E.I.T. Links

From "self-service" to "room service" :
How Emerging Information Technology is changing the way we live

"The Future is already here; It's just not evenly distributed." --Gibson

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Editor's Note:

The recent quarter was an extremely busy month for news. There were many very interesting items, now posted at the website and included here. NOTE: My podcast of the news items should be available beginning in Fall 2006. This newsletter may be redistributed as long as it is left intact. New subscribers can join by sending an email to steve@steveknode.com
Remember, all links here can be found at www.steveknode.com/news_updates.htm

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Links for this Issue

Chatterbots

- Let a Chatbot Help You Quit – Chatterbots are showing up in many venues. Here is an excellent example of a chatterbot in use as a coach to help quit smoking.

- AI Beats Human Intelligence on Yahoo Answers– An example of how useful chatterbots can be, in this case providing answers to questions.

Robots

- Robot Help Hospitalized Students Keep Up – Robots are certainly becoming one of the hottest AI technologies. Here is one which allows for hospitalized students to be "in the classroom" via telepresence.

- The Human Touch– Robots continue to emerge, in this case starting the blur the distinction between cognition and consciousness.

- Brainy Robots Stepping into Daily Life – Several examples of how robots are showing up in everyday life are included in this article (free registration required for access).

- Meet the Remote-Control Self – At least one person has successfully created a "clone" robot of himself—read on.

- Trust Me, I'm a Robot—Robots continue to make inroads in medical applications. Several interesting ones are outlined in this article.

- "Baby" Robot Learns Like a Human—One of the more promising developments in merging robotics with other aspects of artificial intelligence are attempts to automate the learning process. In this article, attempts to have a robot learn in much the same way as a child are described.

- Robot Carries Out Operation by Itself—For the first time, a robot has carried out an operation completely unattended. This dramatic operation was a 50 minute heart surgery.

Sensors

- Implantable Dust-Sized Sensors to Monitor Health - As the spread of sensors into virtually everything continues, the use of such sensors to monitor health reaches the

forefront. These sensors could be permanently implanted and give continuous monitoring of health conditions.

- [Brain Sensor Helps Paralyzed People Do Tasks](#) – One place sensors will show up early is in helping those with physical handicaps. Look for more sensor applications similar to this.

- [Wireless in the ER Waiting Room](#)—By using sensors to monitor patients in the waiting room nurses and doctors are more able to not only keep track of where patients are, but also key indicators of their health condition.

- [The Future of the Internet](#)—This article discusses how pervasive the internet will be within ten years. By having sensors virtually everywhere, knowing everything about everything will become practical.

Neural Networks

- [An Intelligent Valuation System](#) – Neural networks continue to expand in use. As one of the most "intelligent" of the AI applications, neural networks can "learn" from previous occurrences. In this case, neural networks learn how to value properties better than human or statistical methods.

- [Artificial Intelligence Helps Stock Shelves](#)– In this example of neural networks at work, the behaviors of the best company allocators are "learned" in just a few months, thereby allowing even average managers using the system perform like stars.

- [NASA to Test Automated DAME](#)– NASA will be testing a "hybrid" intelligent system, part expert system, part neural network so that a drilling system on Mars can be totally automated without human intervention.

- [A "Neural" Approach to the Market](#) – Neural networks learn from past patterns and can use this automated learning to "predict" the future. One key use of such a technology is for predicting the stock market. In this article, a mutual fund that uses neural networks in this way is described.

- [A "Smart" System for Sugar Production](#)—Another use of neural networks is to monitor sensors and, based on what the network has learned from previous examples and trials, make adjustments to production processes. Read how this neural network optimizes sugar yield.

Intelligent Agents

- [It Has Come to This: Computer Orders Restaurant Workers Around](#) – For several years, I have recommended to my students that they read [Manna,](#) a short futuristic novel about how the combined used of embedded sensors, intelligent agents, and machine intelligence will perhaps someday change the way in which we operate (and not always favorably). This article makes this futuristic scenario real today! Read how one fast food restaurant is already implementing its version of [Manna](#).

- [A Know-It-All IM Buddy](#)—Instant Messaging (IM) continues to grow in popularity. This application showcases a "buddy" which can answer questions naturally by finding the answers for you.

- [eSuds](#)—How about combining sensors in washing machines in college dorms with intelligent agents to let you know when the machines are available? Sound interesting, well it is already available via an application colled esuds.

- [PUSH Music](#)—What if there were agents in your iPod or MP3 player which could talk to other agents in others' players, compare songs and automatically exchange songs if the agents decided there were similar interests? PUSH music intends to use agents for just such a purpose.

Data Mining

- [Feds Sharpen Secret Tools for Data Mining](#) - Data mining to extract meaning from the vast information being stored has become one of the main applications of data mining. Federal agencies are especially interested in combating terrorism by finding key

relationships in data collected.

Educational Technology

- AI Programs Grading Student Essays – Several artificial intelligence programs attempt to "grade" student essays. This article discusses one that focuses on essay content and concepts, showing the progress in such automatic grading systems. In addition to grading essays, this application provides useful feedback (immediately) to the students.

Future

- Man-Machine Merger Arriving Sooner Than You Think – This podcast discusses how man will merge with machine to possibly create a "super human" species.

- Are We Enlightened Guardians, or Are We Apes Designing Humans?—An interesting philosophical discussion about where we are headed with the coming singularity. Will humans continue to exist?

Brain

- The Expert Mind – If you think that experts are "born not made", read this very informative article about how experts are made. Experts are made by practicing, keeping an open mind and relying on structured knowledge more than analysis.

- Making Computers Smarter—The latest thinking is to make computers behave more like the human brain, thereby enabling biological-like learning.

Decisionmaking

- Maybe We Should Leave That Up To the Computer– Still more evidence that simple formulas outperform a professional's decisionmaking skills. The use of consistent models and absence of emotion allows computerized decisionmaking to surpass that of humans. (Ed. Note: For many years I have recommended that the book "Decision

Traps" be mandatory reading. The book clearly outlines how limited and flawed our cognitive capabilities are.)

Machine Learning

- AI Capable of Learning Complex Human Processes After Just One Example– One of the most sought after AI successes is that of automated machine learning. Serious money is now being applied to support progress in this endeavor.

AI General

- Computers and Common Sense – As a long time admirer of Doug Lenat and his Cyc project, I heartily recommend you watch this video of his presentation about Computers and Common Sense. Doug discusses the progress and problems associated with giving computers commons sense and presents a timetable for success. Based on his track record, pay attention to what he says.

Nanotechnology

- I, Nanobot – With the continued development and controversy about nanotechnology and its potential, this extensive article about the creation of nanobots is worth reading. Lots of controversial subjects are covered in great depth.

Semantic Web

- Semantic Web– If and when it is accomplished, the semantic web will be one of the most important improvements in how we deal with information. In this outstanding article, the potential uses of the semantic web are laid out thoroughly.

Genetic Algorithms

- John Koza has Built an Invention Machine– One of the pioneers of Genetic Algorithms, John Koza, has developed an invention machine. By using genetic algorithms, following a process similar to evolution, new ideas and inventions are automatically created. Some have even earned patents.

Information Visualization

- [Microsoft's Plan to Map the World in Real Time](#)– By making use of "Sense Web" (a Microsoft project), the company plans to provide realtime information on many things, including up-to-the-minute information on traffic, restaurants, etc. Once again, knowing everything about everything becomes more feasible.

Decision Support Systems

- [How Artificial Intelligence Keeps a Truck Business on Track](#)– How about an intelligent system that automatically interprets balance sheet information and provides advice on what to do to improve performance? It exists, check it out.

Artificial Life

- [Scientists Build a World of "Software Beings"](#)– Artificial life is an AI concept that marries biological aspects of life with computer agents. In this application, many millions of "software beings" are being created in order to study how they interact and evolve. Lessons learned from this could be used to create even more intelligent "beings".

Medical

- [Merging Machine and Man](#)– Yet another article discussing how we are becoming part "borg". As we continue to blur the distinction between human and robot, some interesting questions will undoubtedly arise.