E.I.T. Links

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

"When a machine begins to run without human aid, it is time to scrap it – whether it be a factory or a government.."
~Alexander Chase, *Perspectives*, 1966

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Editor's Note:
Please feel free to pass on the newsletter to those interested. ***Anyone wishing to receive future editions of the newsletter, please email me at:*** **sknode@gmail.com.**
Note: This newsletter contains links found during Apr 2009, and all of the links were working at time of publication.
Remember, all links here can be found at www.steveknode.com/news_updates.htm and previous newsletters are available at: http://www.steveknode.com/newsletters.htm.

Links for this Issue

AI General

- Artificial life 'could be created within five years' – Progress continues (exponential?) toward creating 'life'.
- AI to expose unscrupulous bankers – British computer scientists are developing a super computer which they claim will be able to detect insider trading (using advanced knowledge of a company's actions to make money) within the stock exchange almost instantly.
- Computer Program to Take On 'Jeopardy!' – The next challenge for a computer is to take on Ken Jennings, the Jeopardy legend, in a game of jeopardy. The proposed contest is an effort by I.B.M. to prove that its researchers can make significant technical progress by picking "grand challenges" like its early chess foray.

Brain

- Mind-Reading Device Sends Twitter Messages – Twitter messages are so short - a 140-character limit - that you have to really think about what you want to say. The technology could one day help patients who otherwise can't communicate finally talk to the outside world.

Data Mining/Business Intelligence

- Deep Throat Meets Data Mining – Already, complex algorithms are used to gather content for websites like Google News, which serves up a wide selection of journalism online. Outlined here is a not-too-distant future in which that process would be extended, with algorithms mining information from multiple sources and using it to write parts of articles or even entire personalized news stories.
- A Smarter Way to Dig Up Experts –At the Computer-Human Interaction (CHI2009) conference, in Boston, computer scientists demonstrated ways to find experts more accurately. Using data-mining techniques, software can help determine what skills a person practices regularly, and how likely she is to respond to requests for help.

- DARPA AI will trawl petabytes of UAV vid for enemy cows -- Renowned Pentagon agency DARPA has announced a new plan to create mighty artificial intelligences. The so-called "Deep Learning" machines will be used to trawl through petabytes of video from robot aircraft prowling the skies.

Decision Making

- ASU Decision Theater (includes video)– A very interesting article about the Decision Theater at Arizona State University. The Decision Theater is a world-class decision lab that's open to policy-makers, businesses, community groups, researchers, and students. The immersive, interactive environment provides tools for collaborative scenario planning and exploration of uncertain systems.

Educational Technology

- College too expensive? Try YouTube – Google has developed partnerships with more than 100 schools, including Stanford, MIT, Harvard and Yale to feature videos from them. Many are not moving toward college credits.

- Is This the Future of the Digital Book? – Several new technologies are developing, leading, perhaps soon, to a new form of digital book to include text, videos, compelling twitter streams, blogs, etc.

- How the E-Book Will Change the Way We Read and Write -- Interesting perspective on the pros and cons of the impeding switch from paper to E-books.

Information Overload

- Putting Everything on a Mobile Network – There's a theme emerging here: Add mobile data capability to absolutely everything, including video cameras and the human body.

Information Visualization

- Mapping Disasters in 3-D – Software now exists that can quickly map disasters in 3-D, thus assisting in rescue efforts.

- Real Time Cities, or Just Info Porn? – Cities are being transformed by mobile Web technologies. For example, MIT's project WikiCity, monitors cell phone traces in Rome and creates visualizations from them. The goal is ultimately to make this data useful to actual people, in real time. The theory being that this will make cities run more efficiently.

- Hyperlinking the Real World (Redux) –. After taking a picture of a streetscape in an urban area, the MOBVIS technology identifies objects like buildings, infrastructure, monuments, cars, and even logos and banners. It then renders relevant information on the screen using icons that deliver text-based details about the object when clicked.

- A 'hands-on' approach to computers – Instead of just using flat screens, keyboards and mice, one researcher wants people to be able to interact with their computers and other devices by moving around and by handling real physical objects. In short, by doing what comes naturally.

- Stunning data visualization in the AlloSphere – The TED talks remain some of my favorites. In this one, a stunning new way to see, hear and interpret scientific data is demonstrated. Dive into the brain, feel electron spin, hear the music of the elements ... and detect previously unseen patterns that could lead to new discoveries.

Innovation

- CYHAA (Control Your House, Anywhere, Anytime) (video) – This interesting video shows how, using common inexpensive components, a person can control her/his home appliances (lights, garage doors, thermostat) using a simple and easy method which can be used anywhere.

- One Number to Rule Them All – Google Voice routes calls from multiple lines, transcribes voice mail, and gives you one

phone number for life.

- Atom-based computer on credit card-sized module – Computers continue to shrink in size. Toradex has unveiled the credit card-sized Robin Z510 and Z530 computer modules, which manages to fit quite a bit in fairly small space. The two mainboards feature a 1.1GHz Intel Atom Z510 and 1.6GHz Atom Z530.

- Mojo Videos – Want to know how to fix a dent in your car? How to take Spinning to the next level? The history of inaugurations? Mojo has videos on almost anything.

- Six "Apps for America" – The Sunlight Foundation has funded six very interesting "apps for America", including: Fillibusted, Legistalker, Hello Congress, Know Thy Congressman, Yeas and Nays and E-Paper trail.

Knowledge Management

- Wolfram|Alpha: Our First Impressions – Stephen Wolfram is creating a powerful new search approach which some say will threaten Google. Instead of searching the web for info, Alpha is built around a vast repository of curated data from public and licensed sources. Alpha then organizes and computes this knowledge with the help of sophisticated Natural Language Processing algorithms.

- Personal Medical Monitoring – As personal medicine continues to advance, developments such as this will make it realistic. This application allows patients to be helped in keeping track of everything healthwise.

Kurzweil

- The Future Brain (audio) – The latest interview with Ray Kurzweil, giving his latest updates on the approaching Singularity.

Machine Learning

- Mathematica man brews 'AI' Google Killer™ – More details on how Wolfram|Alpha actually works, including some specifics about the machine learning involved.

Manufacturing

- 3D Printing and Self Replicating Machines In Your Living Room - Seriously! – Imagine having a machine for $500 in your living room that can take your computer based specification for a 3D object and print out a plastic replica of the object in a matter of minutes. Imagine no longer…this machine, called a Reprap, is reality!

Medical

- A Disappearing Heart Stent (video) – A bioabsorbable drug-eluting stent developed by Abbott treats coronary artery disease and is absorbed into the walls of treated arteries within two years. It leaves behind blood vessels that appeared to move and function similar to normal arteries.

- Implantable Telescope for the Eye – A new treatment for macular degeneration involves implanting a miniature telescope into the eye. This new treatment could soon help people with vision loss from end-stage macular degeneration.
- Human Heart Grows New Cells – It turns out that the human heart can indeed grow new cells, thereby raising the possibility that we may one day be able to use drugs to directly stimulate this regenerative capacity to patch up damaged hearts.
- Doctor Wears Bionic Foot – Modern protheses have progressed tremendously. This is possibly the latest, "the world's first intelligent foot." It combines sophisticated sensing capabilities and artificial intelligence to re-create the motions and reactions involved in normal use of a foot.
- Meet the bionic reporter – A reporter who lost an eye early in life is going to have a camera embedded in his eye socket in order to become a 'bionic reporter'. The camera eye will move in sync with the healthy eye,

it will blink and it will be able to transmit footage live.

- ER 2.0: Robots team up for surgery (includes video) – Robots have already performed surgery (teleoperated by a human), however this is the first time for a team of robots to work together.

- Implantable Telescope for the Eye – A new device may help restore sight to those with severe macular degeneration. A miniature telescope implanted into the eye could soon help people with vision loss from end-stage macular degeneration.

- An Implantable Heart-Attack Monitor – An implantable device that alerts high-risk patients when they show signs of a heart attack could shorten the time it takes for the wearer to seek medical attention.

- The doctor will see you - log on now – A "virtual clinic" is being tested in Minnesota. An insurance company plans to offer its 10,000 employees and dependents the chance to use a "virtual clinic," an Internet site that can connect them with a doctor for a live 10-minute consultation for a flat fee.

Military

- New exoskeleton gives soldiers super-strength – Stronger, faster and harder is the promise of a new exoskeleton developed by Lockheed Martin for U.S. soldiers. Dubbed the Human Universal Load Carrier, or HULC, the device helps a soldier carry up to 200 pounds at a top speed of 10 mph.

- PW Singer on military robots and the future of war (video) – Another excellent TED video, this time P.W. Singer shows how the widespread use of robots in war is changing the realities of combat.

- Apple's New Weapon – To help soldiers deal with the vast amount of information available, the US military now issues the iPod Touch.

MISC

- Tune into DNA-Radio – An effort is being made to convert the whole human genome to audio and stream it to the Internet, 24/7. The idea is quite simple, every base is read and broadcasted instead converting it to a color.
- Computer Derives Natural Laws From Raw Data – Researchers have taught a computer to find regularities in the natural world that become established laws – yet without any prior scientific knowledge on the part of the computer. They have tested their method, or algorithm, on simple mechanical systems and believe it could be applied to more complex systems.

- The Stranger Side of CHI 2009 – At the Computer-Human Interaction 2009 conference last week, researchers showcased many new and innovative ways to interact with machines.. Included here are five of the more unusual projects on show at the event.

Nanotechnology

- Batteries built with viruses, nanotech to power cars, devices – MIT researchers say they've combined nanotechnology with genetically engineered viruses to build batteries that could power hybrid cars and cell phones.

Quantum Computing

- Quantum Theory May Explain Wishful Thinking – Humans don't always make the most rational decisions. This paradoxical human behavior has resisted explanation by classical decision theory for over a decade. But now, scientists have shown that a quantum probability model can provide a simple explanation for human decision-making..

RFID

- Wooden-Flooring Companies Embed RFID – There are many RFID applications emerging. This one, in which RFID tags are embedded in hardwood floors, keeps track of whether the flooring was properly installed and maintained.

Robots

- Robot body language affects human responses – Based on several experiments to test human perceptiveness to a robot, research has found that the more human-like the robot acts, the better the interaction from the subject.

- Robotic fish will fight pollution – Robotic fish are being developed that will not only detect potentially hazardous pollutants in the water, such as leaks from vessels in port or underwater pipelines, but will also communicate their findings with each other and recharge themselves automatically.

- Flying Microbot Gives Wings to Imminent Doomsday Scenario – New micro-robot machines can levitate and possess pincers that can operate small lasers. These robots can operate in hazardous environments.

- Robots Get Down to Business (includes link to video) – At a recent conference, companies demonstrated a number of robots designed for use in offices, the military, even down on the farm. Several robots from the conference are highlighted.

- Robots are narrowing the gap with humans – Still more examples of the remarkable progress in robotics. Robots guided by their own computer "brains" now can pick up and peel bananas, land jumbo jets, steer cars through city traffic, search human DNA for cancer genes, play soccer or the violin, find earthquake victims or explore craters on Mars.

Search Engines

- Healthline Launches Treatment Search Tool – Healthline today announced two additions to its stable of medical search tools: TreatmentSearch, the first treatment search application for the web, and DocSearch, a recommendation tool for recommending specialists based semantic parsing of symptom or health condition information.

- A Smarter Search for What Ails You – Semantic search technologies promise to help find more relevant information based on an understanding of the relationships between different words. Netbase Solutions has released search software called Content Intelligence that organizes searchable content by analyzing sentence structure in a novel way.

Sensors

- 4 Million Sensors to Help You Find a Party in San Francisco – Several efforts are underway to incorporate the vast array of sensor information available to provide information on just about anything going on in major cities.

- Reef monitoring to go high-tech – The Great Barrier Reef will now be monitored 24/7 by sensors for key developments in its survival.

Simulation

- Army buys Autodesk AI software for recruiting game – The US Army has purchased a computer game, which will be modified to allow for potential recruits to 'experience' part of Army life prior to enlistment.

Speech Recognition

- Hyperspeech Transfer Protocol – Hyperspeech Transfer Protocol (HSTP), a protocol designed to seamlessly connect telephony voice applications, will enable users to browse across voice applications by navigating the Hyperspeech (the voice hyperlink) content in a voice application.

Virtual Reality

- A Practical Use for Second Life – Software is now available that lets you take data from either a spreadsheet or database query and place a 3D representation of it into a virtual world environment where it can then be explored interactively. Users are inserted

into the virtual world as an avatar.

- The first virtual reality technology to let you see, hear, smell, taste and touch – The first virtual reality headset that can stimulate all five senses was unveiled at a major science event in London on March 4th.
- Developing a Second Life Operating Room Simulation – This article describes a Second Life virtual environment for instructional needs.

Web 2.0

- How Social Messaging Works in the Enterprise – In this podcast, hear how enterprise 2.0 is helping businesses share knowledge more effectively, and learn why encouraging staff to send short Twitter-like status messages can be surprisingly productive in an enterprise context.

- Facebook, YouTube at work make better employees – A recent study showed that people who use the Internet for personal reasons at work are about 9 percent more productive that those who do not.

- This Machine Eats Tweets: The System Behind @Comcast and Others – Companies all around the world know that "social media" is important and they are investing time and money into figuring out how to deal with it. Now there is software to allow companies to keep track of blog posts, Tweets, and other online ephemera mentioning their company.

- 5 secrets of leading-edge technology adopters – Five excellent ideas from our first federal CTO, Aneesh Chopra. These ideas, many of them related to web 2.0, are excellent examples of how to succeed with new technologies.

- Putting Twitter's World to Use – Collectively, the stream of messages can turn Twitter into a surprisingly useful tool for solving problems and providing insights into the digital mood. By tapping into the world's collective brain, researchers of all kinds have found that if they make the effort to dig through the mundane comments, the live conversations offer an early glimpse into public sentiment — and even help them shape it.