E.I.T. Links

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

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"That is the way to learn the most, that when you are doing something with such enjoyment that you don't notice that the time passes."
– Albert Einstein

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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 May 2013, and all of the links were working at time of publication.**
>
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> http://sknode.blogspot.com/.

Links for this Issue

AI General

- Car Infotainment System With Artificial Intelligence: Cool Or Too Creepy? – The HABIT is a concept cockpit system that can help with such things as automatically adjusting the cabin's air temperature, remembering the driver's favorite radio stations, or suggesting alternative routes when it receives an update that there can be potential delays. These things are achieved by incorporating a form of artificial intelligence to improve the driving experience.

- Big Data Tool Mimics Human Problem Solving Technique -- Verdande's Edge platform is a CBR system based on a pretty basic idea: similar problems require similar solutions. It identifies and analyzes data patterns in real time, uses historical events to predict future issues, and quickly diagnoses and corrects problems, the company says.

Apps for phones and tablets

- Apps for Finding New Tunes, with a Little Help from Your Friends – Several apps to find music that should appeal to you are highlighted in this article.

- Smartphone Tracker Gives Doctors Remote Viewing Powers -- At the Forsyth Medical Center in Winston-Salem, North Carolina, nurses can see into the lives of some diabetes patients even when they're not at the clinic. If a specific patient starts acting lethargic, or making lengthy calls to his mom, a green box representing him on an online dashboard turns yellow, then red. Soon, a nurse will call to see if he is still taking his medication.

- With Personal Data, Predictive Apps Stay a Step Ahead -- A new type of mobile app is departing from a long-standing practice in

computing. Typically, computers have just dumbly waited for their human operators to ask for help. But now applications based on machine learning software can speak up with timely information even without being directly asked for it. They might automatically pull up a boarding pass for your flight just as you arrive at the airport, or tell you that current traffic conditions require you to leave for your next meeting within 10 minutes.

- WhatsApp -- WhatsApp Messenger is a cross-platform mobile messaging app which allows you to exchange messages without having to pay for SMS. WhatsApp Messenger is available for iPhone, BlackBerry, Android, Windows Phone and Nokia and yes, those phones can all message each other! Because WhatsApp Messenger uses the same internet data plan that you use for email and web browsing, there is no cost to message and stay in touch with your friends.

Brain

- How to Make an Implant that Improves the Brain – The abilities to learn, remember, evaluate, and decide are central to who we are and how we live. Damage to or dysfunction of the brain circuitry that supports these functions can be devastating. One promising approach is to build an interactive device to help the brain learn, remember, evaluate, and decide. One might, for example, construct a system that would identify patterns of brain activity tied to particular experiences and then, when called upon, impose those patterns on the brain.

- Brain Region Found to Control Aging – For the first time, a brain region has been found that may control aging throughout the whole body, a new study reports.

- Is This Virtual Worm the First Sign of the Singularity? – Brain-on-silicon simulators are behind a fascinating and strange new project to create a life-like simulation of *Caenohabditis elegans*, a roundworm. OpenWorm is a scrappy, open-source project that began with a tweet and that's coordinated on Google Hangouts by

scientists spread from San Diego to Russia. If it succeeds, it will have created a first in executable biology: a simulated animal using the principles of life to exist on a computer.

Data Mining/Business Intelligence

- Stephen Wolfram on Personal Analytics – The creator of the Wolfram Alpha search engine explains why he thinks your life should be measured, analyzed, and improved.

Educational Technology

- Georgia Tech to Offer a MOOC-Like Online Master's Degree, at Low Cost – In an unprecedented arrangement that involves aspects of MOOCs and a major technology company's support, the Georgia Institute of Technology will soon begin offering an online master's degree in computer science at an unusually low cost.

- The Fine Print on the Ga Tech offering – If you would like to see the details on the Georgia Tech MOOC offering, this will provide lots of insights.

Future

- Disruptive Technologies – Google chairman Eric Schmidt explores the technologies likely to have the greatest disruptive impact on economies, business models and people.

- Charting technology's new directions: A conversation with MIT's Erik Brynjolfsson – A leading expert explores the new relationship between man and machine and the challenges that emerge when innovation is decoupled from growth in jobs and incomes.

- Operating room of the future (video) – Insights on how the operating room of the future is likely to look and function.

- The future of wireless power: Tables that charge your phone and parking lots that

juice your hybrid – Imagine if all you had to do to charge your phone was set it down in the right place. That's the reality wireless power aims to achieve.

- Outlook 2031: Five trends primed to shape the world's economy profoundly – A handful of far-reaching and undeniable factors are reshaping our world, and are likely to continue to do so for decades to come: A global population on pace to exceed 8 billion by 2030. A rapidly growing emerging-market middle class that will strain the world's food, water and energy resources. A global climate in flux, with increasing incidents of extreme weather. Aging populations in countries around the world that could threaten economic growth and test national fiscal stability. In the coming years, all these factors could present obstacles to global growth, but will also create opportunities for innovative thinking—and new markets we haven't yet recognized.

- What the future looks like inside the lab that brought us Siri, the mouse, and the Internet itself (videos) – What is the future going to look like? One way is to get a tour of the best research lab in the world. Out of these buildings have come the Internet (it was one of the first two nodes on the Internet), the Mouse, Nuance, HDTV, and Apple's Siri.

- Michio Kaku: What does the future look like? (video) – Dr. Michio Kaku, Professor of Theoretical Physics at City University of New York shares his vision of mankind's future at Abu Dhabi's Manarat Al Saadiyat as part of The Sheikha Salama bint Hamdan Al Nahyan Forum for New Ideas.

Information Overload

- Mary Meeker's year end update on Internet Trends – As she always does, Mary Meeker outlines several significant trends dealing with the internet.

Information Visualization

- Twitter's Vine Could Be The Killer App – Yes, Google Glass needs a killer app. Beyond the breathless hype by white guys in

Silicon Valley, what exactly is the *mass market* supposed to do with Google Glass? The most talked-about Glass uses, like augmented reality and instant data presentation, don't have obvious appeal outside of the early adopter community.

- Viral Video Shows the Extent of U.S. Wealth Inequality – The issue of wealth inequality across the United States is well known, but this video shows you the extent of that imbalance in dramatic and graphic fashion.

Innovation

- Google Fiber's Ripple Effect – The threat of superfast Google Fiber is causing other Internet providers to crank up their own offerings.

- Eight government agencies make Harvard's top 25 list for government innovation – A group of policy experts, researchers and practitioners singled out nine federal programs for innovation in addressing a host of public challenges, including crime, health disparities, environmental degradation and economic development.

- Google Glass Users Can Now Upload Directly To YouTube With Fullscreen BEAM – Fullscreen, a media company founded in 2011 and built entirely on YouTube, announced Friday afternoon the first Google Glass YouTube app, letting users seamlessly upload video directly to the service.

- Goodbye Paper Boys, Hello Drones – Traditional newspaper delivery may be a practice of the past for one French province.

- Good Night Lamp – The Good Night Lamp is a family of connected lamps that lets you communicate the act of coming back home to your loved ones, remotely.

- Man vs. Machine: Are Any Jobs Safe from Innovation? – The conclusion from a new book of research is much different than originally anticipated -- which is precisely why it has caused quite a stir among economists, politicians and technology

experts. And that conclusion is: The digital revolution is destroying jobs faster than it is creating them.

Intelligent Agents

- Next-Generation Search: Software Bots Will Anticipate Your Needs – The rise of intelligent software agents that will not only anticipate the information you need, but also act on that information to help manage your life.

- New research could let vehicles, robots collaborate with humans – Vehicles, robots and other autonomous devices could soon collaborate with humans in an intelligent way, thanks to researchers at MIT who are developing systems capable of negotiating with people to determine the best way to achieve their goals.

- The Google Now dilemma: Yes, it's kind of creepy — but it's also incredibly useful -- There's no question the kind of data collection Google has to do in the background to power its Google Now service can be a little intrusive — perhaps too intrusive for some. But it also makes the results extremely useful.

Knowledge Management

- Business and web 2.0: an interactive feature – For the past six years McKinsey and Company have been collecting data about how companies utilize web 2.0 technologies. This interactive focuses on several of the survey's core questions—from what technologies and tools companies view as most important to what kind of investments, if any, organizations plan to make in Web 2.0 in the future.

- Google Tech Talk Focuses On Organizing World's Scientific Knowledge – Google uploaded a recent Google Tech Talk called, "Organizing Organizing the World's Scientific Knowledge to make it Universally Accessible: Building the Breakthrough Machine".

- New IBM project puts Watson to work in customer service – Watson, the powerful computer that rose to fame as a *Jeopardy!* contestant in 2011, has proved remarkably versatile since then. After a stint fighting cancer, Watson will soon be taking on the less glamorous role of a customer service representative.

Kurzweil

- Ray Kurzweil: What does the future look like? – Inventor and futurist Ray Kurzweil, author of 'The Singularity is Near' shares his vision of mankind's future at Abu Dhabi's Manarat Al Saadiyat as part of The Sheikha Salama bint Hamdan Al Nahyan Forum for New Ideas.

Manufacturing

- 3D printer can build synthetic tissues – A custom-built programmable 3D printer can create materials with several of the properties of living tissues, Oxford University scientists have demonstrated. The new type of material consists of thousands of connected water droplets, encapsulated within lipid films, which can perform some of the functions of the cells inside our bodies.

- 3-D Printed Ear Made From Calf Cells and Nanoparticles 'Hears' Radio Frequencies – Nanotechnology engineers from Princeton have 3-D printed an ear from calf cells and silver nanoparticles that picks up radio signals at frequencies beyond human capacity. The creation is part of their greater plan to one day build spare parts for human cyborgs.

- A new brick in the Great Wall – A small factory in the Haidian district of Beijing is hard at work. Eight machines, the biggest the size of a delivery van, are busy making things. Yet the factory, owned by Beijing Longyuan Automated Fabrication System (known as AFS), appears almost deserted. This is because it is using additive-manufacturing machines, popularly known as three-dimensional (3D) printers, which run unattended day and night, seven days a

week.

- WORLD'S FIRST 3-D-PRINTED BULLETS JOIN A GROWING DIY ARSENAL – The growing arsenal of 3-D-printed weapons now includes homemade bullets. As highlighted by the Daily Dot, a Tennessee man recently posted a YouTube video demonstrating what kind of damage can be done (hint: a lot) by the plastic shell, created by 3-D-printing enthusiast Tony Griffy.

Medical

- The Latest Artificial Heart: Part Cow, Part Machine – A new kind of artificial heart that combines synthetic and biological materials as well as sensors and software to detect a patient's level of exertion and adjust output accordingly is to be tested in patients at four cardiac surgery centers in Europe and the Middle East.

- Synthetic Biology Could Speed Flu Vaccine Production – Synthetic biology is breathing new life into the old-fashioned world of vaccine production, raising hopes that manufacturers could release vaccines much more quickly when outbreaks occur.

- Blood hormone restores youthful hearts to old mice – Researchers have identified a blood hormone that makes ageing hearts in mice look young again. The authors of the study say their finding offers therapeutic potential for the treatment of age-related heart disease, an increasingly common cause of heart failure.

MISC

- Logging Life with a Lapel Camera – Memoto is creating a tiny clip-on camera that takes a picture every 30 seconds, capturing whatever you are looking at, and then applies algorithms to the resulting mountain of images to find the most interesting ones.

- What if Moore's Law applied to humans as well? – Applying Moore's Law to biological complexity and human

development may not be as far-fetched as it sounds. Recently, the geneticists Alexei Sharov of the National Institute on Aging in Maryland and Richard Gordon of the Gulf Specimen Marine Laboratory in Florida crunched the DNA data and found that — even without technological interference — complexity has doubled roughly every 376 million years.

- Alien Nation: Have Humans Been Abducted by Extraterrestrials? – The beings didn't have to come from outer space, Mack theorized, maybe just a parallel universe. But by the time he wrote *Abduction,* he said his cases had "amply corroborated" the work of Hopkins and Jacobs, "namely that the abduction phenomenon is in some central way involved in a breeding program that results in the creation of alien/human hybrid offspring." He concluded furthermore that the aliens were carrying warnings about dangers to the planet.

- Entropy law linked to intelligence, say researchers – A modification to one of the most fundamental laws of physics may provide a link to the rise of intelligence, cooperation - even upright walking.

- KPCB Internet Trends 2013 – The latest edition of the annual Internet Trends report finds a continued robust growth. There are now 2.4 billion internet users around the world.

Nanotechnology

- Nano Optical Antennas Could Have a Big Impact – At Federico Capasso's lab at Harvard University, researchers have devised a new way of manipulating light using nano-scale optical antennas. They effectively take a radio antenna, bend it into a V, and shrink it by a factor of about a million, to create what is called an "optical resonator." By patterning a surface with a number of these resonators, bent at different angles—to create what's known as a metasurface—they discovered they could get light to do just about anything they want.

- Nanoparticle Disguised as a Blood Cell Fights Bacterial Infection – A nanoparticle

wrapped in a red blood cell membrane can remove toxins from the body and could be used to fight bacterial infections, according to research published today in *Nature Nanotechnology*.

- [Nanoparticles Might Be The Future, But They Might Also Be Really Bad For You](#) – Tiny particles like carbon nanotubes are being used more and more frequently in a huge variety of applications--from energy to food. But new studies show that they might also not be so great for us to breathe.

Quantum Computing

- [First Quantum Memory That Records The Shape of a Single Photon Unveiled in China](#) – The world's first quantum memory that stores the shape and structure of single photons has been built in a Chinese lab.

RFID

- [Engine Block Manufacturer Uses RFID to Detect Defects Before Shipping](#) – Automotive components manufacturer Nemak has automated its work-in-process (WIP) tracking, with a radio frequency identification system supplied by Balluff Inc. that writes sensor data from automation equipment to ensure that any defects in the mold are caught before molten aluminum is poured into it.

- [US engineers develop smart RFID-enabled paper](#) – US engineers have developed a way to embed radio frequency identification chips on to paper that they say is quicker, cheaper and offers wider applications than current methods.

Robots

- [It's Time to Talk about the Burgeoning Robot Middle Class](#) – It is time for not just economists but roboticists to ask, "How will robotic advances transform society in potentially dystopian ways?" My concern is that without serious discourse and explicit policy changes, the current path will lead to an ever more polarized economic world,

with robotic technologies replacing the middle class and further distancing our society from authentic opportunity and economic justice.

- [A Brief History of Awesome Robots](#) – A good overview of how robots have developed and, perhaps, where they are headed. (NOTE: For many years, I have recommended my students read the online novel, Manna, to get a realistic glimpse of how robots and intelligent agents could one day impact business and our lives—and not entirely favorably!)

- [3D-Printed Inchworm Robot Can Assemble Itself](#) – The first sure sign of a robot uprising will be when robots gain self-awareness and begin acting autonomously – and if this self-assembling robot is any indication, we're well on our way to the robopocalypse. Researchers at Harvard and MIT teamed up to produce a 3D-printed inchworm robot that is able to aseemble itself. Using shape memory polymers that automatically fold into desired shapes, the remarkable bot transforms itself from a completely flat, two-dimensional object into a walking inchworm-shaped robot with almost no help from human hands.

Search Engines

- [Google Search Learns To Listen & Understand Context](#) – Google Search is learning to listen - and to put searches in context to provide the information users really want, right when they need it.

Sensors

- [The Smart Grid Has Arrived](#) – The first comprehensive and large scale smart grid is now operating. The $800 million project, built in Florida, has made power outages shorter and less frequent, and helped some customers save money, according to the utility that operates it.

- [Connecting everything: A conversation with Cisco's Padmasree Warrior](#) – Cisco's chief technology and strategy officer describes how the exponential growth of connectivity

between people and devices, both mobile and network, will change commerce, business systems, and individual behavior.

- The Internet of Things: In action – By 2015, six billion objects in the world will be connected to the internet. While it may seem tricky to grasp as a concept, the internet of things is nothing simpler, and more stunning, than objects being connected to the internet. At its most mind-blowing, these objects are learning and adapting to the behaviour of the user.

- Virus-based sensors find superbugs in minutes – Viruses usually have to be rendered inert to work in humanity's favor, as anyone who has received a flu shot can attest. Auburn University has bucked that trend by discovering a way to put active viruses to work in not only diagnosing sickness, but in preventing it in the first place. It's using bacteria-hating (and thankfully harmless) viruses as biosensors to quickly identify superbugs, or antibiotic-resistant bacteria that can sometimes prove fatal.

- Wanted for the Internet of Things: Ant-Sized Computers – If the Internet is to reach everywhere—from the pills you swallow to the shoes on your feet—then computers will need to get a whole lot smaller. A new microchip that is two millimeters square and contains almost all the components of a tiny functioning computer is a promising start.

- How an Army of Sensors Helps Us Track Tsunamis and Score Parking Spots – The rumble of volcanic magma, the action of ocean waves, the reverberations of a concussion. Connected sensors are watching---and translating everything into data.

- Internet of Things comic book – A very clever and insightful look at how the internet of things (IoT) will develop and impact all of us.

Simulation/Games

- Using The New Sim City, 6 Urban Planners Battle For Bragging Rights -- Urbanists

playing SimCity is hardly new. The first edition of SimCity was released in 1989, and the franchise has been credited with inspiring an entire generation of urban theorists. But the latest version contains two new wrinkles that have city wonks downright giddy. First, it uses what's called agent-based modeling. Everything you see on the screen actually occurs in the city. There's no superficial traffic animations, for instance, like in past versions. If you see a truck transporting oil from the refinery you built, there is actual oil being trucked through your city. Each item on the screen is its own discrete piece of data in your city. The second new feature of the game was more important: Inter-city interaction. Excess goods or services can be bought and sold between cities in the same region. If the seams of a neighboring metropolis are bursting with trash, send your waste management fleet to clear some space (for a price).

Virtual/Augmented Reality

- Augmented Reality From MIT Media Lab – A very interesting video demonstration of augmented reality from the MIT media lab

Wearable Computers

- Revolutionary new device joins world of smart electronics – Researchers at the University of Exeter have developed a new photoelectric device that is both flexible and transparent. The device, described in a paper in the journal ACS Nano, converts light into electrical signals by exploiting the unique properties of the recently discovered materials graphene and graphExeter. At just a few atoms thick, the newly developed photoelectric device is ultra-lightweight. This, along with the flexibility of its constituent graphene materials, makes it perfect for incorporating into clothing.