SteveKnode.com Feb 2010

E.I.T. Links

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

"The technology at the leading edge changes so rapidly that you have to keep current after you get out of school. I think probably the most important thing is having good fundamentals." - Gordon Moore

By Steve Knode, steve@steveknode.com

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 Feb 2010, 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.

Anyone seeking more frequent updates can follow my 'tweets' via my twitter account, http://www.twitter.com/sknode

Links for this Issue

AI General

- Build An Optimal Scientist, Then Retire – Another great article from H+ magazine, this one on the potential of developing an AI based scientist, who can take over.
- How Long Till Human-Level AI? – Yet another H+ feature summarizing the predictions by experts on how long until human level AI can be expected.
- AIn't happening – Just to be fair, there are still a lot of problems with AI. Some are disillusioned with the progress thus far.

Brain

- Mapping the brain – A handful of researchers scattered across the globe are tackling an ambitious project: to find connectomes of brains more like our own. With these technologies, they intend to map the connectomes of our animal cousins, and eventually perhaps even those of humans. Their results could fundamentally alter our understanding of the brain.
- A mind at rest strengthens memories, researchers find – Our memories are strengthened during periods of rest while we are awake, researchers at New York University have found.
- Neuroscientists find brain system behind general intelligence – A collaborative team of neuroscientists has mapped the brain structures that affect general intelligence.
- A midday nap markedly boosts the brain's learning capacity – New research from the University of California, Berkeley, shows that an hour's nap can dramatically boost and restore your brain power. The findings suggest that a biphasic sleep schedule not only refreshes the mind, but can make you smarter.

Data Mining/Business Intelligence

- Microsoft execs patent 'personal data mining' – Bill Gates, Ray Ozzie and a bunch of other heavy-hitters from Microsoft are named as inventors on a newly issued patent for a "personal data mining" system that would analyze information and make recommendations with the goal of aiding a person's decisions and improving quality of life.

Information Overload

- The dangers of a high-information diet – We might be in danger of knowing too much. "Information can potentially be extremely dangerous," says philosopher Nick Bostrom, director of the Future of Humanity Institute at the University of Oxford. "The effects arising from knowledge can be momentous."

Information Visualization

- Touchscreen merges the real and digital worlds (video) – For all the advances in table-top and tablet computing, some design professionals will always prefer the feel of pen on paper to stylus on glass. A new device could provide them with the best of both the digital and the real worlds.

- Nike Launches Impressive Hyper-Local iPhone App – NIKE has launched a new iPhone app which provides hyper-local, real-time information for 6 European cities. It combines expert curation of news and events info, crowdsourced information discovery (with a chance to become an official guide), push notifications, and apparently a little Augmented Reality.

- Real-time webcam images painted onto Google Earth – Google is now able to map real images onto locations in Google Earth, keeping the maps even more up-to-date.

- Google Chart Tools / Interactive Charts – Yet another excellent advance from Google, this time enabling the easy creation of interactive charts.

- Dr. Gary Flake presenting Pivot (video) – Not to be outdone, Microsoft has created an experimental technology that allows people to visualize data and then sort, organize and categorize it dynamically. The result is that correlations, exceptions and trends become immediately apparent in ways they can't when information is stuck in rows and columns. (NOTE: Free download of the tools is now available.)

- Minority Report In Your Living Room: Gestural Interface Computers "Five Years" Away – The New York Times' Bits Blog reports that John Underkoffler, a science consultant for Minority Report, has worked for the last decade with his company, Oblong Industries, to take the gesture-activated interface from the screen to, well, the screen.

Innovation

- Innovation: Apple patents hint at tablet's technology – Interesting inside perspective on the technologies of the iPad. (NOTE: for an excellent iPad overview, see http://www.apple.com/ipad/#video.)
- Innovation: The relentless rise of the digital worker – Several interesting vignettes on how digital workers are being utilized are featured at this site.
- Why DIY Bio? – An innovative approach to utilizing biology to create personal drugs, suited to an individual.
- Will Bloom box replace power grid? (video) – If it works as advertised, this could be the future of power and solve many problems.

Intelligent Agents

- Watson, IBM's Jeopardy-Playing Computer, Trumps Humans (video) – A fascinating and insightful update on Watson, IBM's computer being developed to appear on Jeopardy and compete with humans using the same game playing rules. Must see video!

Knowledge Management

- Virtual Box Simulator – Even the stodgy USPS is getting into the intelligent systems arena, this time with a virtual box simulator. Using a webcam, users can see via the web if a package will fit into a virtual box on the screen and compute the postage.

- Digital doomsday: the end of knowledge – Even as we are acquiring ever more extraordinary knowledge, we are storing it in ever more fragile and ephemeral forms. If our civilization runs into trouble, like all others before it, how much would survive?

- Transforming the Magazine Experience with WIRED (video) – If you would like to see the magazine of the future, check out this video from WIRED.

Medical

- Firm Brings Gene Tests to Masses – The science of gene testing continues to evolve and make dramatic progress. This company is selling a test that it says can tell couples whether they are at risk of having children with a range of inherited diseases.

- The Healthcare System: An Apple Tablet's Biggest Opportunity – Apple's "iTablet" could be destined to transform our care delivery system in a major way. The promise of improved clinical information systems, based on real-time information updates across patient touchpoints could be a workflow game changer.

- TEDMED 2010 videos – Many outstanding TEDMED videos are now posted at this site. TEDMED provides the latest innovative thinking in the medical arena.

- Artificial Retina Enables Blind to See Again – Now there is a silicon retina prostheses capable of being implanted inside the eyes to restore sight entering the third generation with the aim of enabling reading, facial recognition and unaided mobility for previously blind patients.
- Giving Babies a Better Chance – Premature babies require almost constant monitoring of many pieces of information in order to insure their health and survival. Now, a better way to deal with this vast amount of information, combining sensors and intelligent systems is available.

- The Future Of Personalized Medicine (video) – Personalized medicine continues to progress. This video gives insight into some of the soon-to-appear amazing approaches to personalized medicine.

Military

- Killer robots no longer just a sci-fi fantasy – The age of the autonomous killer robot has arrived. At their current rate of acceleration they will become the dominant method of war for rich countries in the 21st century.

MISC

- Ex-cyborg Kevin Warwick on mixing man and machine (video) – The latest from one of my favorite futurists and innovative thinkers (and experimenters), Kevin Warwick.
- Ethical Issues in Synthetic Biology – Excellent report on the serious issues involved with the progress in synthetic biology.

- How Microsoft Will Make Energy Like the Internet (video) – Microsoft has set out to change some of the energy picture with Hohm, the energy management console it released last year. In fact, the more you examine Hohm, the more the whole strategy resembles an Internet business plan.

- Is the World's Most Intelligent Music Composing Software as Creative as Bach? – Composer and software developer David Cope is set to unveil the first musical works composed by his latest creation, dubbed "Emily Howell." Emily is a piece of software that many see as the most advanced artificially intelligent music composer. The program is already stirring fierce debate over its supposed ability to generate creations indistinguishable from those composed by the masters.

- Future of the Internet IV – The fourth report from the PEW group on the future of the internet. Download and read this fascinating

report (the fourth yearly report) on where the internet is headed.

Neural Networks

- Bio-inspired computer networks self-organise and learn – A most interesting review of a European project designed to utilize neural networks to help solve difficult problems. (NOTE: I have a streaming video presentation on neural networks available at: http://www.steveknode.com/ET/NN/nn.html).

Natural Language Processing (NLP)

- Boring conversation? Let your computer listen for you – A system called Catchup is designed to summarize in almost real time what has been said at a business meeting so the latecomers can... well, catch up with what they missed. Catchup is able to identify the important words and phrases in an ASR transcript and edit out the unimportant ones.

- Google leaps language barrier with translator phone – Google has developed software for the first phone capable of translating foreign languages almost instantly.

- A Global Social Network Without The Language Barrier – Mojofiti – Mojifiti has a simple but awesome concept behind it: connect people together in a world without language barriers. The Mojofiti website, now in its second round of Beta testing, allows you to build a profile, make friends, form groups, and start a blog – your standard social networking tools.

Quantum Computing

- Scientists make a leap in quantum computing – A major hurdle in the ambitious quest to design and construct a radically new kind of quantum computer has been finding a way to manipulate the single electrons that very likely will constitute the new machines' processing components or "qubits." That limitation has now been overcome.
- Quantum photosynthesis – The complicated interactions between matter and energy predicted by quantum mechanics appear to play a role in photosynthesis, affecting how energy from the sun makes its way to a cell's reaction centers before being converted to chemical energy that powers cellular functions.

- Physicist proposes method to teleport energy – Using the same quantum principles that enable the teleportation of information, a new proposal shows how it may be possible to teleport energy. By exploiting the quantum energy fluctuations in entangled particles, physicists may be able to inject energy in one particle, and extract it in another particle located light-years away.

RFID

- RFID: State of the Market – Excellent update on where the RFID market currently is with lots of links to additional related information.

Robots

- Robots Display Predator-Prey Co-Evolution, Evolve Better Homing Techniques – Evolving robots have previously learned how deceive other robots about the location of a resource. Since then, robots have continued to evolve, learning how to navigate a maze, beginning to cooperate and share, and even developing complex predator-prey interactions.

- Honda's 'Living with Robots' Film Discusses Past, Future of Robotics (video) – Great little movie by Honda. It's a short documentary film called "Living with Robots," which debuted at the 2010 Sundance Film Festival recently.

- A Giant Leap for Humanoid Kind (video) – NASA and General Motors have developed a humanoid robot called Robonaut2. It is more dexterous and human-like than its predecessor and other, similar robots. NASA hopes to use it for precursor missions to the moon or Mars, or to work side-by-side with

astronauts on the space station.

- Surgical robot reduces recovery time for cancer patients at Gaston Memorial Hospital – The sophisticated machine enables surgeons to make smaller incisions and perform precise movements, reducing recovery time.

- Just Like Mombot Used to Make (with videos) – Interesting article about cooking robots, with video.

Search Engines

- How Google's Algorithm Works (or at least some hints) – Google's search team recently revealed to Wired's Steven Levy some of its algorithm-related secrets. As many are well aware, Google's algorithm is something it keeps very hush-hush about, so this was something of a rare occurrence.

Sensors

- Smart Dust? Not Quite, but We're Getting There – Smart dust, to be sure, remains a ways off. But technology's virtuous cycle of smaller, faster and cheaper has reached the point that experts say sensors may soon be powerful enough to be the equivalent of tiny computers. Some ambitious sensor research projects provide a glimpse of where things are headed.

- Save Money Using Sensors– Using sensors to automatically measure how much energy you expend and transferring money from your checking account to your savings account based on the savings. Extremely interesting application of sensor technology.

- Millimeter-scale, energy-harvesting sensor system developed – A low-power, sensor system developed at the University of Michigan 1,000 times smaller than comparable commercial counterparts. It could enable new biomedical implants.

- Smart grid could turn appliances into spies, experts warn – With the rapid adoption of a North American "smart grid" aimed at helping consumers conserve electricity, it's also possible that smart appliances will be able to transmit information about their activities (and yours) through the power lines. Your electricity utility may not yet be able to determine when you snack, do laundry or shower, but privacy advocates are sounding the alarm that systems need to be put in place to guard details about a household's electricity usage from prying eyes.

Simulation

- 'Virtual cell' could bring benefits of simulation to biology – In a matter of months, bioengineer Markus Covert, PhD, expects to unveil the first "whole-cell" computer model of an organism.

Speech Recognition

- Google Developing Near Real Time Translation Software – Google is developing software that can translate foreign languages without any human intervention.

Web 2.0

- How Millenials Use Tech at Work – Millenials have quickly adopted web 2.0 technologies, often in conflict with corporate policies.

- Meet The First Miners of the New Social Graph – These days, it's all about *who you don't know*. That's the theory behind a group of very interesting software projects being built on top of the giant graph of friend/follower connection data that Twitter exposes about its users.

- Researcher creates 'Facebook for Scientists' – Imagine how much sooner Dr. Jonas Salk could have discovered the polio vaccine if in 1955 if he was on Facebook. Often, researchers work in a vacuum. There's a wealth of information online and in scientific journals, and now one central place online where a researcher can ask a question and someone else can answer it.

- Augmented Identity – An application that lets users point a smart phone at a stranger and immediately learn about them premiered recently. The prototype software combines computer vision, cloud computing, facial recognition, social networking, and augmented reality.