

enhancing the **G**raphics gallery

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In 1984, "The Computer and the Image" was opened as a gallery to show how computers are used to manipulate images (image processing) and create synthetic images (computer graphics).

The arrival in Boston of the prestigious computer graphics conference of the ACM SIGGRAPH in the summer of 1989 provided the impetus to enhance this gallery. Three exhibits, running since 1984, and the film show were retired. Ten new hands-on interactive stations, a giant plot of a silicon chip, and a new show in the Animation Theater were installed.

The addition of the giant plot of a silicon chip realized a part of the original gallery plan never before implemented. Advanced Micro Devices specially produced a full-color 11-by-11-foot plot of their 29000, a highly sophisticated microprocessor.

"The Interactive Image" is a set of hands-on exhibits developed by the Electronic Visualization Lab at the University of Illinois, Chicago. Using an artistically designed video game-style interface with buttons and a joystick, visitors learn how to create computer-animated movies, generate kaleidoscopic patterns, process images of their own faces, and discover the

beauty of the Mandelbrot Set and plant-like forms called graftals.

A highly informative new program on the rendering of three-dimensional objects was developed to our specifications by Hewlett-Packard. Visitors use knobs (with instant response) to swivel, zoom into, and illuminate the classic test object — a teapot — rendered by progressively more realistic methods, from wire-frame to smooth shading and ray-tracing.

Real-time realistic images can also be explored on a Titan computer from Stardent Computer. In one example, visitors control the speed and direction of simulated wind. They see, in real time, how a simulated flag responds to the effect of the wind on the flag as it flaps in the breeze. Such computer analysis would have been unthinkable on anything less than a supercomputer when the gallery opened in 1984!

New exhibits on flight and driving simulation offer exhilarating experiences for visitors. On an IRIS workstation donated by Silicon Graphics, visitors pilot a 747 over a synthetic mountainous terrain. And the Atari Games' "Hard Drivin'" simulator (on loan until spring 1990)

actually mimics the force of the road on the steering wheel as the driver rounds a curve. The coupling of 3-D computer graphics (the view looking through the windshield) with mechanical feedback adds a compelling new dimension of realism to the simulation.

Perhaps the most practical new exhibit is "Design a Deck" from Innovis Interactive Technologies. Visitors use a computer and trackball to design a house deck complete with steps, railings, and flooring. The exhibit is a customized version of a system that is in widespread use in home-improvement centers.

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