The Computer Museum NEWS

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Smarter Machines

The Museum will open an enhanced *Smart Machines* gallery February 13. *Smart Machines* is the only full-scale permanent exhibition in the world devoted solely to the intriguing fields of artificial intelligence (AI) and robotics.

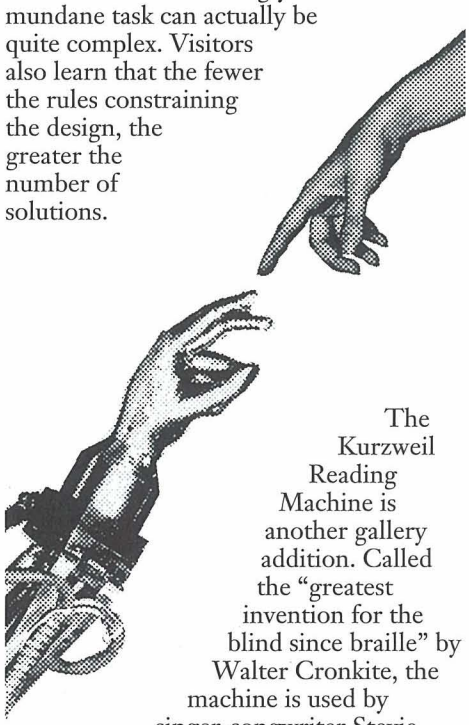
Since the gallery's opening in 1987, some 600,000 people have enjoyed its interactive exhibits and robot theater. *Smart Machines* is one of the Museum's most popular galleries because it addresses questions that capture the human imagination: Can machines think like us? Can they move and act like us? The gallery focuses on key aspects of human intelligence in such areas as games, creativity, problem-solving, and communication, as well as sensing and moving in robots.

The renovation features exciting new interactive installations from *Smart Art: The First Artificial Intelligence Based Arts Exhibition*. (See story, pages 4-5.) The enhancement also involves adding other interactive exhibits and upgrading the best existing interactives with faster, new computers and better interfaces. Gems, such as the robot theater—with its early innovative machines—and Eliza, the classic conversational program that emulates a non-directive therapist, will be retained.

In addition, Museum Designer Ted Groves is creating a new floor plan "to make the gallery brighter, more colorful, and inviting." The enhancement is made possible with support from the American Association for Artificial Intelligence (AAAI) and others.

As the *NEWS* went to press, Director of Exhibits Greg Welch and Exhibit Developer David Greschler were investigating several cutting edge AI applications as possible additions. One of them, "Ask the Expert," is being created by Michael Stein, a student of Daniel Siewiorek, Professor of Computer Science and Electrical Engineering at Carnegie-Mellon.

The exhibit will show visitors how a rule-based expert system works and how they can use it to create designs for an efficient kitchen. Visitors are introduced to different rules that constrain the design so it corresponds to reality (for example, the sink must be close to the plumbing or the back of the fridge must be against the wall). The exhibit graphically illustrates that a seemingly mundane task can actually be quite complex. Visitors also learn that the fewer the rules constraining the design, the greater the number of solutions.



The Kurzweil Reading Machine is another gallery addition. Called the "greatest invention for the blind since braille" by Walter Cronkite, the machine is used by singer-songwriter Stevie Wonder among others. Its character recognition program scans printed material in virtually any type face, converting it into machine-readable text and then voice. The exhibit will be used by Museum staff in a series of new demonstrations.

Another exhibit would use software created by Gensym Corporation to show how an expert system coordinates the baking of 200 loaves of bread per minute. A visitor could see an animated version of the production of the loaves and experiment with changing some of the rules (turning off the slicing machine, for example) to see what happens and what the expert system suggests be done.

Another possible exhibit, SimLife™, would be customized for the Museum by Maxis to introduce visitors to the amazing new field of artificial life. In A-life, computer generated life forms are given rules to simulate aspects of the behavior of living systems. When the rules are tweaked, the artificial creature changes behavior in interesting and unexpected ways. SimLife lets people build artificial life forms, change rules about how they live and then see if they flourish or die.

Many of the gallery's most popular programs — the Height Sensor, Haggle With a Computer Fruit Vendor, and Color the States — have been replicated and sold to museums and science centers worldwide via the Exhibit Kits Program. Others, such as AARON, the Computer Artist, and the Direction Assistant, have delighted families, educators, even film crews, from around the world.

"As computers get ever smarter and know more about the world and the people using them," predicts Museum Executive Director Dr. Oliver Strimpel, "AI and robotics technologies will play an increasing role in defining computer applications and interfaces." AI has already given us cars "smart" enough to stay a safe distance from other cars and a robot that can assist surgeons in hip replacement surgery. "When we think about the next millenium," he says, "AI technologies will determine just how versatile computers will be."