer was issued polarized glasses to wear while watching the laser images moving in space.

Fractals

The creator of fractals, those intricate curves that exhibit increasing detail with increasing magnification, Benoit Mandelbrot, IBM Research Center, Yorktown Heights, New York, was represented by his amazing image, *Flare*.

Two other artists using fractals were Richard Voss, also from IBM, and Jeffrey Ventrella, from Academic Computing Services at Syracuse University (see Figures 6 and 7). Richard Voss's *Fractal Setting*, 1988, depicts an artificial sky, seen in fiery red. Compared to Jeffrey Ventrella's work, *Creatures*

Figure 8. 1988 Glenn McQueen

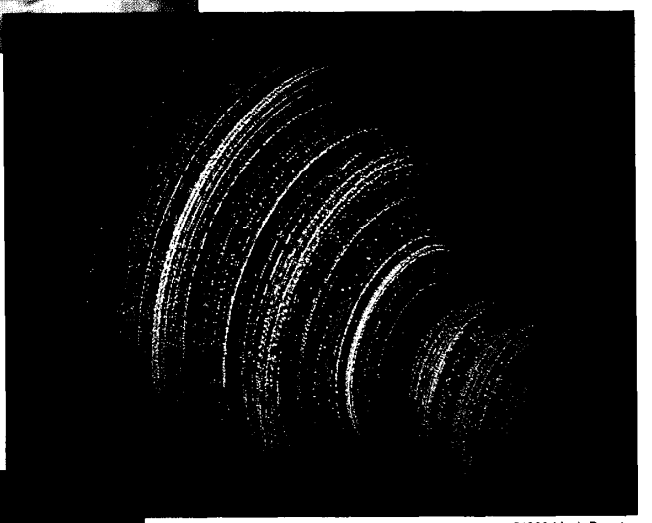


Figure 9. ©1988 Mark Resch

Figure 10. ©1987 Micha Riss

of the Complex Plane, Voss's vision has a strong narrative content. Ventrella has used fractals to create abstract, lyrical forms, unique in the Western tradition of art. His forms are otherworldly. They conjure up visions of futuristic entities. Ventrella believes that the "program is the art; the picture is a by-product."

Synthetic reality continued

Glenn McQueen, from NYIT, uses rendering techniques with 3D modeling to produce images of a startling reality combined with a delicate use of electronic color. His Cibachrome image, *Monet's Breakfast* (see Figure 8) has been part of several computer art exhibitions.

Mark Resch and Gordon Greene, Rensselaer Polytechnic Institute, have created *Untitled* (see Figure 9), a work from barrier-strip diagrams. It is part of an artificial reality, as is *Airplane,* a Cibachrome photographic print (see Figure 10) by Micha Riss. Riss uses color to cre-

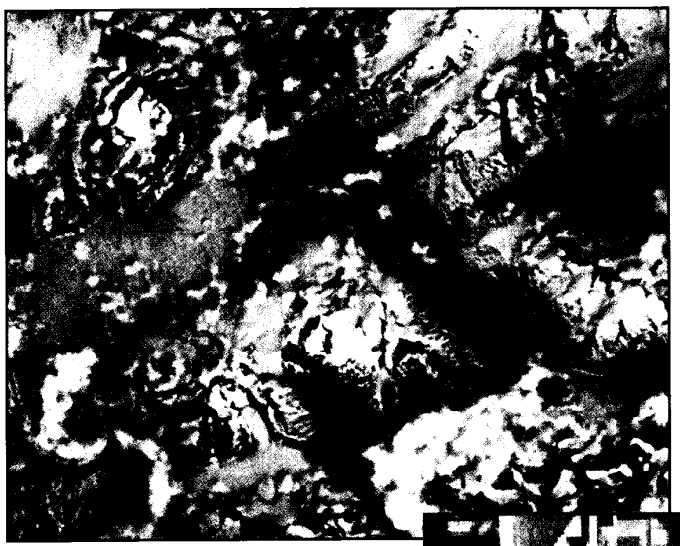


Figure 11. 1988 Gloria Brown-Simmons

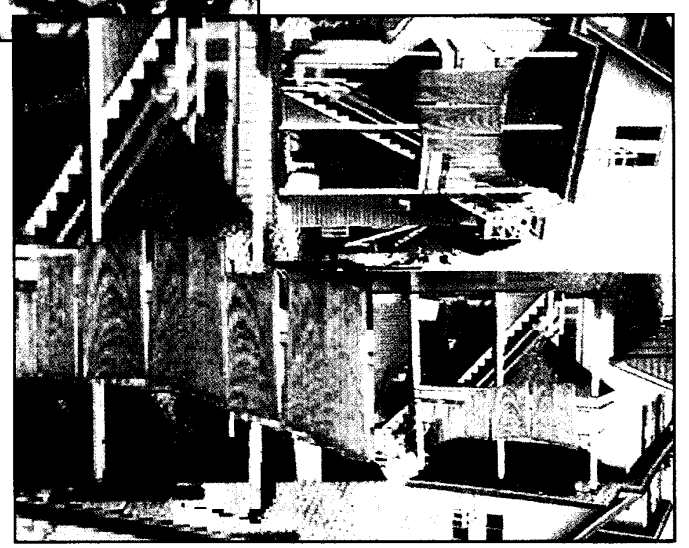


Figure 12. 1988 C.L. Terry Gips

ate composition while his forms materialize.

Manuscript #3, a 20″ ×24″ photo by John S. Banks, portrays a manipulated reality, using the Sandin Image Processor and the Lazerus 432.

Gloria Brown-Simmons created her *Cloud Study* (see Figure 11) in 1987 at TASC with the help of technical collaborators L. Gelberg, T. Parr, and V. Tom. It is an elegant abstracted photo, which depicts the lightness of atmospheric forms. Her background includes work at Harvard and MIT's Center for Advanced Visual Studies.

Photographic techniques are explored by Terry Gips, who teaches photography and computer graphics at the University of Maryland, Department of Housing and Design. Her work, *Restructuring* (see Figure 12), was produced using image digitizing. The architectural features create movement in a composition that rotates over the surface of the plane. This work was recently a part of the show in the Dundalk Gallery, Baltimore, Maryland.

The human factor

Other manipulated images are portraits. *Marilyn* (see Figure 13) and *Tom* are ink jet prints by Peter Voci. These works feature synthetic facial expressions which emote contrasting feelings. The features appear to be transformed in situ, on the face.

French artist Monique Nahas has been using the human figure for years in her computer-generated Cibachromes. She produced a fractured face in *Mapme*, an abstract constructed portrait of a woman. The human figure, a traditional subject in art the world over, was centered in *Death Valley*, a photographic work by Claire F. Doyle.

Barbara Nessim is known for her sensitive computer-composed figurative drawings, which explore the nature of relationships between men and women. She produced three unusual composite works from Polaroid photographic prints. Nessim's *German/American/French Lives* is a series in the form of the flags of three nations showing life gestures of figures in a recurring universal theme.

Figurative works include *City Faces*, a photographic print by Sandro Corsi; *Self-Portrait/Red*, an ink jet print by Rick Paul; Edward Kinney's collage, *A Short Morality Play* (see Figure 14); *Learning to Speak*, a witty and scary ink jet print by Ann Marie LeBlanc; an ink jet print by Carol Flax, *Reanna's Fury*; and

Figure 13. ©1988 Peter Voci

Figure 14. ©1988 E.Kinney

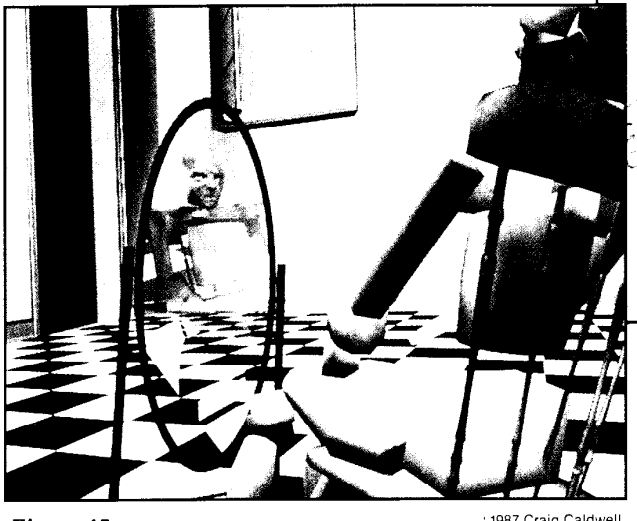


Figure 15. ©1987 Craig Caldwell

Lucia Grossberger's print *Mujer*, depicting a stylized Latina.

Audrey Fleisher created another of her elegant silk kimonos, *Kataginu of Silk*. This art is amazing for the craft as well as the art. She uses computer-generated color Xerox photographs, in this case man/beast forms, and applies heat transfer to the silk garment.

Animated art

The video portion of the Art Show was highlighted by several pieces from well-known computer graphic institutions. *Looking In* (see Figure 15) is by programming artist Craig Caldwell, whose background includes work at West Coast University, Los Angeles, the Advanced Computing Center for the Arts and Design at Ohio State University, and Northern Arizona University at Flagstaff. The work for the video was done at ACCAD, on a VAX 780 and a 32-bit frame buffer running Scnn_Assmblr and TWIXT. The sound and music were composed by Michael Czeisperger in the Sound Synthesis Lab at OSU. Another collaborator was Greg Foss, who constructed the background room in which the Man exists. Caldwell says the theme of the work "deals with the introspection that we are always understanding anew as we try to figure out what is real and keep our egos

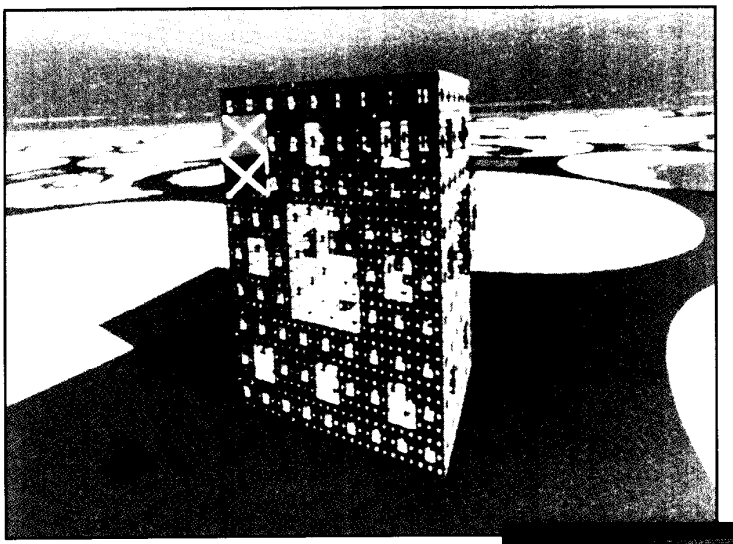


Figure 16. ©1988 Duncan Brinsmead

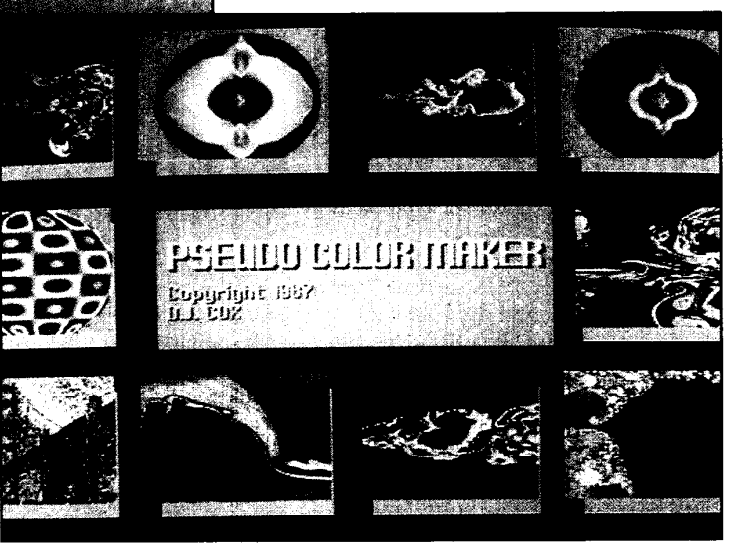


Figure 17. ©1988 Donna Cox

intact. In the process the figure gets more than [the artist] intended."

Fractal Fantasy (see Figure 16) is a four-minute work by Duncan Brinsmead from the University of Notre Dame. His piece is a "3D voyage through recursively defined objects." Computer-generated climatic changes occur at various points in time. Brinsmead described the motifs as "travel within a complex structure, a hierarchical explosion of the fractals, and pulsating lights on object surfaces." Brinsmead's background includes a master's degree from the Julliard School of Music, and computer graphics study at the School for Visual Arts, New York, and NYIT. "My interest turned to computers because of the possibilities they are opening in the field of visual music. As a dynamic art form, animation has more in common with music than with still art." His piece has a synchronized score to accompany the animation.

Coco Conn, from the Open School, Los Angeles, presented work from her students, grades 1 through 6. Ryorchiro Debuchi of Hightech Laboratories Japan, in Tokyo, had a work titled *JabJabBird*. Debuchi's work has a strong element of fantasy and imagination coupled with heightened coloration. Reynold Weidenaar's work, *The Thundering Scream of the Seraphim's Delight*, is 14 minutes, 29 seconds in length. He is with the Department of Film at NYU.

Video art pieces were also presented by artists Joseph Banchero, Alexander Hahn, Shelley Lake, Joan Staveley, Leslie Wilson, Criztine Foltz, Evelyn Chiyoko Hirata, and Hiromi Ono.

The animated work shown in the Art Show was inventive, and it demonstrated the development of the expressive possibilities found in the medium. Research into the generation of animated characters and the use of AI in animation programming has dominated the creative work at many computer graphics labs, public and private. The animated selections seen at the Art Show are important and complement the "cutting edge" work shown in the SIGGRAPH Video Show each year at the conference.

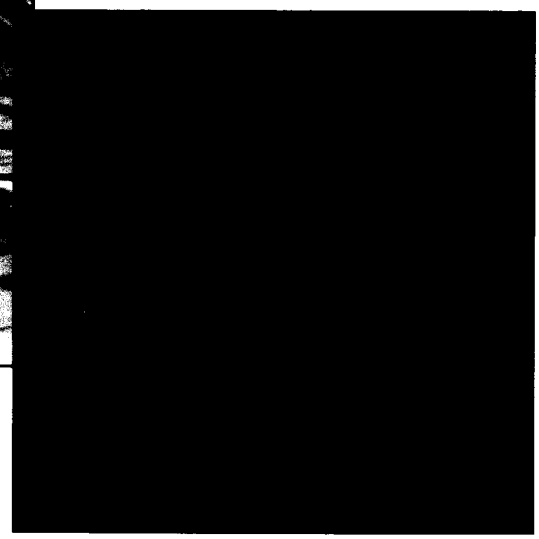
Experiential environments

Each member of the 1988 SIGGRAPH Art Show Committee—Kathleen Tanaka, Patricia Harrison, and administrative assistant Lisa Fremont—has experience with the creation of environmental art works. The committee and site designers—Sally Rosenthal, Mark Fausner, and Vicki Putz—made a serious commitment to the visual quality and nature of the site. Sally Rosenthal and technical advisor Johnie Horn used a CAD system to keep track of the requirements for the electronic components of the exhibition.

SIGGRAPH attendees could view a group of interactive works from the Museum of Science and Industry in Chicago. The show there was

1988 Donna Cox

Figure 18.



1988 Myron W. Krueger

Figure 19.

put together by Tom DeFanti, Dan Sandin, and Maxine Brown. The Interactive Image was a fascinating group of installations designed by Vicki Putz and programmed by artists and faculty from the University of Illinois at Chicago, College of Engineering, and the Electronic Visualization Laboratory. The Interactive Image included work by Sumit Das and Seton Coggeshall, *Simple Rules Complex Images—Graftals*; *Tilcal*, a 3D video booth by Maurice Clifford; *Zanimation Jr.* by Fred Dech, Debra Herschmann, and Stephan Meyers; Avrum Weinzweig's tessellation construction animation work, *Eric*; Dan Sandin, Mary Rasmussen, and Louis Kauffman's *Simple Rules Complex Images—Fractals*; and Harriet Lurie's *Quark*.

Donna Cox showed her *Interactive Computer Art/Science* (see Figures 17 and 18). Cox's work consists of a station that seats the viewer, who actively participates in the experience. A menu is provided, and the viewer selects from the choices offered to change imagery by altering the object coloration. The images are scientific research projects from the National Center for Supercomputing Applications, and they represent actual data. Cox selected colorways to demonstrate that a color ramp "can bring out images." She says, "I search in the directories of scientists, just as [Robert] Rauschenberg dug around in the garbage of New York, looking for scientific debris to create art." She believes that the future of art lies in "Renaissance teams" of artists and scientists who work toward the creation of a new visual aesthetic.

The Interactive Image is an important exhibition, wholly designed for interactivity. It will travel from SIGGRAPH to the Computer Museum in Boston, where it will be on permanent display.

Videoplace 88 (see Figure 19) is a real-time, interactive, computer-controlled environment by Myron W. Krueger, which he has been developing since 1975. The artist uses three motifs in this work. A 3D solid object is created in a few moments by the image of the participant's hands. In *Human Critter* the live video image of the viewer is reduced to the critter's size. This small version of a person can interact with a full-scale image or explore the video world. In the giant-hands mode, the live image of the viewer's hands is used to control the size and position of the full-scale image. Krueger's environments capture the viewer's sense of fantasy. The work is brilliant in conception and construction. It has been shown in major exhibits of digital art, including a 1975 version in The Kitchen, New York, and a 1987 installation at the Wadsworth Atheneum, Hartford, Connecticut.

Krueger creates an artificial reality and says, "In an artificial reality you are immersed in the experience. Your image is included in a display that is viewed on a large video projection screen. Interactions are controlled by your physical movements. There is nothing to hold. You are free to stand or walk around and use your entire body—just like in real life. However, in an artificial reality, unlike real life, the laws of physics may be broken if that serves an aesthetic or conceptual purpose."

An *Interactive Video Kaleidoscope* was created by Karl Sims, John Watlington, and the MIT Council for the Arts. It consists of three 6-foot mirrors which form the shape of a prism, a video camera, two color monitors, and a computer-controlled digital colorizer. The video camera points at the open end, capturing the viewer. The black-and-white video signal is converted into color and displayed on the monitors placed at either end of the mirrors to create feedback. The mirrors can rotate to

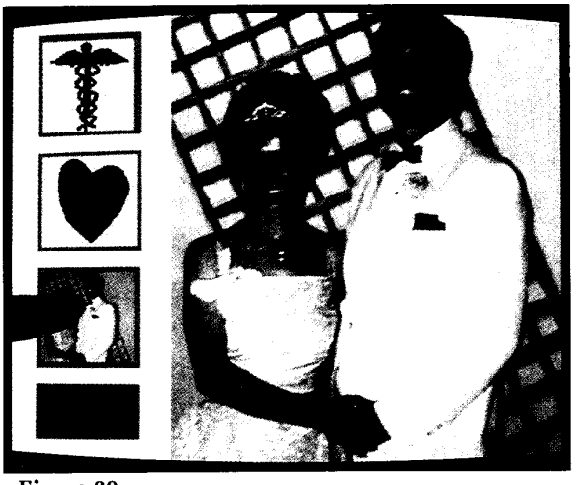


Figure 20.

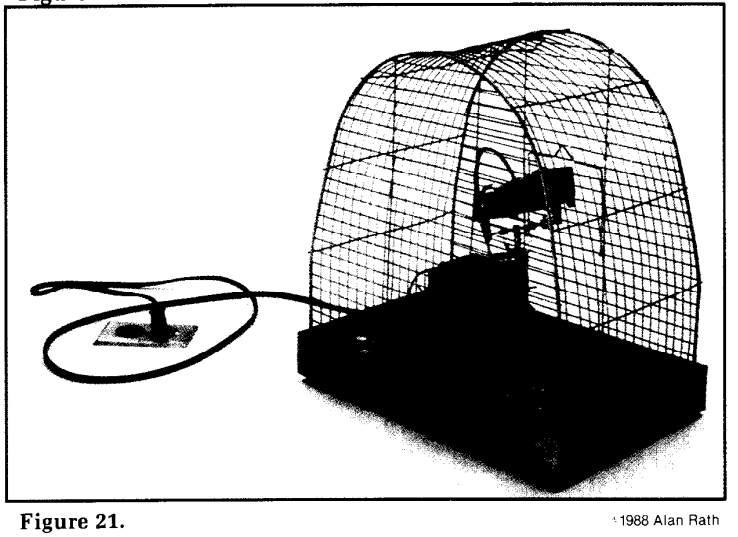


Figure 21. ©1988 Alan Rath

spin the image. The overall effect was intense and vibrant: Participants became mesmerized by the repetition of digital patterns.

One of the more amusing art experiences was the work by Stephen Axelrad, *Self Search* (see Figure 20). The work uses expert system concepts with still images stored on a videodisc or on the computer's hard disk for real-time interaction. The user makes choices on a touch-screen video monitor. Axelrad describes the piece as "an attempt to create a self-portrait or surrogate self. It is my alter ego," he says and at the same time it has a personality of its own. The program is inspired by the fact that *self* is the word for *recursive* in the computer language Smalltalk, and the possibility that human self-consciousness is recursive in nature. Axelrad has programmed the work to be "somewhat mischievous," not being predictable. The viewer is engaged in this multisensual work on several levels. "As the person makes choices and tries to find information to satisfy his or her curiosity, the piece has a different agenda of its own, with goals it tries to prove or satisfy. A person who fulfills the requirements for the frame *misery* will have a miserable experience."

Alan Rath had two works, *Word Processor* and *Bird Cage* (see Figure 21) in the show. *Bird Cage* is a kinetic work created from a microcomputer, digital frame store, and a speech synthesizer. A solenoid system moves the one-inch video monitor inside the cage. The amount of movement is controlled by the intensity of ambient light. The video bird displays a human eye, which looks about and blinks.

Other installations were created by Coco Conn and the MIT Media Lab, *Lego/Lego*; Rob Myers, Peter Broadwell, and Eva Manolis, *Plasm: A Nano Sample*; and David Rokeby, *Very Nervous System*.

The interactive nature of computer-generated art experiences is one of the most compelling aesthetic elements. A fascination with interactivity is an important part of twentieth century art. Since the turn of the century there has been an increase in collective art pieces that relate to a decline in ritual structure in Western daily life. Computer artists who combine interactivity with synthetic imagery form part of an art-historical continuum that began with the Dada poetry/performances in the teens and includes Calder's moving sculptures and the happenings of the sixties, and saw the growth of multidimensional performances in the seventies.

The show had a variety of still images produced in photographic or traditional media but that had the feel of the pixel. One such work was a lithograph, *Silver Shimmy* (see Figure 22) by Seattle artist Karen Guzak. The work incorporates a vision of animation in a Neo-Ex style. She used 25 color separations and 11 plates in the production of the piece to obtain a textural density. "I love the look of the pixel," Guzak admits. Her exhibition list includes the San Francisco Museum of Modern Art in 1983 and the Bronx Museum, New York, in 1987.

Fellow Northwest artist Hillary Kapan has created a photographic print of her work, *Glacial* (see Figure 23). Her works use classic computer functions that create a richly textured spatial view. Belgian artist Peter Beyls, who participated in the 1986 SIGGRAPH Retrospective show, mounted one of his elegant computer plotter drawings. Paul Lempke's *Venuse Mosaic*, a photographic work (see Figure 24) emotes an eerie futuristic sensation, complete with computer-generated paper cutout images. David Breen, Tom Brigham, Sheriann Ki-Sun Burnham, Semannia Luk Cheung, F. Kye Goodwin, Barbara Joffe, Fred Jones, Brian J. Koeff, Frank Kulsea, Gina Lewis, Bill Linehan, Alan Luft, Delle Max-

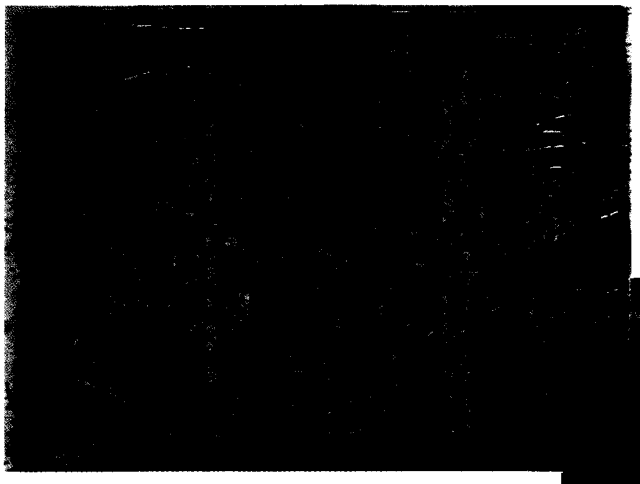


Figure 22. ©1988 Karen Guzak

Figure 23. ©1987 Hillary Kapan

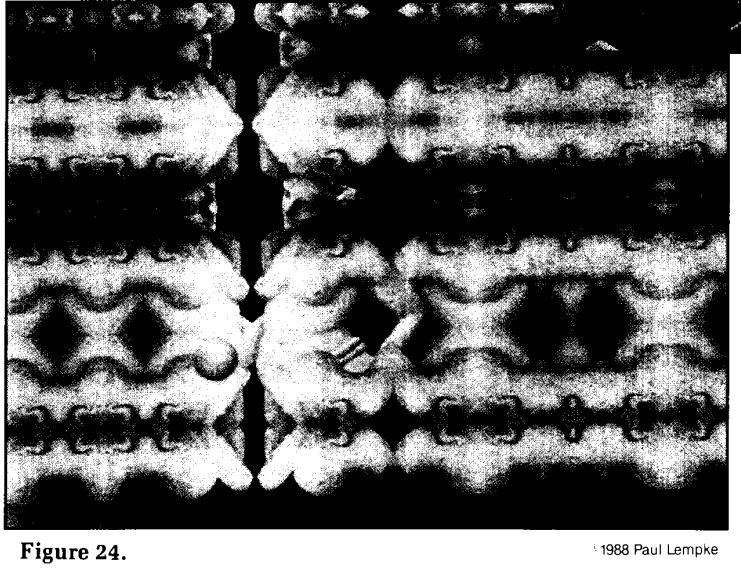


Figure 24. ©1988 Paul Lempke

well, Jim McLean, Meryl Meyer, Milton Montenegro, Jacquelyn Ford Mori, F. Kenton Musgrave, Susan Ressler, Marian Schiavo, Wendy Schmidt, Mechitild Schmidt, Jon W. Sharer, and Shinya Yusa also had work in the show.

An Art Show video catalog was produced to accompany the Art Show Slide Set. SIGGRAPH has printed an Art Show catalog since 1982, and the catalogs have become collectors' items. The decision to skip the printed word and go directly to a visual format for this year's catalog confirms the committee's commitment to an experiential direction for computer art.

The overall verdict for the show was one of admiration. The SIGGRAPH Art Show comes closer to a digital perfection than previous shows. There was a strong Chicago School influence to the entire exhibition (several of the judges have connections to Chicago and to the core of individuals who pioneered video techniques there). The aesthetic qualities demonstrated here are new and must be viewed with a certain amount of background knowledge as well as understanding that a significant change in both the definition of art and in art appreciation is happening.

Patric D. Prince is an art historian who has lectured at West Coast University and California State University, Los Angeles. She specializes in the history of computer-aided art and holds a BA in the history of art and architecture from the University of California, Berkeley and an MA from California State University, Los Angeles, in the history of computers in art and design. Prince was the 1986 ACM SIGGRAPH Art Show chair and has juried several computer art events, including the Second Emerging Expressions Biennial at the Bronx Museum for the Arts.

Prince can be contacted at Fine Arts Administration, 901 Sixth St., SW, No. 914, Washington DC 20024.