Column

"Always Interesting"
AI in the news

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In Chess, Qualified Respect for Computers. Michael Hiltzik. *Los Angeles Times.* September 26, 2005 (www.latimes.com). "The quest to build a computer grandmaster has helped bring focus to computing research since the 1950s and was a major line of inquiry in artificial intelligence. ... [E]ight years after IBM's Deep Blue chess computer defeated world champion Garry Kasparov in what was billed as the ultimate test of man vs. machine, experts still debate whether that match is computing's last word on the subject—and even whether the computer didn't somehow, well, cheat. The issue has been getting a new airing, thanks to an exhibit installed this month at the Computer History Museum in Mountain View. Titled 'Mastering the Game: A History of Computer Chess,' the exhibit chiefly covers the 50 years of efforts to teach a machine to play a quintessentially human pastime culminating in the Deep Blue-Kasparov match."

In a Grueling Desert Race, a Winner, but Not a Driver. John Markoff. *The New York Times.* October 9, 2005 (www.nytimes.com). "The Stanford scientists who led the 18-month effort to build Stanley said they saw their victory as a significant leap forward in the field of artificial intelligence, a discipline that has long suffered from big promises that did not pan out. 'This is for people who say, "Cars can't drive themselves,"' said Sebastian Thrun, the director of the Stanford Artificial Intelligence Laboratory and co-leader of the Stanford team. 'These are the same people who said the Wright brothers wouldn't fly.' ... 'The Grand Challenge has been conquered,' Dr. [Anthony J.] Tether said. ... Mr. Thrun, of the Stanford team, said advances in the field of self-driving vehicles would start to come more quickly. 'Extrapolate two, three or four years out, and then let your imagination play,' he said."

Eyes on the Prize. Dylan Tweney. *TechnologyReview.* October 18, 2005 (www. technologyreview.com). "When Stanford University's robotic Volkswagen Touareg, 'Stanley,' won the Grand Challenge last week, robot enthusiasts everywhere cheered. By completing a 210-kilometer course over difficult desert terrain in just under seven hours, Stanley set an unprecedented milestone for autonomous vehicles. Even more amazingly, four other teams' vehicles also completed the course, with slightly slower times. ... The Grand Challenge is just the latest example of how prize money can be effective—and extremely efficient—way to stimulate rapid technological develop-

ment. ... That's exactly how this year's Grand Challenge played out, with 195 teams entering the competition, five teams successfully completing the course—and a whole new crop of inventors, engineers, computer scientists, entrepreneurs, and even high-school students stimulated to enter the field of autonomous vehicles. ... 'The prize approach is particularly useful in energizing a community and giving people an incentive to become involved in researching a technology area of interest to DOD,' says Jan Walker, a spokesman for DARPA."

125 Big Questions. *Science.* July 1, 2005 (www.sciencemag.org). "In a special collection of articles published beginning 1 July 2005, *Science Magazine* and its online companion sites celebrate the journal's 125th anniversary with a look forward — at the most compelling puzzles and questions facing scientists today. A special, free news feature in *Science* explores 125 big questions that face scientific inquiry over the next quarter-century...." **What Is the Biological Basis of Consciousness?** By Greg Miller. "For centuries, debating the nature of consciousness was the exclusive purview of philosophers. But if the recent torrent of books on the topic is any indication, a shift has taken place: Scientists are getting into the game. Has the nature of consciousness finally shifted from a philosophical question to a scientific one that can be solved by doing experiments. ... Recent scientifically oriented accounts of consciousness generally reject Descartes's solution; most prefer to treat body and mind as different aspects of the same thing. In this view, consciousness emerges from the properties and organization of neurons in the brain. But how?" **What Are the Limits of Conventional Com-

puting?** By Charles Seife. "Princeton mathematicians Alonzo Church and Alan Turing showed—roughly speaking—that any calculation involving bits and bytes can be done on an idealized computer known as a Turing machine. ... In the 1940s, Bell Labs scientist Claude Shannon showed that bits are not just for computers; they are the fundamental units of describing the information that flows from one object to another.... All classical information-processing machines are subject to these laws—and because information seems to be rattling back and forth in our brains, do the laws of information mean that our thoughts are reducible to bits and bytes? Are we merely computers? It's an unsettling thought. But there is a realm beyond the classical computer: the quantum. The probabilistic nature of quantum theory allows atoms and other quantum objects to store information that's not restricted to only the binary 0 or 1 of information theory, but can also be 0 and 1 at the same time." **What are the Limits of Learning by Machines?** "Computers can already beat the world's best chess players, and they have a wealth of information on the Web to draw on. But abstract reasoning is still beyond any machine."

A Sci-Fi Future Awaits the Court. Bruce Schneier. *Wired News.* September 22, 2005: (www.wired.com). "At John Roberts' confirmation hearings last week, there weren't enough discussions about science fiction. Technologies that are science fiction today will become constitutional questions before Roberts retires from the bench. The same goes for technologies that cannot even be conceived of now. And many of these questions involve privacy. ... They will include questions of surveillance, profiling and search and seizure. And the decisions of the Supreme Court on these questions will have a profound effect on society. ... That story illustrates a number of technologies that might become commonplace over the next several decades. Automatic face recognition will allow police, businesses and individuals to identify people without their knowledge or consent. Data-mining programs will sift through mountains of data, both real-time and historical, and select people for further investigation. And people might even be accused of conspiracy based on nothing more than a nebulous pattern of events."