E.I.T. Links

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

"The real problem is not whether machines think, but whether men do."
--B. F. Skinner

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Links for this Issue

Virtual Reality

- A Second Life for Big Business– The news and developments in Second Life continue to arise. Now companies are developing 2nd life worlds for serious use.

- Humanoid Avatar Plays a Competitive Game of Table Tennis – As the development of intelligent agents and robots continues, there will be more opportunities like this. Note that the avatar can play at almost realtime speed.

- Sweden to Open First Virtual Embassy in Second Life – Even governments are getting into the act as Sweden decides to open a virtual embassy.

Sensors

- Sensor Networks Protect Containers, Navigate Robots – As the sensor

proliferation continues, more and more interesting applications for the "anytime, anyplace" scenario emerge.

Robots

- Robots could soon be calling the shots – Several scientists lay out scenarios for the next evolution of robots. There are some interesting predictions contained, as well as links to excellent videos.

- Robots Evolve to Deceive – Swiss scientists have produced a bevy of robots which evolved the ability to "trick" outsiders. Very interesting development.

- Surgical Robots Get a Sense of Touch – Robots are becoming a staple in the operating room, mostly using minimally invasive procedures. Adding a sense of touch will enhance their capabilities.

- It's Alive (video)—Get ready for robotic toys that are very realistic. Pleo, a robot dinosaur will amaze you in this video.

- Robo-Panda Video Demonstration – Another example of how robotic toys are beginning to resemble real animals. This toy will also be a "must have" for lots of folks.

- Robotic 'Boss' stays the course in road demo – Several robotic cars passed the road test in the Fall of 2005, over an open desert. Now, in November 2007, there will be another test, this time in an urban environment. Here is the Carnegie-Mellon entrant.

- [Paranoid Androids within Ten Years](#) – As robots develop better and better mechanical skills, the next challenge will be to add emotions to their psyche. NOTE: Those of you who are Star Trek fans will remember that the first version of "Data" had emotions and they were removed in the "improved" version in the show!

- [For fast-food help, call in the robots](#) – An update on Hyperactive Bob, the robot that runs fast-food restaurants. As mentioned in previous editions of the newsletter, Hyperactive Bob closely resembles the postulated robotic program from [Manna](#). This is certainly a sign of the future. Note the rapid return on investment cited in the article.

Natural Language Processing

- [Researchers Use Wikipedia To Make Computers Smarter](#) – Researchers have found a way to use the vast knowledge base of Wikipedia to help computers think "smarter" and have more of a common sense approach

Data Mining

- [New system solves the 'who is J. Smith' puzzle](#) – Data mining continues to evolve and impress as this example indicates. The latest development in this article is an automated system that can determine who has authored a particular paper. Very impressive!

Brain

- [Neural 'extension cord' developed for brain implants](#) – Brain research and understanding continue to progress. In this very interesting article, the concept of having a "data cable" that could connect human brains to computers is outlined.

Information Overload

- [The Rise of the Participatory Panopticon](#)– A very thought provoking piece on how the rise of participation by nearly everyone will dramatically change our world. A must read---rather lengthy, but very interesting. By the way, the world changing

(http://www.worldchanging.com/) site is always a source of interesting material.

- [A Digital Life](#)– We are ever closer to being able to record our entire lives! Check out one man's attempt to do just that.

- [The Expanding Digital Universe](#) – This recent report outlines and quantifies just how much information is being created. The most startling prediction in the report is that the amount of storage available will be exceeded for the first time by the amount of information being created in ??? (guess what year).

Search Engines

- [You are wasting time. Find out why](#)– There is an enormous waste of time and resources caused by ineffective searching. Find some ideas in this article.

- [Search engine spawned from antiterrorism efforts finds place in business](#) – A search engine that can search the "deep web" is now available for business. Originally developed for military use in anti-terrorism, this search engine can find and integrate data from multiple sources.

Kurzweil

- [Foreword to The Intelligent Universe](#) – Ray Kurzweil has written this thought-provoking forward to one of the most exciting books to come along recently, The Intelligent Universe.

Genetic Algorithms

- [Robot Swarms Evolve Effective Communication](#) – By employing the principles of genetics, these robots were able to **_automatically evolve_** some of the group that avoided poison and found food. Even deception arose automatically to protect the best survivors.

Intelligent Agents

- [Artificial Intelligence Used To Grade Medical School Tests](#)– Intelligent agent

software is being used to automatically grade the writing portion of the Medical College Admission Test.

- [How about a bot for a boss?](#) – Intelligent agents are starting to progress to the point where they can function as "assistants", capable of providing serious help to users. Check out this example (subscription the New Scientist magazine required to view entire article).

- [Handheld 'Smart' Museum Guide Unveiled](#) – An intelligent agent can now function as a museum guide. The guide can pinpoint a visitor's location in a museum, find out what interests each visitor, play video clips and explanatory presentations and enable communication with friends in another part of the museum. The guide not only teaches, but also learns about each museum visitor.

- [Robot learns to play dirty Scrabble](#)– This agent can not only play scrabble, but can intelligently guess what letters opponents hold and formulate words to block their plays (subscription the New Scientist magazine required to view entire article).
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Expert Systems

- [Automated Expertise: The Next Generation in Retail Automotive Technology](#)– There now exists an expert system to assist automobile dealers. As with most expert systems, the expertise embedded is based on some of the most knowledgeable information available.

- [Artificial intelligence programs must sit for the bar like everyone else!](#) – A recent court ruling has established that using an expert system to assist in legal matters is not allowed. The "system" must be able to pass the bar first!

- [Can computers make life-or-death medical decision?](#) – There now exists a computer expert system that can predict how people would want to be treated in dire medical situations as accurately as their loved ones. Someday, computers might be making the decisions in these serious matters.

Military

- [Super Soldiers: Tomorrow's 'Army of One' Technology](#) – Tomorrow's soldier could begin testing futuristic devices that make them each "an army of one" by granting them unprecedented capabilities, such as the ability to see through walls thanks to advanced radar scopes and super-protection and super-strength conferred by high-tech armor within three years.

- [Pint-sized soldier with a big wallop](#) -- This 3-foot tall robot can fire a gun which can hit a pie plate from 875 yards!

- [A Peek Inside DARPA](#) – This article provides an excellent in-depth look at what DARPA has on the drawing board.

- [Military Builds Robotic Insects](#) – The military is now developing insect-sized robots to attack, gather information, and harass the enemy.

- [Soldiers Like FCS Test Systems So Much, They Don't Want to Return Them](#) – The new military systems, featuring a variety of manned and unmanned vehicles, sensors, launch systems and unmanned aerial vehicles, all connected by a common network with the Soldier are a big hit.

Semantic Web

- [Sir Tim Berners-Lee Gives Congress Vision Of The Future](#) – Sir Tim Berners-Lee, one of the creators of the Semantic Web, outlines his vision for it. Many interesting aspects of his testimony in this article.

- [Tim Berners-Lee on the Semantic Web (video)](#) – Not satisfied to read the testimony of Sir Tim Berners-Lee? Then, watch this video as he explains the Semantic Web.

- [Web 3.0 Roundup: Radar Networks, Powerset, Metaweb and Others...](#)– Wondering what the Semantic web is and will be? In this article, an excellent description of web 3.0, part of the semantic

web is covered.

- ['Flat' Earth to Give Rise to Semantic Web](#) – More information about how the Semantic Web will likely unfold and the benefits it will impart.

Artificial Intelligence - General

- [News at Seven](#) – This is an automatic system that crafts daily news shows, including images, videos and opinions, all without human intervention.

- [The Discover Interview: Marvin Minsky](#) – One of the giants of the AI field is interviewed in depth in this article. Very interesting and somewhat provocative item.

- [It's 2001. Where Is HAL? (Part 1 of 3)](#) -- Minsky again, talking of the development of AI. This time, the link is to an audio presentation. In mp3 format, makes for an excellent addition to your iPod.

- [Attack of the Robo-Lawyer!](#) – In this article, the use of AI in the legal profession is profiled. Looks like a lot of developments for the area.

- [Artificial intelligence within our lifetime? No idle speculation](#) – A very interesting post about the progress of AI and the prospects of having "real" AI within our immediate future. Well-referenced and supported arguments.

- [Ethical Implications of Emerging Technologies: A Survey](#) – Outstanding document from the United Nations laying out many of the ethical issues surrounding the rapid emergence of technologies. A must read!

Neural Networks

- [Forecasting tourism demand](#) – A very appropriate use of neural networks to "learn" a previous pattern and use that information for future predictions. Neural networks continue to make inroads into the forecasting arena.

Medical

- [Fantastic Voyage: Departure 2009](#) – Medical scientists is developing what they say will be the world's first microrobot -- as wide as two human hairs -- that can swim through the arteries and digestive system.

- [Artificial intelligence the key to process understanding](#) – The ability to discover patterns and relationships in databases has been exploited for fraud prevention, financial forecasting and market segmentation. This paper, however, describes the potential application of similar tools in the pharmaceutical industry.

- [Robot nurses could be on the wards in three years, say scientists](#) – The use of robots in hospitals to perform basic tasks such as mopping up spillages, taking messages, and guiding visitors to hospital beds could emerge in as few as three years.

- [Artificial Intelligence could speed up radiation therapy for cancer patients](#) – The use of machine learning to automatically make adjustments to determine the proper amount of radiation will replace the hours long manual process if all goes as planned in this application.

- ['Thinking' computer may copy doctors](#) – A "thinking" computer which can imitate doctors' decisions, including monitoring vital signs, evaluating conditions, and administering drugs is being developed.

- [Medtronic discloses component for "brain radio"](#) – Now there is a way to implant a "brain radio" the company is developing to monitor and control nervous disorders.

Manufacturing

- [Robo-builder threatens the brickie](#) – Engineers are racing to unveil the world's first robot capable of building a house at the touch of a button. The researchers in Los Angeles claim their robot will be able to build the shell of a house in 24 hours.

- [Printing gets new dimension](#) – There is now a printer, one of the first, that can build 3-D objects by adding layers of materials.

- Self-Assembling Batteries – Researchers at MIT have designed a rechargeable lithium-ion battery that assembles itself out of microscopic materials. This could lead to ultrasmall power sources for sensors and micromachines the size of the head of a pin.

Knowledge Management

- Social Networks And Relevance – A new piece of software assists in capturing the relationships and expertise within an organization.

- Learning from mistakes – Engineers have now developed software that will enable computers to learn from their mistakes. The system literally gives computers the power of thought and reason, and helps them to learn from their own experience.

RFID

- Tokyo department store begins RFID cosmetics trial – By putting RFID chips in lipstick, eye shadow and blush, stores can now allow customers to combine the tags with a simulation program to see how the cosmetics would look on them.

- Intel's new device helps hospital patients – At the University of California San Francisco Medical Center on Tuesday, Intel and Motion Computing officially announced the launch of the Motion C5, a device that will be used in hospitals to improve the efficiency of measuring and inputting patient data, such as vital signs. See how it works, and hear from the creators and patients. (video)

- RFID 'Powder' - World's Smallest RFID Tag – The world of RFID tags continues to shrink the tag size. These new tags, called RFID powder, are 60 times smaller than the previous smallest tags. Several serious applications of these new tags are referenced at the bottom of the articles.

Future

- Must-know terms for the 21st Century intellectual – If you want to be in the know, you will need to understand these terms. Here they are defined for you.

- Futurist: Technology, education are crucial – The role of education will become even more critical in the future. Read what one expert has to say. Lots of interesting observations and facts.

- The Third Generation Web is Coming – A brief history of the development of the web, including a lot of good information about web 3.0.

- Special Reports: 10 Emerging Technologies – A series of excellent reports on the 10 most important technologies on the horizon according to Technology Review magazine.

Chatterbots

- The new Army recruiter who never goes to sleep – The U.S. Army's latest tool for bolstering its wartime ranks is a virtual officer named "SGT STAR," an artificial intelligence tool that uses a conversational style to answer questions from potential soldiers logged on to www.goarmy.com.

Decision Making

- Meetings make us dumber, study shows – As many suspected, there is now more evidence that meetings can actually make us "dumber" in decision-making environments.

Automated Speech Recognition

- After Years of Effort, Voice Recognition is Starting to Payoff – Expect to be speaking with your computer more than ever as speech recognition continues to improve. Call centers, medical transcriptions, translations into other languages all are improving rapidly.