E.I.T. Links

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

> "The factory of the future will have only two employees, a man and a dog. The man will be there to feed the dog. The dog will be there to keep the man from touching the equipment."
> ~Warren G. Bennis

By Steve Knode, steve@steveknode.com

Links for this Issue

AI General

- BT to put Artificial Intelligence in its network – BT has revealed that it will be looking to add artificial intelligence int some of its networks, allowing them to self regulate, repair damage and cope with future demands.

- Cornell Student Releases the First Website with a Brain - Stevesie.com – The program reads through thousands of news stories from hundreds of sources every half hour to determine which topics are important, find how different news stories relate to one another, and display a superior variety of headlines for a given topic.

Artificial Life

- Science's awesome challenge: Creating artificial life – Scientists are advancing slowly toward one of the most audacious goals humans have ever set for themselves: creating artificial life.

Brain

- Our brains react differently to artificial vs human intelligence – Do we treat Artificial Intelligence as we would human intelligence, or is it processed differently? Researchers used brain-scanning technology to answer this question, and found that there are indeed key differences.

- The Brain Unmasked – New imaging techniques are creating a complete blueprint of the brain, including a map of its connectivity. Another step in understanding the brain and its functioning.

- A 'Frankenrobot' with a biological brain – Meet Gordon, a robot controlled exclusively by living brain tissue. This experiment blurs the distinction between natural and artificial intelligence.

- When Computers Meld With Our Minds – Still more evidence of the future blending of artificial and human intelligence. Predictions about the future from Vernor Vinge, one of the most credible futurists.

- Linking Brains, Computers – Yet another discussion about the relationship between human and artificial brains. This article points out the tremendous challenges yet to be overcome.

- How Snoozing Makes You Smarter – Perhaps you suspected this all along, but it turns out that sleep is necessary for learning.

- MIT model helps computers sort data more like humans – MIT has a new and very interesting approach, namely, an algorithm that considers a range of possible data structures, such as trees, linear orders, rings, dominance hierarchies, clusters, etc. It finds the best-fitting structure of each type for a given data set and then picks the type of structure that best represents the data.

Decision Making

- If You Have a Problem, Ask Everyone – Another example of the use of crowds to help solve problems. By placing the problem or opportunity online, with appropriate rewards, companies are finding outside experts to assist them.

- Computer cashes in big at Texas Hold 'Em tourney– Computers have long been able to outperform humans in games where calculations were key (e.g., checkers, chess, tic-tac-toe), but this is evidence that computers can even perform better when luck and emotion are key aspects of a game, in this case, poker.

DecisionSupport Systems

- AI medical decision support – AI is taking large steps in making DSS more effective. This system, designed to help doctors treat and manage prostate disease, is proving to be very promising.

Educational Technology

- "That Which Weaves Together:" The NSF Cyberlearning Report (NOTE: a link to the full report is http://www.nsf.gov/publications/pub_summ.

jsp?ods_key=nsf08204) – Here the NSF report is summarized. Key finding is "the building consensus that educational institutions should no longer think of how to adapt technology to the existing curriculum, but how to transform the enterprise to thrive in the changed knowledge infrastructure."

- Texas State Tech To Deliver Digital Media Program via Second Life – This fall Texas State Technical College (TSTC) will be offering a Digital Media certificate focused on virtual world technology using Second Life as the primary delivery method. An associate degree Digital Media will be offered in spring 2009.

- Human remote control may spell end for teachers -- The teaching robots, or, Intelligent Tutoring Systems (ITS) are computer systems that provide personalized instruction and feedback to students **without** human intervention.

- Minds on Fire: Open Education, the Long Tail, and Learning 2.0 – Must read to understand how the learning environment has changed by one of my favorite future thinkers, John Seely Brown.

Expert Systems

- Expert System Helps the Italian Ministry of Culture and Heritage Understand the True Meaning of Visitors' Search Terms – Another example of an expert system which functions much as an expert and is able to support requests online in natural language (e.g. "What hours will the Van Gogh exhibition be open today?"), recognizing and interpreting the meaning of the sentence entered by the user.

- Centrelink relies on artificial intelligence – Centerlink is using an expert system (combined with natural language processing) to insure that people get the financial benefits to which they are entitled. The software is said to have reduced appeals by veterans in relation to the amount of their benefit by up to 30 percent.

Future

- [Changing the Nature of Human Beings](#) – Controversial essay about changing the nature of human beings, including cloning, genetic screening and drugs in sport. Some very interesting ideas are expressed.

- [The Future of the Desktop](#) – Where we are headed with the desktop computer is outlined in this article. Nova Spivak, creator of Twine, discusses some very interesting aspects of where we are headed, including the move to Cloud computing, the shift from information to attention, and the future of semantic search.

- [Bio-Nano will dominate the 21st century according to this ASME report.](#) – The American Society of Mechanical Engineers (ASME) has published this remarkable report on where the profession is headed. Interesting perspective is included which reflects the amazing technological developments ongoing.

Information Overload

- [All the world's credible news, in one place](#) – Newscred allows you to collect all of the world's breaking news from quality newspapers and blogs in one place. Further, you can customize your sources.

Information Visualization

- [Rethinking Display Technology](#) – Imagine "pixel wallpaper", meaning any object, any surface, can potentially be a canvas for displaying information.

- [PersonalBrain 4.5 for Advanced Content Visualization that Helps Users See and Find Information Faster](#) (video) – The personal brain software can help organize information based on content and context, thereby adding improved navigation to websites. NOTE: Kurzweil uses the brain software at his site, http://www.kurzweilai.net/ and I have been a user of the software in the past.

Innovation

- [Emerging Technologies, Part 1: Incubating the Future](#) (video) – Outstanding video from Knowledge at Wharton about how the future is invented at Cisco's emerging technologies group. NOTE: This is part 1 of a three part series.

- [C. K. Prahalad on Innovation, Part 1](#) – Another outstanding video from Business Week about innovation and the future of business. NOTE: There is a link to part 2 at this site.

- [Gartner Highlights 27 Technologies in the 2008 Hype Cycle for Emerging Technologies](#) -- Gartner, Inc. has identified 27 emerging technologies and predicts that eight of these will have a transformational business impact and should be strongly considered for adoption by technology planners in the next 10 years, according to the report "Hype Cycle for Emerging Technologies, 2008." NOTE: There is a link to a podcast discussion of the technologies and their potential impact.

- [Perfect Storm Of Innovation (3 parts)](#) – Yet another video series on innovation. This speech introduces some of the weak signals and future technologies that will change the way we work and collaborate. In Part 3, there is a flash video that describes this future through concept models portrayed in a user scenario around collaboration.

Intelligent Agents

- [Artificial intelligence lets glider find its own thermals](#) – Intelligent agents, working in concert, find the best path for an autonomous glider. Some agents post predicted vertical air velocity data onto its surface, others look at the data to create a flight plan.

Knowledge Management

- [Is Knowledge Management Dead?](#) (video) – This will update you on the status of Knowledge Management. A very interesting interview, with implications that apply to all interested in KM.

Manufacturing

- [USC's 'print-a-house' construction technology](#) – Caterpillar, the world's largest manufacturer of construction equipment, is starting to support research on the "Contour Crafting" automated construction system that its creator believes will one day be able to build full-scale houses in hours.

Medical

- [Humanity on the edge of longevity leap: futurist](#) – It appears that we are on the cusp of very significant breakthroughs in understanding and influencing longevity in humans.

- [Medical Advances Through Your iPhone?](#) – Researchers are beginning to understand how mobile phones can be used to improve medical care.

- [Biomarkers reveal our biological age](#) – Scientists have now identified a group of proteins that reveal the biological age of a person. These biomarkers could be used in medicine to adapt therapies for older people to their individual biological age.

- [California Licenses 2 Companies to Offer Gene Services](#) – Companies can now offer gene information services have been licensed in California. Both offer services, costing from $1,000 to $2,500, that scan a person's whole genome, providing a variety of information about the risk of various diseases.

Military

- [Brain will be battlefield of future, warns US intelligence report](#) – Rapid advances in neuroscience could have a dramatic impact on national security and the way in which future wars are fought, US intelligence officials have been told. Several examples are given in this article.

MISC

- [In 2018, expect personal mobility appliances](#) – Cars in the near future will differ markedly from today's automobiles according to this report. Several interesting

developments are discussed in this article.

- [The Information You Want When and Where You Want It.](#) –Visit this website and signup for notification of the information you need when you need it. NOTE: I have long espoused the change from "self service" to "room service" when dealing with dealing with information overload.

- [Stop Talking to a Machine and Talk to a Human](#) – Yet another example of "room service" from this innovative approach. Simply find the company you need to contact (there are many categories), enter your phone number (which remains anonymous), wait a few seconds, and you will be called by a human from the company!

- [BT to put Artificial Intelligence in its network](#) – British Telecom will now look to add artificial intelligence int some of its networks, allowing them to self regulate, repair damage and cope with future demands.

- [Handle With Care](#) – Interesting commentary about several significant issues and the need for ethics to have a part in the discussion of future technological developments.

Nanotechnology

- [CRN Task Force Scenario Project (eight scenarios)](#) – The Center for Responsible Nanotechnology (CRN) has developed 8 professional quality scenarios of a future which includes nanotechnology manufacturing. The eight scenarios are very comprehensive and address a number of important issues.

- [Responsible Nanotechnology](#) (video) – An excellent video from Vernor Vinge discussing where we are headed with the unprecedented technological progress that is occurring.

- [New disease-fighting nanoparticles look like miniature pastries](#) – Ultra-miniature bialy-shaped particles — called nanobialys because they resemble tiny versions of the flat, onion-topped rolls popular in New York City — could soon be carrying medicinal

compounds through patients' bloodstreams to tumors or atherosclerotic plaques.

- 15 Astonishing Real-Life Applications of Nanotechnology – In case you thought that nanotechnology was just something for the future, here are several real world applications already existent.

- Cheap, clean drinking water purified through nanotechnology -- Another application of nanotechnology, this one with the potential for a significant contribution to the health of nations worldwide.

NLP

- Semantic NLP (video) – A remarkable demonstration of the progress in developing a semantic natural language processing capability. This is a two part video of a product 24 years in development.

RFID

- How RFID Tags Could Be Used to Track Unsuspecting People – RFID chip applications are expanding in their usage. However, the checks on their usage are not being developed nearly as quickly. Here a report on how RFID tags could be used surreptitiously is detailed.

Robots

- Robot Teachers – The use of robots continues to develop at a rapid pace. In this application, robots are being trained to learn facial expressions to be able to respond appropriately to students' facial looks. Researchers envision a not-so-far-away future when robots will replace people as teachers, at least in areas that require a lot of repetition, such as foreign language and math drills
- Smart Robots Will Explore Universe by 2020 – More use of robots for space exploration is a growing trend. Compared to humans, robots are less expensive, less risk of danger, etc. as well as becoming very adaptable which has been the big human advantage.

- Control the robots, control the world – A leading professor in Artificial Intelligence

has suggested that the people that control the robots will control the world in the 21st century. Read about this startling prediction.

- Students Create Cleaning Robot (video) – Students in Portugal have created a robot that can clean floors in buildings autonomously by using barcodes on the walls to determine where it is.

- Robots Detect Behavioral Cues to Follow Humans – A recent study has shown that, by picking up on human emotional traits, as well as a variety of other conscious and unconscious behavioral cues, robots may be able to act more naturally and accurately with humans.

- Helicopters teach themselves to do aerial maneuvers – Again, robots able to "teach" themselves how to perform, in this case, flying!

- Freakishly human 'Android' created (video) – Check out this amazing video and see for yourself how much robots are beginning to resemble and act like humans. How long before we can't tell the difference?

Search Engines

- New Google tool aims to provide more insight into online searches – A new product from Google attempts to give more insights into search results. Check out this innovative approach.

Sensors

- Spit Sensor Spots Oral Cancer – I keep finding more and more applications of sensors, in line with my prediction that soon we will be able to know everything about everything. This remarkable sensor is a big step forward in spotting oral cancer which has been one of the more difficult ones to detect.

- GPS headsets make sure the cows come home – The U.S. Department of Agriculture and the Massachusetts Institute of Technology are teaming up to remotely corral cattle using a wireless device that sends sound straight into the bovines' ears.

HDTV-watching pigs can't be far behind.

- [Futuristic fashions will fight our health scares](#) -- From sensors in workout gear that monitor sweating while you run at the gym, to underwear that aims to detect cancer cells, the contents of our wardrobes have been quietly undergoing a revolution.

- [Networks of the Future: Extending Our Senses into the Physical World](#) – The future consists of wireless networks filled with sensory devices that can be used to inform and update information.

- [The Smell of Cancer](#) – Sensors exist that can identify a characteristic odor profile given off by skin-cancer tumors, which might one day allow diagnosis by a wave of a detector across the skin.

Virtual Reality

- [Texas State Tech To Deliver Digital Media Program via Second Life](#) – An example of how virtual environments are being utilized to deliver entire courses.

- [She's Not Real!](#) (video) – Near realistic avatars continue to emerge. This is one of the latest, nearly indistinguishable from human.

Web 2.0

- [Medpedia: Online Encyclopedia of Medicine](#) – An excellent example of the wikipedia approach to developing a medical encyclopedia.

- [How Cloud Computing is Changing the World](#) – The dramatic growth of cloud computing is discussed, along with some specific applications of the technology.

- [SafeRoadMaps](#) – This website uses a mashup to show where traffic accidents have occurred in the United States. You can now see which roads are the most dangerous.