E.I.T. Links

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

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"The future belongs to those who give the next generation reason for hope."
- Pierre Teilhard de Chardin

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Links for this Issue

Apps for Smartphones and Tablets

- New iPhone, iPad and Android Apps for December 2011 – Several useful and innovative apps for smartphones and tablets are reviewed here.

- Healthowl – A new app for cancer screening and treatment recommendations. The app features reminders, treatment suggestions, reminders, etc.

- Join the Mobility Revolution with These Five Apps – MIT's Technology Review highlights its choices of apps that can provide significant benefits.

- IF I die, facebook app – If I Die lets "you" post a final message to your wall and loved one when you're dead. After installing the app, you choose three "trustees" (Facebook friends) who are charged with verifying your death.

- Map Apps: The Race to Fill in the Blanks – Just as MapQuest kicked off a rush to provide street-by-street navigation for Web surfers a decade ago, the race is now on to map the Great Indoors. Startups such as Aisle411, Micello, and Meridian, which worked on the Powell's app, are creating detailed digital portraits of shopping malls, airports, arenas, and other places that were once big blank spots.

Brain

- Scientists on verge of finding out which cell each of your memories is stored in – Neuroscientists think they are on the verge of finding out where your memories are stored in your brain - right down to which individual cells store each one.

- Vision Scientists Demonstrate Innovative Learning Method – New research published today in the journal *Science* suggests it may be possible to use brain technology to learn to play a piano, reduce mental stress or hit a curve ball with little or no conscious

effort. It's the kind of thing seen in Hollywood's "Matrix" franchise.

- [15 Big Ways The Internet Is Changing Our Brain](#) – Noted science-fiction writer Isaac Asimov predicted that one day, we'd "have computer outlets in every home, each of them hooked up to enormous libraries where anyone can ask any question and be given answers, be given reference materials, be something you're interested in knowing, from an early age, however silly it might seem to someone else," and with this appliance, be able to truly enjoy learning instead of being forced to learn mundane facts and figures. His insight has proven to be amazingly accurate, as we now live in a world with the Internet, where nearly the entire wealth of human knowledge can live at our fingertips or even in our pockets.

Data Mining/Business Intelligence

- [Tool Mines Data to Determine Both Patterns, Correlation Strength](#) – The analytical tool is one among those in the Maximal Information-based Nonparametric Exploration (MINE) statistical tool set. The software has reportedly been used to find insights on the socioeconomic impact of obesity, bacteria in the gut, and baseball. Most data-mining tools either find correlations between data points or determine the strength of those connections. This tool does both. It can also, after detecting various patterns, characterize those patterns according to those parameters that might interest researchers.

Decision-making

- ['Behavioural pricing'](#) – New start-ups could move this idea to a new level - harvesting information from sources such as Facebook and Twitter to 'tweak' prices to what customers are willing to pay. In other words, if you've 'Liked' something, prepare to pay for it.

Educational Technology

- [Texting for teachers](#) – A safe, free way for teachers to text students and stay in touch with parents.

- [Apple iBooks 2, iBooks Author to 'reinvent textbooks'](#) – Apple introduced *iBooks 2* in a media event Thursday. A "GarageBand for e-books," *iBooks 2* is a textbook software program that allows textbook-makers and instructors to create rich, interactive teaching media for the iPad, *Ars Technica* reports. Books created for iBooks 2 can have all manner of media attached, complete with multitouch capabilities.

- [Ex-Stanford Professors Starting Free Online College](#) – The two professors behind that free online artificial intelligence class decided, seeing the success of their first pilot class, that they should develop an entire free curriculum. Now they have started Udacity, a site dedicated to providing free, interactive computer science education to people around the world.

Future

- [Tech in 2012: Face-offs, failures and fairly big changes at the office](#) – A look at the companies, products and trends that will transform technology in the year to come.

- [Silicon Valley VCs predict the top trends for 2012](#) – If the venture capital community has anything to do with it, this time next year, you'll be monitoring your blood pressure with your iPhone, recruiting helpers from the Web to help around the house, and automatically receiving coupons for free coffee at your destination the next time you board a train.

- [Links to 2012 predictions](#) – Many links to predictions for 2012 are contained here, including those from Gartner, the Economist, CNET, the World Future Society and others.

- [Next 5 In 5: IBM Predicts Mind-Reading Computers Of The Future (VIDEO)](#) – Every year IBM predicts the future of technology via the IBM 5 in 5 initiative–their forecast of five innovations that will help transform aspects of modern life, making the planet

smarter, within the next five years.

- [An Optimistic History of the Next 40 Years](#) – It's 2012, which means you'll be hearing more than your fair share of apocalyptic and gloomy scenarios soon. To help counteract the tide of misery, Tau Zero Foundation founder Marc Millis writes an optimistic future history of the next four decades.

- [Fortune's guide to the future](#) – Supercomputers that fit in the palm of your hand. Meat that grows in labs. Foldable cars. Solar power -- from space. Welcome to the year 2022. It's not your grandfather's future. Let Fortune be your guide.

- [20 Big Ideas for 2012, Part One](#) – One of my favorite 'big thinkers', Donald Tapscott, outlines his first five (of twenty total) transformations he believes we need to make substantial progress on soon.

- [20 Big Ideas for 2012, Part Two](#) – One of my favorite 'big thinkers', Donald Tapscott, outlines his second five (of twenty total) transformations he believes we need to make substantial progress on soon.

- [20 Big Ideas for 2012, Part Three](#) – One of my favorite 'big thinkers', Donald Tapscott, outlines his third five (of twenty total) transformations he believes we need to make substantial progress on soon.

- [20 Big Ideas for 2012, Part Four](#) – One of my favorite 'big thinkers', Donald Tapscott, outlines his last five (of twenty total) transformations he believes we need to make substantial progress on soon.

- [Why The Future Will Be Much Better Than You Think](#) – An excerpt from a new book, 'Abundance: Why the Future will be Much Better Than you Think' is included. (NOTE: This new book will provide evidence and ideas that will radically impact the future. More on the concept is available at: http://www.abundancethebook.com/, including a fascinating video.)

- [Twenty top predictions for life 100 years from now](#) – Interesting predictions, far into the future, for life in 2112.

Genetic Algorithms

- ['Genetic programming': The mathematics of taste](#) – A genetic programming approach helps interpret the results of tests in which subjects evaluated 36 different combinations of seven basic flavors, assigning each a score according to its olfactory appeal. After all the functions have been assessed, those that provide poor predictions are winnowed out. Elements of the survivors are randomly recombined to produce a new generation of functions; those are then evaluated for accuracy and simplicity.

Information Visualization

- [Google 'to unveil' hi-tech Google Glasses that put a screen of information over the world](#) – The glasses will run a version of Google's Android - which ties in with reports in the New York Times about the company's ambition to export its popular phone operating system to wearable computers. Instead of having to look in the mapping application to 'see' where things are, the information could simply be layered on top.

- [A step closer to mapping the Earth in 3D](#) – After a year in service, the German Earth observation satellite TanDEM-X, together with its twin satellite, TerraSAR-X, have completely mapped the entire land surface of Earth for the first time. The data is being used to create the world's first single-source, high-precision, 3D digital elevation model of Earth.

Innovation

- [Your Connected Vehicle Is Arriving](#) – As our cars become networked—to the Internet and to one another—new trends in technology and society will redefine transportation. What's certain: tomorrow's automobiles will provide experiences that go well beyond driving.

- [Scanadu developing a real-life medical tricorder](#) – It looks like the *Star Trek* item that we're the closest to seeing become a reality, however, is the medical tricorder.

This May, the X-PRIZE Foundation proposed a US$10 million Tricorder X-PRIZE, with the intention of encouraging the production of consumer devices that can assess a person's state of health.

- [Device Brings $1,000 Genome Within Reach](#) – Thanks to advances in chemistry and software, researchers can soon sequence a human genome for $1,000 in a day.

- [Ford Bets on the Digital Car](#) – The 108-year-old automotive company is embracing the technologies, business tactics, and spirit of Silicon Valley.

- [Reinventing Discovery (video)](#) –In Reinventing Discovery, Michael Nielsen argues that we are living at the dawn of the most dramatic change in science in more than 300 years. This change is being driven by powerful new cognitive tools, enabled by the internet, which are greatly accelerating scientific discovery.

- [In the Developing World, Solar Is Cheaper than Fossil Fuels.](#) – Advances are opening solar to the 1.3 billion people who don't have access to grid electricity. While in most parts of the world solar power typically costs far more than electricity from conventional power plants—especially when including battery costs—for some people, solar power makes economic sense because it costs half as much as lighting with kerosene.

Intelligent Agents

- [Evi arrives in town to go toe-to-toe with Siri](#) – Evi might just be the Siri for the rest of the world, especially since Evi wil run on any Andoid or iPhone, and not just the 4S. Evi has an ontology of tens of thousands of classes into which everything that can be talked about falls. She also knows almost a billion 'facts' (machine understandable bits of knowledge) and, says True Knowledge, she can infer trillions more when needed.

- [An Intelligent Agent for Home Heating Management](#) – Intelligent software agents are increasingly being applied within the smart grid; a future vision of an electricity distribution network where information flows in both ways between between consumers and suppliers, and where electricity prices change in real-time in response to the current balance of supply and demand across the grid.

Machine Learning

- ['Art-ificial' painter improvises all its works - and often surprises its creator.](#) – Simon Colton's 'Painting Fool' is computer painting software with a difference - it improvises its work itself, like a human artist. To begin with, it was 'fed' with images to inspire it, but now it can simply be told themes - or fed a news story - and it will improvise.

Manufacturing

- [Making Revolution](#) – The U.S. can compete with China if it gives factory workers smarter tools. Making ordinary stuff domestically keeps transportation costs low and creates short supply chains that respond quickly to customers. More significant, it offers the chance to empower factory workers with information technology, just as the personal IT revolution has empowered office workers.

- [CES 2012: 3D printer makers' rival visions of future](#) – Several 3D printing systems are explained and discussed. The prices are continuing to decrease rapidly.

- [Touch-Screen Sofas, Smart Car Seats and Other E-Textile Uses](#) – Scientists in Canada recently created a flexible, washable smart fabric. Textiles like this could be used to dim the lights by swiping your sofa or turn up car volume by squeezing your seat. But they could also have more beneficial applications in hospitals and on the battlefield.

- [Can We Build Tomorrow's Breakthroughs?](#) – Manufacturing in the United States is in trouble. That's bad news not just for the country's economy but for the future of innovation. Academic researchers have begun documenting the complex connections between innovation and manufacturing with an eye to clarifying how

the loss of U.S. manufacturing could affect the emergence of new technologies.

Medical

- [6 Big HealthTech Ideas That Will Change Medicine In 2012](#) – This article looks at how A.I, big data, 3D printing, social health networks and other new technologies will help you get better medical care.

- [The National Library of Medicine Explores Artificial Intelligence Using Two-Hundred Thousand Real Patient Questions from AskTheDoctor.com](#) – Researchers at The National Library of Medicine have teamed up with AskTheDoctor.com in a significant step towards developing intelligent computerized medical assistants for doctors. They are using thousands of real-language, unedited medical questions at the National Institutes of Health (NIH) in Bethesda, Maryland to see if computers can interpret the tone and meaning of questions phrased by online patients.

- [Dory 2.0](#) – Dory is a personal assistant to help patients connect with cancer (or other medical condition) clinical trial researchers.

- [My Cancer Genome](#) – My Cancer Genome is a freely available online personalized cancer medicine resource and decision-making tool for physicians, patients, caregivers and researchers. My Cancer Genome gives up-to-date information on what mutations make cancers grow and related therapeutic implications, including available clinical trials. My Cancer Genome is a one-stop tool that matches tumor mutations to therapies, making information accessible and convenient for busy clinicians.

- [All four semi-finalists for the Cancer Prevention challenge.](#) – Entrants were asked to develop innovative software applications that address challenges faced by consumers, clinicians, or researchers at one or more points on the cancer control continuum. The apps were to use public data relevant to cancer prevention and control and have the potential to integrate with existing technology platforms. Each of the semi-

finalists received a $10,000 prize and are now competing for the $20,000 grand prize, to be determined in November.

- [Ultrasound surgery -- healing without cuts](#) (TED talk) – Imagine having a surgery with no knives involved. At TEDMED, Yoav Medan shares a technique that uses MRI to find trouble spots and focused ultrasound to treat such issues as brain lesions, uterine fibroids and several kinds of cancerous growths.

- [Synthetic windpipe is used to replace cancerous one](#) – Surgeons in Sweden have replaced the cancerous windpipe of a Maryland man with one made in a laboratory and seeded with the man's cells.

- [A Doctor in Your Pocket](#) – It may sound far-fetched, but it is possible to live a long, disease-free life. Most of the conditions that kill us, including cancer and heart disease, could be prevented or delayed by a new way of looking at and treating health. The end of illness is near.

Military

- [Military reveals revolutionary pilotless cargo drone that can deliver supplies to territories plagued by roadside bombs.](#) – The U.S. military is testing a revolutionary new drone for its arsenal, a pilotless helicopter intended to fly cargo missions to remote outposts where frequent roadside bombs threaten access by road convoys. This is the first time a chopper version designed for transport has been used operationally.

MISC

- [The Coming War on General Purpose Computation](#) (video)– The last 20 years of Internet policy have been dominated by the copyright war, but the war turns out only to have been a skirmish. The coming century will be dominated by war against the general purpose computer, and the stakes are the freedom, fortune and privacy of the entire human race.

- [Clues in DNA reveal how long you'll live - and they can be read when you're a baby](#) – Scientists have found a way to predict how long someone will live – by measuring their genes as a baby. It all depends on the length of the telomeres, which are described as 'acting like the plastic ends on shoelaces' to protect chromosomes from wear and tear.

- [Digital divide widens, research finds](#) –The "digital divide" -- the gap in Internet access and usage due to socioeconomic factors -- is increasing, according to research published in the Communications of the Association for Information Systems.

- [Generation Flux](#) – The business climate has entered a next-two-hours era, which is called the Age of Flux. This time, which will certainly last another decade if not more, will be continually characterized by the dizzying pace of change caused by the global adoption of social, mobile, and other new technologies. This is a moment when we most want a road map, and yet our visibility about the future is declining.

Neural Networks

- [Neural network learns to identify group sizes without knowledge of numbers](#) – A cognitive sciences research duo out of Università di Padova, in Italy, have succeeded in building an artificial intelligence network that has through repetition, learned to identify relative group sizes, without counting.

Quantum Computing

- [World's Largest Quantum Computation Uses 84 Qubits](#) – Quantum computers have been in danger of losing their lustre. These machines exploit the strange rules of quantum mechanics to carry out calculations that are vastly more powerful than anything that conventional computers can do. Now, progress is occurring in leveraging the power of quantum computers.

RFID

- [Printed Stickers Could Monitor Food and Vaccines](#) – A plastic temperature-recording sticker that could provide detailed histories of crates of food or bottles of vaccine would be the first to use all-printed electronics components—including memory, logic, and even the battery. The cost per sticker could be only 30 cents or less.

Robots

- [Robots of the CES](#) – A slideshow of the many fascinating robots unveiled at the recent CES show.

Sensors

- [Electronic Cotton](#) – A group of researchers in the United States, Italy, and France have invented transistors made from cotton fibers. They envision such devices being woven into clothing capable of measuring pollutants, T-shirts that display information, and carpets that sense how many people are crossing them.

- [Pervasive Sensing](#) – An introduction to the field of pervasive sensing, including many insightful article links.

- [Smart Sensors Compare Pro/Am Athletes](#) – Shrinking sensor technologies and smart analytics are enabling tiny motion trackers to be sewn into athletes' suits, providing detailed data collection and real-time comparisons to famous, record-setting performances.

- [Smart pill with 'edible microchip' that tells you and your doctor when the next dose is due.](#) – Patients take their drugs along with an extra tablet embedded with a tiny edible sensor which sends back information to a receiver in the form of a patch worn on the shoulder or arm. This tracks when the drugs were taken and the dose, as well as monitoring heart rate and body temperature. It also alerts a patient to when the next dose is due and records whether the patient is sleeping well or taking enough exercise.

Simulation/Games

- MASA Unveils State-Of-The Art Simulation Tools and Services for Emergency Management and Crisis Preparedness Training – MASA Group ("MASA"), a leading developer of Artificial Intelligence (AI)-based Modeling & Simulation (M&S) software for the defense, homeland security, emergency management and serious games markets, is showcasing MASA SWORD, its state-of-the-art modeling and simulation solution for emergency management and crisis preparedness. SWORD is designed to allow managers to test their emergency procedures and cooperation plans between multiple agencies and organizations.

Virtual/Augmented Reality

- The Virtual Anatomy, Ready for Dissection – A group of students wearing 3-D glasses made by Nvidia, a graphics processing firm, dissect a virtual cadaver projected on a screen. Using a computer to control the stereoscopic view, they swooped through the virtual body, its sections as brightly colored as living tissue. Compared with the real cadavers in the lab next door, the virtual one seemed as dynamic as Imax.

- Take a tour of the virtual future at Stanford – If you want to see what your living room is likely to look like four years from now, come and take a tour of Stanford's new Virtual Human Interaction Lab.

Wearable Computers

- A Preview of Tomorrow's Wearable Computers – Eyeglasses that overlay data and imagery onto the real world will unlock new kinds of mobile computing.

Web 2.0

- If this, then that (IFTTT) – Website that puts the internet to work for you, using simple "rules" in the form of If This, Then That. The rules specify automatic actions to take, given the premise. Many of the actions are already built for you. Leverage your time

with this interesting idea.