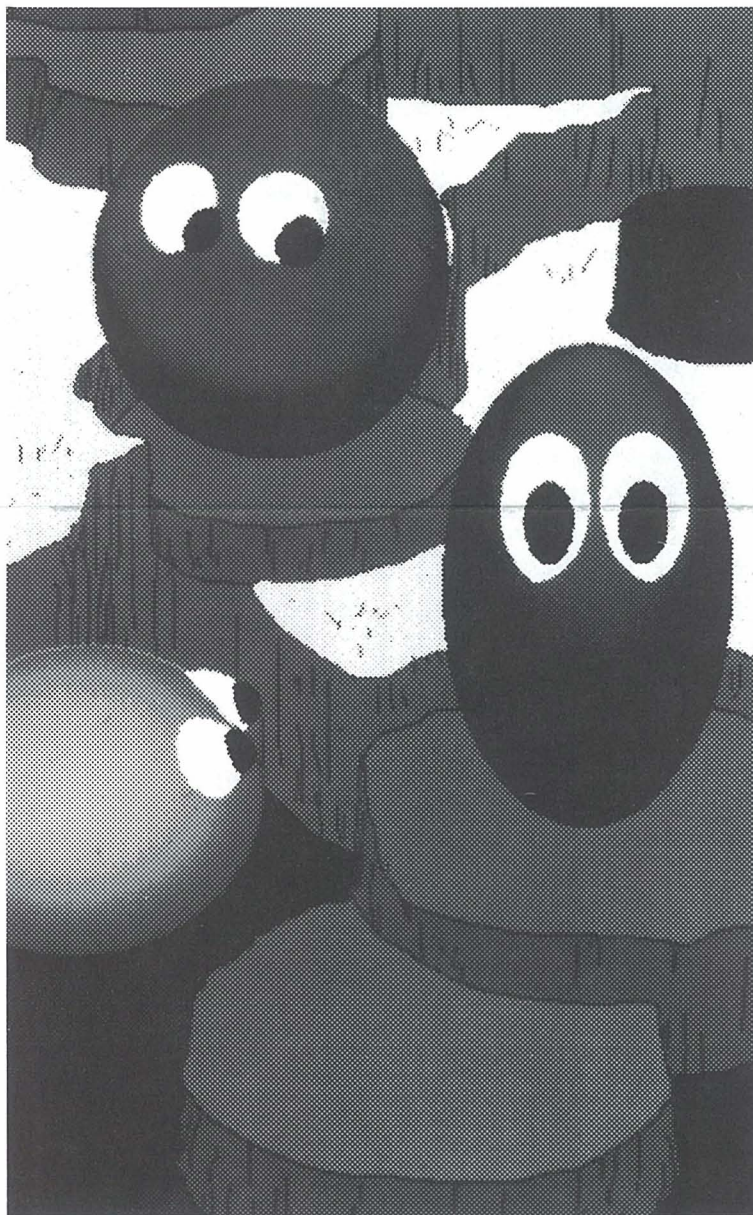


Smart Art in S

“Consider this first AI based art exhibition as a Zen garden: small, simple, but calmly and intensely representing the larger world of AI based arts to come. AI is crucial to interactive art because the pieces have the artistic knowledge and abilities to respond appropriately to the viewer without the original artist being there.”

Joseph Bates, Curator and Research Fellow, Carnegie Mellon University



“Edge of Intention” (Woggles). Created by the Oz/Animation group, Carnegie Mellon University (contact Professor Joseph Bates)

The new *Smart Machines* gallery features three interactive installations and a spectacular presentation of images from *Smart Art: The First Artificial Intelligence Based Arts Exhibition*. Illustrating a range of cutting edge AI technologies, the original show was sponsored by the American Association for Artificial Intelligence and arranged with the help of the STUDIO for Creative Inquiry and the School of Computer Science, Carnegie Mellon University.

Edge of Intention

In this installation, a visitor enters a dramatic interactive world, peopled by four bouncing jelly bean creatures called “Woggles.” A visitor can move a Woggle around, making it interact with the other Woggles. “Tok,” an architecture simulating the mind, integrates the Woggles’ reactions, goals, and emotions. For each Woggle, success, failure, prospective failure, and the recognition that other creatures caused these situations lead to happiness, sadness, fear, gratitude or anger. These states in turn affect their choice of reactions.

The installation, which runs on a Silicon Graphics workstation, is the result of collaboration between the Oz project and the Graphics & Animation research group in the School of Computer Science at Carnegie Mellon.

Mozart or Machine?

A computer challenges visitors to guess whether the music they are hearing was composed by Mozart or by a computer program called Experiments in Musical Intelligence (EMI). Composer David Cope, Professor of Music at University of California, Santa Cruz, designed EMI to help break through his “composer’s block.” EMI is a set of programs that analyzes music, derives rules from that analysis, and then creates “convincing new examples in the style of the original music.” EMI can aid composers in creating new works and musicologists in

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"Chaos" (left panel of triptych), created by Karl Sims, Peter Schroeder, Thinking Machines Corporation

analyzing musical styles. "It has fooled many experts," reported Cope in the show brochure.

EMI "listens" to a composer's works, breaking them down into frequent motives or signatures. A musical pattern matcher then finds patterns in pitch, rhythm and their combination. Using this information, rule-based composition produces a styleless piece conforming to the original music's patterns. This is then processed by an augmented transition network which reconfigures the material, generating new music.

Say It With Feeling

Visitors can take computer generated speech and give it expression. After they select an excerpt from among a variety of plays, such as Beckett's *Waiting For Godot*, the emotions for each line can be specified.

MIT Media Laboratory Ph.D. student Janet Cahn developed the software program to expand the emotional range and speed of communication for speech handicapped people. She used a DECtalk3 speech synthesizer to generate speech from instructions computed on a Symbolics Lisp Machine.

The program attaches subtle acoustical features to words and phrases, translating them into instructions for the synthesizer. The program also describes the vocal tract settings from calculated synthesizer values. All these synthesizer instructions embody the linguistic and physiological effects of speaking with feeling.

Artificial Evolution

Thinking Machines artist-in-residence Karl Sims created a spectacular series of images called, "Genetic Images," using a Connection Machine and the computer language Lisp. Sims devised a system that lets users interactively "evolve" a wide variety of textures, patterns and shapes.

At each step, the computer randomly mutates a Lisp expression, describing an image by specifying the color of each pixel as a function of pixel coordinates. The user chooses the most aesthetic of the resulting images to survive, reproduce, and create the next generation. Because of the massively parallel computer's power, radically new and complex images emerge.