

E.I.T. Links

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

“I spend most of my time assuming that the world is not ready for the technology revolution that will happening to them soon.”

- Eric Schmidt, Google CEO

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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 Jul 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

- [Foundation launches contest to develop AI physician](#) – Two weeks ago, the foundation began promoting the AI Physician X Prize. The prize will be *awarded* to the first team that designs an artificial intelligence system capable of providing a diagnosis equal to, or better than, 10 board-certified doctors.

- [Artificial Intelligence for Improving Team Sports](#) – Researchers are participating in a study to develop a system for evaluating sport performance through application of Artificial Intelligence techniques to automatically analyze the development of plays.

Brain

- [How Cognitive Surplus Will Change the World \(TED\)](#) – Clay Shirky looks at “cognitive surplus” — the shared, online work we do with our spare brain cycles. While we’re busy editing Wikipedia, posting to Ushahidi (and yes, making LOLcats), we’re building a better, more cooperative world

Chatterbots

- [Virtual Agents Will Replace Live Customer Service Reps](#) – With advances in AI, many organizations will replace humans with automated chatterbots for customer service.
- [Technology Innovator's Mobile Move](#) – Several examples of advanced uses of chatterbots are highlighted in this article.
- ['Virtual human' Milo comes out to play at TED in Oxford](#) (video) – MILO makes his debut at the TED conference in Oxford. Milo is the brainchild of Microsoft.

Data Mining/Business Intelligence

- [Google, CIA Invest in 'Future' of Web Monitoring](#) – The investment arms of the CIA and Google are both backing a company that monitors the web in real time — and says it uses that information to predict the future. The company is called Recorded Future, and it scours tens of thousands of websites, blogs and Twitter accounts to find the relationships between people, organizations, actions and incidents — both present and still-to-come.

Educational Technology

- [Mountain View's global teacher of 1,516 lessons and counting](#) – From a tiny closet in Mountain View, Sal Khan is educating the globe for free. His 1,516 video lectures cover a wide range of topics---everything from calculus to Napoleonic campaigns.

Future

- [Full Emersion in the Cyberworld is Coming](#) – We are on the cusp of full and complete immersion in cyberspace including socializing, ecommerce and communicating.

Information Overload

- [First AI tool for email overload](#) – Once primed, Griage (free) will automatically use its built-in AI to determine which emails are important to you.

Innovation

- [Agriculture's Next Revolution -- Perennial Grain -- Within Sight](#) – Earth-friendly perennial grain crops, which grow with less fertilizer, herbicide, fuel, and erosion than grains planted annually, could be available in two decades, according to researchers writing in the current issue of the journal *Science*.
- [Winners are grinners – the smile-activated ice cream vending machine](#) – This vending

machine attracts passersby with an offer for free ice cream. After collecting some demographic data, the machine will dispense ice cream to those who smile. An interesting way to collect data!

- [Reverse Vending Machines give users cash for their empties](#) – The Reverse Vending Machine (RVM) takes in recyclable bottles and cans, and gives out cash in return. RVMs have recently been introduced at the Centro Hollywood shopping mall in Adelaide, as part of the state of South Australia's effort to promote recycling and reduce littering.

Intelligent Agents

- [Talking to Your Phone](#) – The latest such service, from Vlingo, a company that makes voice-recognition applications, tries to go beyond earlier apps by combining a user's spoken commands with personal data and information stored online. Called "SuperDialer," the service can, for example, let a user say "Call pizza" and subsequently see a list of nearby pizza places drawn from both the user's address book and the Web.

Manufacturing

- [Metal, heal thyself](#) – Serious work has been done to enable metals to 'heal' themselves under proper conditions. When the metal coating is punctured or scratched, the capsules in the damaged area burst and ooze restorative liquids, in the form of compounds called trivalent chromates. These react with nearby metal atoms and form tough, protective films a few molecules thick to ameliorate the damage.

Medical

- [Cancer cells detected using \\$400 digital camera](#) – Researchers have detected oral cancer cells using a fiber-optic cable and an off-the-shelf Olympus E-330 camera worth \$400. The work by researchers from the University of Texas M.D. Anderson Cancer Center could improve access to diagnostic imaging tools in many parts of the world

where these expensive resources are scarce.

- [Regenerative Medicine 4: Tissue Engineering](#) – The fourth in this excellent series on Regenerative Medicine, this one including reports of advances in engineering new tissues and organs, including methodologies and specific organs/tissues.
- [FDA clears first implantable telescope for vision](#) – The Implantable Miniature Telescope aims to help in the end stages of incurable age-related macular degeneration, a creeping loss of central vision that blocks reading, watching TV, eventually even recognizing faces.
- [Nanotechnology and stem cells rejuvenate arteries](#) – A combination of nanotechnology and adult stem cells has been shown to destroy arterial plaque atherosclerosis in the hearts of pigs. Animals that received stem cells also showed signs of new blood vessel growth and restoration of artery function, according to the study reported at the American Heart Association's Basic Cardiovascular Sciences 2010 Scientific Sessions.
- [Medicine Is Not One Size Fits All](#) – What makes you sick might have no effect on your neighbor. Even if it does, a treatment that works for one might not work for both. A standard prescription dose could be too much for you but too little for someone else. Meanwhile, so-called normal temperature and blood pressure readings actually might be hiding signs of a serious abnormality. Such variations can stem from a person's genetics, lifestyle, diet, gender, age, or environment. Tailoring health care to patient differences used to rely on trial and error, family history, and doctors' intuition. These days, it increasingly depends on technology.

Military

- [DARPA's Artificial Intelligence Control Grid - The Official Version \(video\)](#) – DARPA (Defense Advanced Research Projects Agency) put out this nifty little video showing how they have effectively turned the Earth into a prison planet using

artificial intelligence.

MISC

- [A Kitchen Countertop with a Brain](#) – A depth-sensing camera and palm-top projector turn an ordinary work surface into an interactive one. "If you put, for example, a steak on the surface, it will recognize the steak and come up with recipe," says Ziola. "It may also come up with nutritional information."
- [Composer David Cope has spent the last 30 years teaching computers to create classical music](#) – Cope began to analyse Bach's music not just mathematically but with a sense of narrative tension and surprise, weighting different components. "Experiments in Musical Intelligence" became Emmy. When fed with enough of a composer's work, Emmy could deconstruct it, identify signature elements, and recombine them in new ways.
- [Cloud Computing Explained](#) – An excellent and thorough discussion (with videos) of cloud computing. (NOTE: For more links to Cloud Computing aspects, my 'web tour' of cloud computing is available at: http://www.agglom.com/webshow/67972/Cloud_Computing_)
- [Fibers that can hear and sing](#) – Now the threads used in textiles and even optical fibers are considered much too passive. For the past decade, this researcher has been working to develop fibers with ever more sophisticated properties, to enable fabrics that can interact with their environment.

Nanotechnology

- [What is Nano?](#) – An excellent overview of nanotechnology, including many application areas updated. (NOTE: Free registration required to download.)

NLP

- [Software that automatically deciphers ancient language developed](#) – A computer

successfully deciphered an ancient language Ugaritic in just a couple of hours. This work could not only help archaeologists translate other ancient languages, but also expand the number of languages that automated translation systems like Google Translate can handle.

- [Computers Learn to Listen, and Some Talk Back](#) — Computers are becoming ever more capable of handling requests, similar to how humans perform. Many outstanding examples are included in this article.

RFID

- [Wal-Mart Reignites RFID Hysteria](#) — In a bold business-technology initiative that will continue Wal-Mart's efforts to please its customers by giving them better choices, better availability, and better prices, the world's largest retailer is expanding its use of RFID tags from the pallet level down to the individual-product level. This is a huge achievement in the global consumer-packaged goods and retailing industries, and will also have spillover impact in logistics, merchandising, marketing, finance, and other related fields.

Robots

- ['Robofish' makes friends with biological cousins](#) — A team from the University of Leeds have created a robotic fish that can do something no previous effort has laid claim to — fool other fish into thinking it's one of them.
- [HIRO III lets you feel what you see on screen \(w/ Video\)](#) — Researchers in Japan are developing a new touch screen system, the HIRO III, that incorporates a robot hand that could offer a new way of simulating the touching of virtual objects and receiving feedback from them.
- [Interview With a Robot](#) — This is a fascinating interview with a robot. The abilities (and limitations) are shown.
- [It's 2010. Where are the robots we were promised?](#) (video) — The robots promised

long ago are beginning to show up in serious applications, although “Rosie” is not yet available. See the following link, however, for some promising developments.

- [DUSTBOT collaborative, multifunctional robots keep your town clean](#) -- A group of European companies and universities have collaborated to produce a series of multifunctional robots for urban hygiene tasks. With abilities ranging from door-to-door garbage pickup and transportation, to automated street cleaning, the DUSTBOTs recently demonstrated their skills at a station in the town of Atxuri, Portugal.
- [The Future of Robot Scientists](#) -- Future science historians will mark the beginning of the 21st century as a time when robots took their place beside human scientists. Programmers have turned computers from extraordinarily powerful but fundamentally dumb tools, into tools with smarts. Artificially intelligent programs make sense of data so complex that it defies human analysis. They even come up with hypotheses, the testable questions that drive science, on their own.
- [Students, Meet Your New Teacher, Mr. Robot](#) -- In a handful of laboratories around the world, computer scientists are developing robots like this one: highly programmed machines that can engage people and teach them simple skills, including household tasks, vocabulary or, as in the case of the boy, playing, elementary imitation and taking turns.

Sensors

- [Insect-inspired device lets micro air vehicles perch on vertical surfaces](#) — Envisioned is a system wherein swarms of tiny robotic gliders would be deployed over scenes of disasters, such as forest fires or earthquakes. The gliders would fly straight into the sides of vantage points, such as tall buildings or trees, whereupon they would perch on that surface and transmit data to remote observers via cameras or other sensors. They could even free themselves, to fly on to another location.
- [Non-contact sensors monitor patient heartbeats from a meter away](#) — The Electric

Potential Sensors (EPS) are the world's first electrical sensors able to monitor heartbeats accurately whilst patients relax in their bed, or rest at home. This breakthrough device gives medical teams and health workers the chance to administer patient-friendly monitoring with minimum impact on mobility or personal space.

- [Biosensors Comfortable Enough to Wear 24-7](#) – Many medical sensors require direct skin contact and a sticky layer of gel to help conduct electrical signals. Both technologies can be remarkably precise, but they don't transfer easily from hospital to home. Now researchers believe they may have solved the sticky situation with a sensor that can read ECG and other data through clothing, without ever touching the skin.
- [Better Living Through Implants](#) – Implants are getting better, faster, and smaller; and experts say that they could be used to augment healthy human performance within five to ten years. A look at the current research in medical implants shows not only unprecedented potential for curing disease but also a new paradigm for understanding human potential.

Simulation

- [SimBaby](#) – SimBaby is the advanced infant patient simulator for team training. With realistic anatomy and clinical functionality, SimBaby allows learners to practice and perfect their skills in a risk-free environment.

Virtual Reality

- [Duke U School of Medicine Expands Virtual Game Use for Future Doctors](#) – The Duke University School of Medicine is expanding its efforts to train future doctors in clinical skills through 3D virtual games. The school, which has about 421 students in its MD program, is once again teaming up with Virtual Heroes, a company that creates training products for healthcare, federal systems, and business.

- [Augmented Reality Business Going Global](#) – The possibilities for Augmented Reality in the world of business are expanding rapidly.

Web 2.0

- [How Congress Uses Twitter](#) – Congress has caught on to the use of Twitter as a communications tool.
- [Wikipedia to Add Meaning to Its Pages](#) – Wikipedia may be the epitome of Web 2.0. But the Wikimedia Foundation, a nonprofit organization that runs Wikipedia, among other projects, is now thinking about how to make it a linchpin of Web 3.0, or the semantic Web.