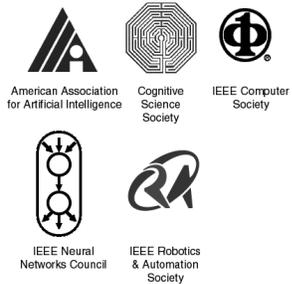# Join Us!

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Recent advances in artificial intelligence, cognitive science, neuroscience and robotics have stimulated the birth and growth of a new research field, known as computational autonomous mental development. Although human mental development is a well-known subject of study, e.g., in developmental psychology, computational studies of mental development for either machines or humans had not received sufficient attention in the past. Mental development is a process during which a brain-like natural or artificial embodied system, under the control of its intrinsic species-specific developmental program residing in the genes or artificially designed, develops mental capabilities through its autonomous real-time interactions with its environments (including its own internal environment and components) using its own sensors and effectors. The scope of mental development includes cognitive, behavioral, emotional and all other mental capabilities that are exhibited by humans, higher animals and artificial systems. Investigations of the computational mechanisms of mental development are expected to improve our systematic understanding of the working of the wide variety of cognitive and behavioral capabilities in humans and to enable autonomous development of these highly complex capabilities by robots and other artificial systems.

ICDL-02 is the first regularly scheduled conference following the very successful Workshop on Development and Learning (WDL), funded by NSF and DARPA, held April 5 - 7, 2000 at Michigan State University (http://www.cse.msu.edu/dl). Some discussion about this new direction is available on the Final Report page of the WDL website. A brief discussion of the subject is available in an article appeared in *Science,* available electronically at: http://www.cse.msu.edu/dl/SciencePaper.pdf.
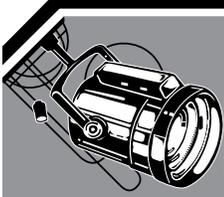
"Always Interesting"
AI in the news

Man and Machine Take the Field, David Olson, *The Seattle Times* (August 4, 2001). "The soccer games may be just for fun, but the technology used to create and operate the players could also help build robots to rescue victims of disasters, said Hiroaki Kitano, president of the RoboCup Federation."

Robots Scour WTC Wreckage, Leander Kahney, *Wired News* (September 18, 2001). "Dozens of experimental search-and-rescue robots are scouring the wreckage of the World Trade Center's collapsed twin towers.… Some of the robots at the WTC site appeared at this year's annual Robocup competition, held in Seattle during the International Joint Conference on Artificial Intelligence. The Robocup competition includes an urban search-and-rescue obstacle course."

Intelligent Machines Will Benefit Millions Someday, Gates Says, Brier Dudley, *The Seattle Times* (August 8, 2001). "It will be at least a generation before computers can fool people into thinking the machines are human, Microsoft Chairman Bill Gates predicted yesterday in his keynote speech at a conference of artificial-intelligence researchers in Seattle."

Artificial Intelligence: Help Wanted—AI Pioneer Minsky, Kevin Featherly. *Newsbytes,* a division of The Washington Post Company (August 31, 2001). "When will computers cease to be dumb, gussied-up adding machines and start thinking for themselves? 'It's between three and 300 years,' [Minsky] said. 'Estimating how long it will take is a combination of how large we think the problems are and how many people will work on it.'"

Artificial Intelligence—2001: A Disappointment? *The Economist* (December 20, 2001). "Maybe, in the end, humans will never know the larger truth. HAL was alien to his human crew—a red eye, behind which lurked an unfathomable intelligence. Since 1968, the computer has become more alien still. Kubrick had no inkling of the networked computer, with its potential for massively distributed intelligence. Perhaps humans will stay ignorant of the grander design, just as a single ant has no comprehension of the intelligence of the colony. When 2001 really does arrive, we may never know it."

Speech Recognition to Sort Holocaust Tapes, Kimberly Patch, *Technology Research News* (October 31, 2001). "Now, after videotaping 52,000 eyewitness accounts in 57 countries and 32 languages, the [Shoah Foundation] is looking to speech recognition software—which has also come a long way in the past seven years—to help with the arduous task of indexing the 116,000 hours of interviews.… Cur-

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This eclectic keepsake will give you a sampling of what can be found (with links to the full articles) on the AI Topics web site. Please keep in mind that (1) the mere mention of anything here does not imply any endorsement whatsoever; (2) the excerpt might not reflect the overall tenor of the article; (3) although the articles were initially available online and without charge, few things that good last forever; and (4) the AI in the News collection—updated, hyperlinked, and archived—can be found by going to www.aaai.org/aitopics/html/current.html.

—Jon Glick, Webmaster, AI Topics

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rent speech recognition software, which works fairly well for a single trained user, is still not up to the task of transcribing from tape emotional testimony from many users in many language. The nature of this job makes an excellent research project, however, said [Bill] Byrne."

Computers Try to Outthink Terrorists, Bruce V. Bigelow, *The San Diego Union-Tribune* (January 13, 2002). "The task seems daunting. More than 11.2 million trucks entered the United States last year, according to the Customs Service. But help is at hand, thanks to a maturing computer technology with the capability of finding the statistical equivalent of a needle in a haystack. Known as machine learning or neural networks, such technology uses the power of computer processing in a fundamentally different way than conventional computers do. Instead of a logic-oriented program that follows a set of step-by-step instructions that lead to a definitive answer, machine learning uses statistical modeling techniques to produce an optimum answer. … Once known as 'artificial intelligence'—a term that many computer scientists disdain—such technology now is used to detect fraudulent financial transactions, such as money laundering, and to monitor industrial processes for irregularities."

Dot-Com Crash Victims Heading Back to College, Brenda Warner Rotzoll, *Chicago Sun-Times* (January 8, 2002). "The dream of dot-com riches has turned into a nightmare for thousands of people laid off in the e-commerce bust. Many of them are coping by going back to college to train for different jobs—most of them still in the computer area. They're signing up for subjects such as 3-D graphics, programming languages, artificial intelligence, computer networking and game development. Some are seeking advanced degrees but many are entering certificate programs, shorter and less-expensive courses that in a few months may qualify them in one specialty."

PLEASE NOTE: Bruce Buchanan joins Jon Glick to shine the spotlight on the AI Topics web site itself. Their article, "AI TOPICS: A Responsibility to Celebrate AI Responsibly," also appears in this issue.