E.I.T. Links

From **"self-service"** to **"room service"**:
How Emerging Information Technologies are changing the way we live

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"It is seldom at the frontier that discoveries are made, but more often in the dustbin ."
- Allan Bennett

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Links for this Issue

AI General

- Research at Stanford may lead to computers that understand humans – After decades of trial and error, artificial intelligence applications that aim to understand human language are slowly starting to lose some of their brittleness. Now, a simple mathematical model developed by two psychologists at Stanford University could lead to further improvements, helping transform computers that display the mere veneer of intelligence into machines that truly understand what we are saying.

- 'A Perfect and Beautiful Machine': What Darwin's Theory of Evolution Reveals About Artificial Intelligence – What Darwin and Turing had both discovered, in their different ways, was the existence of competence without comprehension. This inverted the deeply plausible assumption that comprehension is in fact the source of all advanced competence.

- 16,000 Processors Can Identify a Cat in a YouTube Video Sometimes – In what is being hailed as a triumph in machine learning, Google researchers turned 16,000 processors loose on 10 million thumbnails from YouTube videos to see what they could (machine) learn.

Apps for Smartphones and Tablets

- An App to Automate Life's Little Tasks – Sure, you can text your significant other that you're on the way home when you leave the office, or turn music on when you go for a run. But wouldn't it be easier if your phone did it for you? A new, free app and accompanying website from Microsoft's Bing search engine purports to do just that.

- An App Keeps Spies Away from Your iPhone – Anytime you use your phone to make a call or send an e-mail or text message, there's a chance it will be intercepted by someone who has access—

legal or otherwise—to your providers' servers. A new app called Silent Circle tries to change that by encrypting calls, e-mails, and texts.

- [Parents Could Skip the Doctor's Office with This Device](#) – A smart-phone add-on enables at-home diagnosis of ear infections, one of the top reasons for pediatrician visits.

Brain

- ['Mind uploading' featured in academic journal special issue for first time](#) – "Mind uploading" is an informal term that refers to transferring the mental contents from a human brain into a different substrate, such as a digital, analog, or quantum computer. It's also known as "whole brain emulation" and "substrate-independent minds."

- [Mind-reading speller allows full conversations for vegetative-state patients](#) – The first real-time brain-scanning speller will allow people in an apparent vegetative state (unable to speak or move) to communicate, according to Maastricht University scientists.

Data Mining/Business Intelligence

- [MIT, Intel unveil new initiatives addressing 'big data'](#) – MIT has been selected from among 55 institutions that submitted 157 proposals to host a new Intel research center that will concentrate on what's come to be called "big data" -- new techniques for organizing and making sense of the huge amounts of information generated by Web users and new networked sensors.

- [A Delicate Balance: Organizational barriers to evidence-based management](#) – Over a hundred years ago, H. G. Wells stated that statistical thinking would one day be as necessary for efficient citizenship as the ability to read and write.[1] Wells' prescient comment is equally true of management and organizational behavior in the age of big data and business analytics. In domains as varied as professional sports, medicine, consumer business, financial services and government operations, a consensus has

rapidly developed about the power of statistical thinking to help experts make better decisions and businesses improve their operations.

Decision-making

- [IBM launches Decision Management (several subsequent parts)](#) – Decision Management and the associated technologies have been used to automate decisions for many years. Increasingly the combination of these techniques can be used to improve decision making.

- [Navy eyes artificial intelligence to automate decision making on ships, sensors, and weapons](#) – U.S. Navy officials are investigating the use of artificial intelligencetechnologies to automate business processes and decision making on key Navy and joint platforms ranging from navigation and ship control to tactical analysis, sensors, and weapons.

Educational Technology

- [Reimagining Books: How Citia's iPad App Compares to a Paper Book](#) – A really interesting concept that Citia hopes to introduce soon, when it has more books in its collection, is to show connections between ideas across books. If you have prior knowledge about a particular topic from reading another Citia book, the app will recognize that and you won't have to read about it again.

- [Envisioning the future of education technology (graphic)](#) – This visualization attempts to organize a series of emerging technologies that are likely to influence education in the upcoming decades. Despite its inherently speculative nature, the driving trends behind the technologies can already be observed, meaning it's a matter of time before these scenarios start panning out in learning environments around the world.

Future

- [Will our kids be a different species? (TED talk)](#) – Throughout human evolution,

multiple versions of humans co-existed. Could we be mid-upgrade now? At TEDxSummit, Juan Enriquez sweeps across time and space to bring us to the present moment -- and shows how technology is revealing evidence that suggests rapid evolution may be under way.

- 2045: A New Era for Humanity (video) – In February 2012 the first Global Future 2045 Congress was held in Moscow. One of the main goals of the Congress was to construct a global network of scientists to further research on the development of cybernetic technology.

- The Abundance Builders (excerpt from book, "Abundance") – Progress occurs when inventive people solve problems and create opportunities. Here are just some of the examples. (NOTE: Abundance is one of the best, and most important, books I have read in the last several years.)

- Preview of Future Inventions—Futurists: BetaLaunch 2012 – The technologies and social innovations featured in this article are winners of the second Futurists: BetaLaunch (F:BL) invention expo, a "petting zoo" where WorldFuture attendees can interact with artifacts from the future and engage with the exhibitors.

- Back to the future at the TTM symposium– Here are some highlights from the symposium, showing some impressive developments.

- 10 Technologies You Will Be Using in Five Years – Intel Labs gave media members a preview of things to come June 26 at an event presented at the Yerba Buena Center in San Francisco called "Facets of Future Life." At the event, CTO and Labs chief Justin Rattner announced a new division of Intel Labs called Interaction and Experience Research (IXR) that is focused on defining new user experiences. The inventions coming from the labs are expected to help people reimagine how computing will be experienced in the future.

Information Overload

- A Dollar For Your Data – Personal, based in Washington, D.C., is among a number of startups that want to help people "collect, curate, and derive value" from their own online data. Users of the network, launched last November, are encouraged to upload information of all sorts, trivial (pizza orders) or sensitive (student loan records, medical prescriptions). They place the data in a "vault" and can grant other people or Web programs access to relevant portions.

Information Visualization

- The Future of Medical Visualisation – Medicine has been revolutionised by 3D imaging techniques. But you ain't seen nothing yet, say data imaging researchers.

- Bridge8 – A website that specializes in creating interesting and useful visualizations.

- Have Your Genome Made Into a Piece of Art – The entire process goes something like this: DNA11 sends you a swab kit that you use to transfer cheek cells to a collection card, which you then send back to the company. DNA11 begins processing the sample with 8 different makers, which insures unique canvas art for each customer. After amplifying the unique DNA bands (so there's enough DNA to visualize), separating them according to size using an electric field (so the molecules don't lump together), and staining them with UV dye (to highlight the DNA that's there), the company takes a digital image and prints the DNA profile on a canvas.

Innovation

- You're Being Watched: Surveillance Systems Get Smart – Video, video everywhere, and not enough people to watch it. That's the conundrum facing military and security personnel today, the people who sit in front of banks of monitors, watching hours of mind-numbingly mundane footage of people going about their business, yet must be attuned to any slight clues to a wanted suspect or potential crime.

- [Frequency-Hopping Radio Wastes Less Spectrum](#) – A New Jersey startup has come out with the fastest cognitive radio yet. It works on the widest possible range of spectrum, and is part of a crop of improved technologies that are crucial to bringing the technology to market and avert network overload.

- [Indie bookstores embrace instant publishing machine](#) – Self-publishing has been made easier since the Espresso Book Machine by On Demand Books debuted in 2006. The machine also can make copies of out-of-print editions.

- [Auto Insurance Enters the 'Pay-per-View' Era](#) – Insurers are accelerating efforts to tap into the systems that enable a car to communicate with satellites and mobile data networks, and use information about how you drive to set your rates.

- [MUSICAL ROBOT COMPANION ENHANCES LISTENER EXPERIENCE](#) – Wedding DJs everywhere should be worried about job security now that a new robot is on the scene. Shimi, a musical companion developed by Georgia Tech's Center for Music Technology, recommends songs, dances to the beat and keeps the music pumping based on listener feedback. The smartphone-enabled, one-foot-tall robot is billed as an interactive "musical buddy."

Intelligent Agents

- [Siri Gets Smarter and Maps Get Fancier in iOS 6 (Video)](#) – An updated version of Siri, Apple's voice-controlled intelligent agent that can talk sports; provide more information about movies and restaurants, thanks to partnerships with Rotten Tomatoes, Yelp and restaurant reservation outfit Open Table; and, most importantly, launch apps. Finally, Apple is working with some car manufacturers to add "eyes-free" Siri to their vehicles.

- [The Individual in a Networked World: Two Scenarios](#) – Ubiquitous computing, sometimes called "the Internet of things" (or "everyware"), describes human–computer interaction that goes beyond personal computing to an environment of objects processing information and networking with each other and humans. Objects would share information: appliances, utility grids, clothing and jewelry, cars, books, household and workplace furnishings, as well as buildings and landscapes. They would learn additional information and preferred methods of use by gathering data about people who are in their environment. For example, cars could tell each other not to be in the same lane at the same time, and bicycles could tell car doors not to open suddenly when the bikes pass by.

- [AI System Automates Consumer Gripes](#) – An artificial intelligence service that automatically resolves consumers disputes and can even engage in negotiations.

- [A Personal Assistant Mines Your Life to Help Out](#) – Cue feeds on e-mail and social-networking accounts to highlight important events and update contacts automatically.

Knowledge Management

- [Knome Software Makes Sense of the Genome](#) – A genome analysis company called Knome is introducing software that could help doctors and other medical professionals identify genetic variations within a patient's genome that are linked to diseases or drug response.

Kurzweil

- [Man or Machine?](#) – Ray Kurzweil on how long it will be before computers can do everything the brain can do.

Machine Learning

- [New statistical model lets patient's past forecast future ailments](#) – Analyzing medical records from thousands of patients, statisticians have devised a statistical model for predicting what other medical problems a patient might encounter.

- [An Online Encyclopedia that Writes Itself](#) – They look a bit like communally written

Wikipedia pages. But these articles—concise profiles of people and organizations, complete with lists of connected organizations, people, and events—were in fact written by computers, in a new bid by the Pentagon to build machines that can follow global news events and provide intelligence analysts with useful summaries in close to real time.

Manufacturing

- [A Dream of Art for Everyone: Digitizing the Met!](#) – It was great to go to a museum, but it was limited. Now, you can be in the Metropolitan Museum of Art with some of the best artists and designers in the world scanning art and sharing it on Thingiverse for the world to download and make.

- [3D Printed Prosthetics Company Bespoke Acquired By 3D Systems](#) – These aren't your average prosthetics. Bespoke's vision is to provide amputees with prosthetics that aren't just functional but also beautiful to look at. And they really put a lot of thought and care into their approach. Breaking the mold of how prosthetics are normally made, they measure the intact leg, arm, hand, etc. so that the dimensions of the prosthetic can match.

- [Rice researchers develop paintable battery](#) – Researchers at Rice University have developed a lithium-ion battery that can be painted on virtually any surface.

Medical

- [Eleven Chronic Disease Technologies to Watch](#) – The full report gives an in-depth analysis of the clinical and financial benefits of each of the eleven technologies and offers an overview of the barriers that hold back their adoption.

- [NIH Human Microbiome Project defines normal bacterial makeup of the body](#) – Microbes inhabit just about every part of the human body, living on the skin, in the gut, and up the nose. Sometimes they cause sickness, but most of the time, microorganisms live in harmony with their human hosts, providing vital functions essential for human survival. For the first time, a consortium of researchers organized by the National Institutes of Health has mapped the normal microbial make-up of healthy humans, producing numerous insights and even a few surprises.

- [Stroke risk increased by sleeping less than six hours a night; simple eye test could detect](#) – Habitually sleeping less than six hours a night predicts a significant increase in the risk of stroke symptoms, University of Alabama at Birmingham researchers found for middle-age to older adults of normal weight and at low risk for obstructive sleep apnea (OSA).

- [mHealth apps are just the beginning of the disruption in healthcare from open health data](#) – Real health apps and services are here -- and their potential to change how society accesses health information, deliver care, lowers costs, connects patients to one another, creates jobs, empowers care givers and cuts fraud is profound.

- [Drug helps defense system fight cancer](#) – An experimental drug is showing promise in disabling a molecular shield that repels attacks from the immune system, causing shrinkage of some lung, skin and kidney cancers that had defied treatment with existing drugs.

- [Inventor Of Biochip That Makes 10,000 Simultaneous Measurements](#) – An inventor used the same principles of an integrated circuit to develop a 'biochip' that can perform nearly 10,000 independent simultaneous measurements – orders of magnitude above and beyond pipetting scientists in the lab.

- [New Patch Makes Certain Skin Cancers Disappear](#) – What if treating skin cancer was just a matter of wearing a patch for a few hours? At this year's Society of Nuclear Medicine's Annual Meeting one group of researchers **presented** such a patch.

- [New Candidate Drug Stops Cancer Cells, Regenerates Nerve Cells](#) – Scientists have developed a small-molecule-inhibiting drug that in early laboratory cell tests stopped

breast cancer cells from spreading and also promoted the growth of early nerve cells called neuritis.

- Seeing Inside Tissue – Imagine if doctors could perform surgery without ever having to cut through your skin. Or if they could diagnose cancer by seeing tumors inside the body with a procedure that is as simple as an ultrasound. Thanks to a technique developed by engineers at the California Institute of Technology (Caltech), all of that may be possible in the not-so-distant future.

- Telomerase Gene Therapy Extends Lives Of Mice By Up To 24 Percent – Scientists are doing their best to give us the gift of immortality. The latest in the fight against ever dying is a gene therapy that gives mice a healthy dose of telomerase, the enzyme that keeps our chromosomes – and thus our cells and bodies – "young." The therapy extended the lifespans of mice by 24 percent and, at least so far, the therapy appears to be completely safe.

Military

- Clothes will sew themselves in DARPA's sweat-free sweatshops – SoftWear Automation Inc., has so far developed "a conceptual" version of the automated system. It is a robotic system that relies on an extremely precise monitoring of a given fabric's "thread count" to move it through a sewing machine in the proper direction and at the right pace.

MISC

- Craig Venter's Bugs Might Save the World – In the menagerie of Craig Venter's imagination, tiny bugs will save the world. They will be custom bugs, designer bugs — bugs that only Venter can create. He will mix them up in his private laboratory from bits and pieces of DNA, and then he will release them into the air and the water, into smokestacks and oil spills, hospitals and factories and your house.

- iOS 6 unveiled with Siri enhancements, Passbook, new Maps – iOS 6, a new version of Apple's mobile operating system, was unveiled at the company's Worldwide Developer's Conference. The version will feature "significant enhancements" to Siri, Apple's own Maps app, a new app called Passbook, Facebook integration, changes to phone calls and FaceTime, and improvements to Mail, Safari, and Photo Stream.

- America's Brainiest Cities – In a knowledge economy, we are often told the smartest cities and nations do the best. But economists typically measure smart cities by education level, calculating the cities or metros with the largest percentage of college grads or the largest shares of adults with advanced degrees. A new measure seeks to track the "brain performance" or cognitive capacity of metros in a different and potentially more direct way.

- Accelerated Tech News 8 - SpaceX and Google are Living Forever on Mars – Week 8 stories from the Singularity Hub.

- Accelerated Tech News 9 - Deformable Robots Give Pills to 3D Printers in Wales – Week 9 stories from the Singularity Hub.

- Accelerated Tech News 10 - Fingerprints of Robotic Jellyfish Help Test Employees – Week 10 stories from the Singularity Hub.

- Accelerated Tech News 11 – Every week Aaron Saenz will bring you a recap of the top stories from SingularityHub.com.

- Three Questions for Patti Maes – Maes, whose research group studies human-computer interaction, says mobile devices may soon eavesdrop on their owners to anticipate their needs.

- Project Glass: Live Demo At Google I/O – At Google I/O 2012, the Project Glass team took product demoing to a new level. Working with some of the world's top athletes, the demo combined skydiving and mountain biking and shared the experience---through their eyes with the rest of the world.

Nanotechnology

- [Amazing Shrinking Nanoparticles Could Sneak Into Tumors & Kill Them](#) – Nanoparticles have been touted as an effective way to deliver cancer-killing drugs straight to tumors without harming healthy cells in the process. But the structure of a tumor can block all but the smallest particles—those less than 100 nanometers (billionths of a meter)—from penetrating to the cancer's heart. To deliver drugs to the entire tumor, the researchers suggest that the particles could be deployed while UV light keeps them in their smaller form, about 40 nanometers. Then, when the UV light is switched off, the particles will open to their full 150-nanometer size and release the drugs.

Neural Networks

- [Using large-scale brain simulations for machine learning and A.I.](#) – You probably use machine learning technology dozens of times a day without knowing it—it's a way of training computers on real-world data, and it enables high-quality speech recognition, practical computer vision, email spam blocking and even self-driving cars. But it's far from perfect—you've probably chuckled at poorly transcribed text, a bad translation or a misidentified image. Now, machine learning can be far more accurate.

NLP

- [Humanoid Robot Learns Language Like a Baby](#) – With the help of human instructors, a robot has learned to talk like a human infant, learning the names of simple shapes and colors.

Robots

- [Tiny Robots Mend Broken Hearts](#) – For cardiac patients, repair of defects often requires open-heart surgery and temporary paralysis of the organ. But a set of robotic tools developed by researchers at Boston Children's Hospital could eventually enable surgeons to operate on the heart through small incisions while the heart continues to beat.

- [MIT enables robot, human collaboration in manufacturing](#) – MIT researchers have developed an algorithm that they say will enable robots to learn and adapt to humans so they can soon work side-by-side on factory floors.

- [The Robot Pharmacist Doling Out 350 Million Doses Per Year](#) – The robot automates every step – except prescription, humans still do that, for the time being. But storage, selection, return, restock, and record-keeping are all carried out by ROBOT-Rx. And as you might imagine, ROBOT-Rx doesn't make a lot of mistakes, filling medications with a 99.9 percent accuracy, according to the company. Pharmacists reduce their need to double-check orders by 90 percent, missing medications are reduced by 92 percent, and inventory is lower. In the end, ROBOT-Rx saves the hospital 54 percent on medication costs.

- [AirBurr MAV Can Now Self-Right, Is Utterly Unstoppable](#) – The AirBurr Samurai was able to autonomously right itself within 25 seconds in 100% of the time after being manually knocked over on a flat surface.

Search Engines

- [With Siri and new alliances, Apple takes on Google search](#) – Rather than compete with Google on keyword search - which would mean battling algorithms refined by the millions of searches performed every day - Apple is taking a different tack by focusing on a subset of the search universe that users are mostly likely to scour while they are out and about.

Simulation/Games

- [EteRNA game](#) – You play the game by designing RNA's, tiny molecules at the heart of every cell. If you win the weekly competition, your RNA is synthesized and scored by how well it unfolds.

Speech Recognition

- [MModal Brings Speech Recognition To Clinical Decision Support](#) – MModal, formerly known as MedQuist, this week introduced the first two applications in its new MModal Catalyst suite of products. One, called MModal Catalyst for Quality, puts data into context so provider organizations can improve documentation and coding, as well as meet requirements for Meaningful Use of electronic health records (EHRs). The other, MModal Catalyst for Radiology, structures information from radiology reports.