E.I.T. Links

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

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"I never have never let my schooling interfere with my education ."
- Mark Twain

By Steve Knode, steve@steveknode.com

Links for this Issue

AI General

- When creative machines overtake man – Machine intelligence is improving rapidly, to the point that the scientist of the future may not even be human! In fact, in more and more fields, learning machines are already outperforming humans. As noted in this transcript of a talk at TEDxLausanne on Jan. 20, 2012, artificial intelligence expert Jürgen Schmidhuber isn't able to predict the future accurately, but he explains how machines are getting creative, why 40,000 years of Homo sapiens-dominated history are about to end soon, and how we can try to make the best of what lies ahead.

- AI uprising: humans will be outsourced, not obliterated – Dr. Stewart Armstong believes that humanity faces the risk of a more 9-to-5 style apocalypse, whereby a superhuman AI could (whether through its own logic or on the orders of other humans) out-compete the rest of us economically and even socially, rendering human beings obsolete and disposable.

Apps for Smartphones and Tablets

- Dragon Dictation – Dragon Dictation is an easy-to-use voice recognition application powered by Dragon® NaturallySpeaking® that allows you to easily speak and instantly see your text or email messages. In fact, it's up to five (5) times faster than typing on the keyboard.

- Keynote – Keynote is the most powerful presentation app ever designed for a mobile device. Built from the ground up for iPad, iPhone, and iPod touch, it makes creating a world-class presentation — complete with animated charts and transitions — as simple as touching and tapping. Highlight your data with stunning 3D bar, line, area, and pie charts.

- Pocket – The best way to save and view articles, videos, and more. When you find something on the web that you want to view

later, put it in Pocket.

Brain

- [A Computer Interface that Takes a Load Off Your Mind](#) – Researchers at MIT and Tufts are experimenting with a way for computers to gain a little insight into our inner world. Their system, called Brainput, is designed to recognize when a person's workload is excessive and then automatically modify a computer interface to make it easier.

- [Getting smarter while getting older](#) – Brains that maintain healthy nerve connections as we age help keep us sharp in later life. An Age UK-funded project at the University has found that older people with robust brain wiring - that is, the nerve fibres that connect different, distant brain areas - can process information quickly and that this makes them generally smarter.

- [How Exercise Affects the Brain](#) – Exercise clears the mind. It gets the blood pumping and more oxygen is delivered to the brain. The effects of exercise are different on memory as well as on the brain, depending on whether the exerciser is an adolescent or an adult.

Chatbots

- [How You Can Be Two Places at Once](#) – Cutting-edge, tech-savvy managers no longer use technology just to make their jobs easier and faster. Thanks to the convergence of new technologies, knowledge workers will soon be able to create virtual "agents" that help them perform multiple jobs in multiple places at the same time.

Data Mining/Business Intelligence

- [Text mining: what do publishers have against this hi-tech research tool?](#) – A report published by McKinsey Global Institute last year said that "big data" technologies such as text and data mining had the potential to create €250bn (£200bn) of annual value to Europe's economy, if researchers were allowed to make full use of it.

Unfortunately, in most cases, text mining is forbidden.

Decision-making

- [Navy pilot training enhanced by AEMASE 'smart machine' developed at Sandia Labs](#) – Navy pilots and other flight specialists soon will have a new "smart machine" installed in training simulators that learns from expert instructors to more efficiently train their students. AEMASE is a cognitive software application that updates its knowledge of experts' performance on training simulators in real time to prevent training sessions from becoming obsolete and automatically evaluates student performance.

Educational Technology

- [Harvard and M.I.T. Take Their Classes Online](#) – Harvard and M.I.T. joined the fray with a $60 million online-classroom venture named edX. The nonprofit enterprise will offer a variety of free courses across disciplines for anyone with an Internet connection.

Future

- [High speed tube transport concept can take you from New York to China in two hours](#) – Seating a maximum of six passengers per tube plus a baggage compartment, the ETT can travel at a speed of approximately 4,000 miles per hour while remaining airless and frictionless. Thanks to magnetic levitation, the vacuum speed means you can go from New York to Los Angeles in a mere 45 minutes, New York to Beijing in two hours, or around the world in only six hours.

- [Thomas Sterling: 'I Think We Will Never Reach Zettaflops'](#) – As supercomputing makes its way through the petascale era, the future of the technology has never seemed so uncertain. HPC veteran Thomas Sterling, Professor of Informatics & Computing at Indiana University, takes us through some of the most critical developments in high performance computing, explaining why the transition to exascale is going to be very

different than the ones in the past.

- [Looking to the Future of A New Kind of Science](#) – Sometime hence Stephen Wolfram believes a large portion of our technology will instead come from New Kind of Science (NKS) ideas. It will not be created incrementally from components whose behavior we can analyze with traditional mathematics and related methods. Rather it will in effect be "mined" by searching the abstract computational universe of possible simple programs. (NOTE: This is the third in a series of posts about A New Kind of Science, a book published by Stephen Wolfram ten years ago.)

- [The home of the future takes one step closer as AlertMe smart home tech partners with British Gas](#) – Smart meters are a replacement for traditional gas meters in the home which have a display that shows customers how much energy they are using. The AlertMe service breaks down the information for comparison with similar households, actionable recommendations (like getting insulation or double glazing to help keep in heat) and generally suggest ways in which customers can save money and not waste so much energy.

Information Overload

- [Bases to Bytes](#) – The cost of sequencing human genomes is plunging—in the most advanced genomics centers, it's falling five times faster than the cost of computing. Increasingly, people are getting their DNA sequenced by companies and research labs in a search for clues about genetic variation and disease. But the industry must figure out how to cheaply store all the resulting data. Each of the 3.2 billion DNA base pairs in a human genome can be encoded by two bits—800 megabytes for the entire genome.

- [A 100-gigbit highway for science](#) – In an effort to spur U.S. scientific competitiveness, as well as accelerate development and widespread deployment of 100-gigabit technology, the Advanced Networking Initiative (ANI) was created with $62 million in funding from the American Recovery and Reinvestment Act

(ARRA) and implemented by ESnet. ANI was established to build a 100 Gbps national prototype network and a wide-area network testbed.

Information Visualization

- [Watch Google's Larry Page speak at Zeitgeist 2012 while wearing Project Glass](#) – If you're interested in what's "next" in the world of technology, then watching Google's CEO speak at this year's Zeitgeist is a can't miss. Of course, his talk was centered around all of the areas that Google focuses on, but that's becoming everything you can think of, basically.

- [Update on Michael Zappa's Envisioning Emerging Technology graphic](#) – What developments will the next 30 years hold in the fields of **AI**, biotech, **robotics**, computing, **the internet**, materials science and more besides? That's the question **Michell Zappa**, technology strategist and founder of trend forecasting firm **Envisioning Technology**, asked himself – and here is his response: a striking, concise infographic which outlines a range of probable developments, and their likely significance for society.

- [The Scale of the Universe 2](#)– An amazing interactive graphic reflecting the size of the universe.

- [Japan Earthquakes 2011 Visualization Map](#)– Japan Earthquakes 2011 Visualization map.

- [XVIVO website of science visualizations](#)– Every day, scientists are discovering and inventing things that no human has ever seen before. Those visualizations are contained here.

- [Websites Use DNA to Create Family Trees](#)– Companies crossing DNA-mapping technology with social networking are developing a brave new world in which samples of customers' genes can be used to map family trees, find relationships people never knew they had, and identify adopted children's biological parents.

- [More on Google Glasses (video)](#) – Much hoopla has been made over Google's Project Glass, and on Charlie Rose, we finally got a glimpse of the specs in action when Google Fellow and Stanford Professor Sebastian Thrun wore them throughout his interview and put them to work.

Innovation

- [Startup Sends More than Music through Speakers](#) – Sonic Notify uses sound waves to let your smart phone pull up everything from coupons to music videos.

- [New Cement-Making Method Could Slash Carbon Emissions](#) – Researchers at George Washington University have bolted together an ungainly contraption that they say efficiently uses the energy in sunlight to power a novel chemical process to make lime, the key ingredient in cement, without emitting carbon dioxide.

- [Pirate island attracts more than 100 startup tenants](#) – More than 100 international tech companies have registered their interest in floating geek city Blueseed, to be launched next year in international waters outside of Silicon Valley.

- [Thiel Fellowship](#) – A radical rethinking of what it takes to succeed, the Thiel Fellowship encourages lifelong learning and independent thought.

- [Device may inject a variety of drugs without using needles](#) – MIT researchers have engineered a device that delivers a tiny, high-pressure jet of medicine through the skin without the use of a hypodermic needle. The device can be programmed to deliver a range of doses to various depths — an improvement over similar jet-injection systems that are now commercially available.

Intelligent Agents

- ['AVA' THE HOLOGRAPHIC AVATAR GREETS NY AIRPORT PASSENGERS](#) – Meet Ava. She's a new employee at the Port Authority of New York and New Jersey. She smiles, answers questions and can guide you to the nearest restroom or to your connecting flight. Her cost for six months of work? $180,000.

Knowledge Management

- [RxISK](#) – Share your experience with the prescription drugs you are taking and receive a free report to take to your pharmacist or doctor.

- [Introducing the Knowledge Graph](#) – The next frontier in search is to understand real-world things and the relationships among them. So Google is building a **Knowledge Graph:** a huge collection of the people, places and things in the world and how they're connected to one another.

Kurzweil

- [What if we achieved The Singularity - but lawyers got there first?](#) – If the contents of our brains get uploaded into a computer, then surely someone is going to have to pay to keep it all working. That'll be you. But what if you can't pay? And what about all that copyrighted content?

Machine Learning

- [New Big Data Underwriting Models To Determine Consumer Credit Risk](#) – ZestCash takes an entirely different approach to underwriting by combining Google-style machine learning techniques and data analysis, combined with traditional credit scoring. As a result, the company can offer credit to many people who historically would have been turned away.

- ['Game-powered machine learning' opens door to Google for music](#) – Can a computer be taught to automatically label every song on the Internet using sets of examples provided by unpaid music fans? University of California, San Diego engineers have found that the answer is yes, and the results are as accurate as using paid music experts.

Manufacturing

- [Using 3D printing technology to restore ancient treasures of China's Forbidden City](#) – After the shape of the original objects is captured using laser or optical scanners, damaged areas can be digitally restored ready for 3D printing. While such a technique has been possible for a while, the Loughborough Design School team is developing a formalized approach specifically tailored to the restoration of historic artifacts.

- [Robotic spider weaves web at MIT Media Lab](#) – A three-week old robot at the MIT Media Lab is weaving a cocoon-like structure with a little programming help from humans. Eventually, it will be autonomous.

- [In Denmark, a printable house](#) – Danish architects Frederik Agdrup and Nicholas Bjorndal of Eentileen used just a computer, a "printer" — actually, a computer numerical control (CNC) machine — and 820 sheets of plywood to build a 125 square meter (1,345 square foot) home in four weeks.

- [Canon eyes robot-only production for cameras](#) – Canon Inc. is moving toward fully automating digital camera production in an effort to cut costs — a key change being played out across Japan, a world leader in robotics.

Medical

- [Fine-tuning Nanotech to Target Cancer](#) – Programmable nanoparticles have shown promise in early cancer trials, and may finally fulfill the promise of nanomedicine.

Military

- [U.S. military embraces robots with greater autonomy](#) – Only now is robotics research nearing the stage that the military may soon be able to deploy large ground vehicles capable of performing tasks on their own with little human involvement. The results, among other things, could be more saved lives, less wear and tear on the troops, and reduced fuel consumption.

MISC

- [Laser System Paints Information on the Road Ahead](#) – Microvision's system uses a set of three lasers—red, green and blue—and a single, millimeter-wide silicon mirror that tilts on two axes. The lasers put out light at different intensities, and the three colors are mixed to produce the final pixel color. As the lasers shine light on the mirror, it rapidly scans horizontally and vertically, painting the image onto the windshield one pixel at a time.

- [Moore's Law Lives Another Day](#) – The three-dimensional transistors of Intel's new generation of chips continue the 50-year trend of faster, more tightly packed chips.

- [The open source problem solvers creating government 2.0](#) – Meet the new breed of technologist who's hacking the government at every level to make it work better for you.

- [Are Smart Phones Spreading Faster than Any Technology in Human History?](#) – Mobile computers are on track to saturate markets in the U.S. and the developing world in record time.

- [Flying 3D eye-bots](#) – They can be deployed as additional surveillance resources during major events, or as high-resolution 3D street imaging systems. Intelligent swarms of aerial drones are a universally useful tool for police, crisis managers and urban planners. Special 3D sensors developed by Fraunhofer researchers ensure fl awless aerobatics and prevent collisions.

- [Should iEat? Testing Food Ripeness with a Smart Phone](#) – Germany's Fraunhofer Institute is developing a miniature spectrometer that Food Production Daily says "will pave the way for instant quality analysis of whether fruit is ripe or if meat contains too much water." The device, which is smaller than a sugar cube, uses near infrared technology to assess starch, protein, water, and fat content in food--and you wouldn't even have to unwrap the goods to test them.

- [Accelerated Tech News 6 - Use Your Brain to Control Coffee Robots With 2pac](#) – Every week Aaron Saenz will bring you a recap of the top stories from SingularityHub.com.

Nanotechnology

- [Innovations in Drug Delivery (podcast)](#) – Dr. Moira Gunn talks about nano-capsules, 100 times smaller than a blood cell, and their uses in a unique drug delivery system for cancer with the CEO of Epitarget, Esben Nilssen.

- [Remote-controlled genes trigger insulin production](#) – Researchers have remotely activated genes inside living animals, a proof of concept that could one day lead to medical procedures in which patients' genes are triggered on demand.

Neural Networks

- [Artificial intelligence to Identify diseases in citrus](#) – New advances in artificial intelligence are reaching the citrus sector. Soon a photo will be enough, when sent to a system that can detected if the fruit is infected or not.

NLP

- [Dragon Drive puts a Siri-like assistant in your car](#) – Nuance has unveiled a new voice control platform called Dragon Drive that lets you have a conversation with your connected car. The company — whose voice control tech is used for everything from televisions to transcription — will be kicking things off with a service called Dragon Drive Message, which lets drivers "speak, listen, and respond" to text messages and emails using only their voice.

Quantum Computing

- [Scientists Establish First Working Quantum Network, Quantum Internet On The Way](#) – IBM is even on the cusp of building actual **quantum computer** protoypes. But what good is any of that if we don't have a

quantum Internet? Fortunately, we do.

- [Physicists Store Short Movie In A Cloud of Gas](#) – Researchers have been able to store single images in a cloud of rubidium atoms for several years. Now they've gone a step further.

- [Chinese Physicists Smash Distance Record For Teleportation](#) – The ability to teleport photons through 100 kilometres of free space opens the way for satellite-based quantum communications, say researchers.

Robots

- [Google's self-driving car gets green light in Nevada](#) – Commuting may never be the same again in Nevada, the US state that is home to Las Vegas, legalised gambling and huge amounts of desert. Besides gambling, it is now legal there to have a self-driven car – providing it matches up to the specification achieved by Google's autonomous models.

- [A robot learns how to tidy up after you](#) – Researchers in Cornell's Personal Robotics Lab have trained a robot to survey a room, identify all the objects, figure out where they belong and put them away.

- [Video: Throwable Robot, Roomba-Riding Humanoid, and More from ICRA 2012](#) – The robots at the exhibit hall included the DARPA ARM (the robot pictured above),NASA's Robonaut2, Willow Garage's PR2, Intuitive Surgical's Da Vinci, and theScout, from ReconRobotics.

- [Robotic fish to patrol for pollution in harbours](#) – In the shallow waters of Gijon harbour, in northern Spain, a large, yellow fish cuts through the waves. But this swimmer stands apart from the marine life that usually inhabits this port: there's no flesh and blood here, just carbon fibre and metal.

Search Engines

- [Googling Cancer: Search Algorithms Can Scan Disease for Patient Risk](#) – The search algorithm Google uses to rank search results

can now scan cancers to see which molecules best reveal the risks patients face.

Sensors

- [A Nose in Your Clothes](#) – A U.K. company says its highly pressure-sensitive material could be used to integrate an "electronic nose" into paper or clothing.

- [Implanted User Interfaces: I've Got You Under My Skin](#) – New implantable devices tested under artificial skin and in the arm of a cadaver reveal a new way people can interact with and control devices both inside and outside their bodies, and perhaps in other bodies.

- [Ultrasensitive biosensor promising for medical diagnostics](#) – Researchers have created an ultrasensitive biosensor that could open up new opportunities for early detection of cancer and "personalized medicine" tailored to the specific biochemistry of individual patients.

Simulation/Games

- [Project Factory.Modz](#) – Project Factory.Modz() is a free[*] Physics Based technology preview for Factory Animation that enables you to bring your machine line layouts to life and clearly articulate the working intent of the layout to your clients and stakeholders. It helps you to visually communicate your ideas by animating the movement of material and people inside your facility. (NOTE: Video at: http://www.youtube.com/watch?v=WDhNaYchP6s)

Virtual/Augmented Reality

- [Life-size, 3D hologram-like telepods may revolutionize videoconferencing](#) – A Queen's University researcher has created a Star Trek-like human-scale 3D videoconferencing pod that allows people in different locations to video conference as if they are standing in front of each other.
- [Rapper's De-Light: Tupac 'Hologram' May Go on Tour](#) – The biggest buzz at Sunday's Coachella music festival in California wasn't for a hot new DJ or indie-rock band. It was for Tupac Shakur, the rapper who died more than 15 years ago and "performed" Sunday night alongside Snoop Dogg and producer Dr. Dre.

Wearable Computers

- [Wearing a Computer Is Good for You](#) – Fitness trends and health-care problems are creating demand for tiny computers we won't even notice we're carrying.