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E.I.T. Links

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

"I don't want to be left behind. In fact, I want to be there before the actions starts."
- Kerry Packer

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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 2012, and all of the links were working at time of publication.

Remember, all links mentioned here and all prior newsletters are available at:
http://www.steveknode.com/

Anyone seeking more frequent updates can follow my 'tweets' via my twitter account,
http://www.twitter.com/sknode

I am now "blogging" at my blogspot account,
http://sknode.blogspot.com/.

Links for this Issue

AI General

- How artificial intelligence will shape our lives – If the brains behind a scientific initiative known as Russia 2045 are to be believed, life is about to get very, very interesting. It is, in other words, not the type of thing you'd expect from a group that hopes to get the world comfortable with a future of synthetic brains and of "thought-controlled avatars" that would make your next business trip to Milwaukee or Tokyo wholly unnecessary. Instead of a "chicken in every pot," they promise an "android robot servant for every home."

- Future Talk 32-1, Artificial Intelligence – Interview with Peter Norvig, Director or Research at Google, on progress being made in Artificial Intelligence.

- Using Artificial Intelligence to Create Social Intelligence – Can machines do a better job than humans at protecting an organization's network? Enterasys Networks (a Siemens Company) seems to think it's a smart idea worth pursuing. They've created a solution called ISAAC that is using social media and mobile apps to protect their customers' networks.

- Artificial Irrelevance: The robots are coming – The creation of artificial intelligence more sophisticated than a human brain, even by accident, is now a very real prospect warns Skype co-founder Jaan Tallinn.

- Artificial intelligence to sniff out bankers' scams – Thanks to the US rules of corporate governance that came in after the Enron and WorldCom scandals, firms like Hewlett-Packard's subsidiary Autonomy Systems are selling software that flags up employees whose trading deviates from the norm. Meanwhile, a European team has developed a system that can be customised to detect anything from money-laundering schemes to insider-trading scams.

Apps for Smartphones and Tablets

- Google Now – Google Now gets you just the right information at just the right time. It tells you today's weather before you start your day, how much traffic to expect before you leave for work, when the next train will arrive as you're standing on the platform, or your favorite team's score while they're playing. And the best part? All of this happens automatically. Cards appear throughout the day at the moment you need them.

- Artificial intelligence app helps blind people – The app, which has been designed for Windows phones, allows visually impaired users to take a photo of their surroundings, for example, a piece of clothing, and the app verbally describes the item to the user. All the user needs to do is tap anywhere on the phone's screen to capture a photo. Images are then compressed to around 50 to 70kb and sent to the app's server for analysis. Artificial intelligence is then used to detect colours, text, darkness and brightness to analyse the image and send back a verbal description of the photo.

- App offers safety in a riot – The software, not yet publicly released, takes data from a range of social networks and uses it to let people know what areas are least affected by trouble.

- Trapit for iPad – Trapit for iPad fetches content for people across their pre-defined "traps," or areas of interest, but it does so in a way that's meant to be even more visually and mentally pleasing than the company's Web offering.

- An App that Could Stop Traffic – Algorithms that automatically reroute your car look like the next trend in mobile mapping.

Artificial Life

- The Hivemind Singularity – Adam Roberts asks us to imagine a near future when electronic communications technologies enable groups of people to communicate with one another instantaneously, and on secure private networks invulnerable, or nearly so, to outside snooping. Imagine that such groups arise -- not created but self-organized and (at first) self-funding -- and are devoted not to radical Protestant Christianity but rather to radical democracy. And imagine one more thing: that such New Model Armies (NMAs) arm themselves and fight on behalf of those who pay them.

Brain

- The Ghost in the Machine: Unraveling the Mystery of Consciousness – A funny thing happened with the invention of fMRI imaging. Rather than explaining away the mysteries of human experience, the technology that made it possible to visualize and map brain activity for the first time only further complicated our understanding of how the mind works.

Chatbots

- Siri's New Cousin Works as a Bank Teller – The research group that invented Siri, the virtual assistant built into Apple's iPhone, has built her a smarter relative that could help banks cut staffing costs. Known as Lola, the new assistant can carry on more complex conversations than Siri and help with tasks that involve multiple back-and-forth steps with customers, such as opening a bank account.

Data Mining/Business Intelligence

- Your Laptop Can Now Analyze Big Data – Computer scientists from Carnegie Mellon University have devised a framework for running large-scale computations for tasks such as social network or Web search analysis efficiently on a single personal computer. The software could help developers working on many modern tasks: for example, designing a new recommendation engine using social network connections.

Educational Technology

- Massively Open Online Courses Are 'Here to Stay' – Massively Open Online Courses (MOOC) have slowly garnered attention. Called MOOCs, these courses are offered to anyone at no charge.

- Converge Special Report on Digital Textbooks (free registration required) – According to this report, digital textbooks are: 1) more economical; 2) more up-to-date; 3) more personalized; 4) more transformational; 5) more transportable; 6) more interactive.

Expert/Rule-based Systems

- Helping women answer the question "Do I need to see a doctor?" – The Virtual Nurse provides information on women's sexual health issues to determine when you need to see a doctor.

Future

- Imagining the Internet – Outstanding study from PEW and Elon University, predicting the future of the internet and its impact on several key areas. Included are many video links and recordings as well as a look back at historical predictions concerning the Internet.

- What will the World look like in 2025? – A collaborative study by Sony and the Forum for the Future which imagines what life will look like in 2025. Included are four different scenarios.

- The Future of X: several experts' views on technologies of the future – Video predictions by experts on the future of many different areas.

Information Visualization

- Societal vs. Individual Risk of Death in the United Kingdom – Great chart, featuring bubbles to indicate relative risks.

- Individual Risk Relative to the Use of Food Supplements in UK – A bar chart showing the relative risks of food supplements.

Innovation

- The Silver Cord – This is a techno-epic concerning the clash between self-conscious robots and a million different species of angels and a half-breed girl. The whole story is free on the web – BUT, it is only the first half of the story. For the rest of the story, you are encouraged to donate via a kickstarter contribution.

- EyeNetra clips on to smartphone to test vision – The device clips on to the top of your phone, and looks a bit like the viewfinder on a video camera. The eye test involves peering into the viewfinder and aligning a series of patterns. After taking the test, patients receive eyeglass measurements. EyeNetra also uses cloud computing technology to connect users with local optical shops — for example, lens and frame manufacturers.

- A bicycle made of cardboard – This could be a boon for companies that offer bikes as amenities, such as resorts. It would make for great campus bikes for large corporations or warehouses.

- Can Creativity be Automated? – Complex algorithms are moving into creative fields—even those as nebulous as music A&R—and proving that in some of these pursuits, humans can be displaced.

Intelligent Agents

- With Google Now, Android Puts Apple's Siri To Shame – Google Now is a lot more impressive than Siri. Google Now fills in all the gaps left by Siri, and does pretty much everything else a whole lot better. This could be how search should work on mobile devices.

- Riding the wave of artificial intelligence – Meet SILVIA, **S**ymbolically **I**solated **L**inguistically **V**ariable **I**ntelligence **A**lgorithms. According to the company, SILVIA can interpret speech, text or other input, interact with appropriate applications or operating systems, all the while interacting with the user via the

Cloud.

Kurzweil

- Hugo de Garis on Singularity 1 on 1: Are We Building Gods or Terminators? (video) – One of the heavy thinkers on the subject, Hugo de Garis gives his views on the Singularity.

Machine Learning

- L.A. Cops Embrace Crime-Predicting Algorithm – A recent study suggests that computers could be better than seasoned police analysts at predicting when and where crime will strike next in a busy city. oftware tested in Los Angeles was twice as good as human analysts at predicting where burglaries and car break-ins might happen, according to a company deploying the technology.

- A Machine to Pick Startup Winners – To run its model, Correlation Ventures, which is based in San Diego and Palo Alto, California, asks startups to submit five basic planning, financial, and legal documents. It enters these into a program similar in function to credit rating software. A top-ranked score leads to a 30-minute interview with both the startup CEO and the outside venture firm leading the investment, plus a quick legal review and background check.

- Researchers Create Artificial Intelligence To Flag Cyberbullying – Technology is often accused of facilitating bullying among kids. But now some researchers have created an AI system that can recognize abusive language in user-posted text—and perhaps nip it in the bud.

Manufacturing

- Science in three dimensions: The print revolution – Update on the many uses and applications of 3D printing.

- 3D disruption: How about traveling on a printed plane? – Forbes reports that over the last two years an Airbus cabin designer, Bastian Schafer, has been working on a concept plane that could be constructed from the ground up -- using an incredibly large 3D printer.

- 3 reasons why US is recapturing manufacturing from China – Manufacturing, but not jobs, is coming back to the US because of three reasons: 1) Robotics; 2) Artificial Intelligence; 3) 3D printing.

- Mixtapes are reborn, through 3D printing – The dear cassette tape is bound to have a rebirth, just as vinyl records did, and this new offering by Brooklyn-based open source 3D printing outfit MakerBot might be at the front of that wave. But instead of magnetic tape, the MakerBot Mixtape contains a digital media player.

Medical

- Microspheres Could Save Patients Whose Lungs Have Stopped Working – Researchers have developed a way to deliver oxygen to the body's organs safely—via gas-filled microparticles—even when the patient's lungs have stopped working.

- Breathable, implantable microcomputers that conform to the human body (TED Video) – Traditionally tech devices have been rigid and boxy - until now. David Icke creates breathable, implantable microcomputers that conform to the human body, which can be used for a variety of medical applications.

- Surgery at the press of a button – Surgery at the press of a button: Why not? In the not-too-distant future, machines will be able to handle most medical tasks. Missy Cummings talks about embracing our computerized future to advance human medical expertise.

- New laser detects and destroys cancer tumors (video) – Scientists at the Center for Laser Applications at the University of Tennessee Space Institute in Tullahoma have developed a laser that can target and destroy cancer tumors non-invasively.

Military

- Smack! Was that a Mosquito You Killed, Or a Drone? – A team of researchers at Johns Hopkins University is helping to develop a micro aerial vehical (MAV) that will be no bigger than a bug.

- The Future of X: Peter Singer on Weapons – Innovations in robotics and cyber warfare will also play an increasing role in conflicts around the world. The ability to produce custom parts, using 3D printers, is a game-changer for scientists and hobbyists alike, but gangs, for example, have used these tools too.

- DARPA awards contract to create "smart suit" to improve soldiers' endurance – Harvard's Wyss Institute for Biologically Inspired Engineering has been selected by DARPA to spearhead the effort to develop a new "smart suit" intended to improve the endurance of soldiers in the field.

MISC

- Seven assistive technologies born from science fiction (Video) – Here are a few assistive technologies that were utilized on the page and silver screen way ahead of their actual introduction to real life.

- New Homeland Security Laser Scanner Reads People At Molecular Level – A scanner that could read people at the molecular level has been invented. This laser-based scanner – which can be used 164-feet away — could read everything from a person's adrenaline levels, to traces of gun powder on a person's clothes, to illegal substances — and it can all be done without a physical search.

Nanotechnology

- Nanoparticles Deliver Gene Therapy through the Skin – New research shows that super-small particles can penetrate almost all of the epidermis, the outer layer of skin that normally prevents objects from making their way inside the body. The nanoparticles passed through cell membranes in the epidermis and did not cause negative skin or cellular reactions.

Neural Networks

- Artificial Neural Networks and Case-Based Reasoning Systems for Auditing – On average, the ANN models in the study were able to predict within 12 percent of the actual account balances compared to 19 percent by the budgeted amount. The ANN was a more accurate predictor compared to other analytical methods such as using previous monthly ending balances or an average of ending account balances. The ANN predicted with greater accuracy accounts which had trends, were more stable and were related to other accounts. Researchers also demonstrated that with more historical data to train the ANN, it could predict the account balances more accurately.

- AI system helps spot signs of copper cable theft – RABIT is a real-time system based on a neural network that has been trained to sense the difference between a telecoms cable being severed and a cable that has gradually failed – perhaps due to corrosion, falling trees, water seeping in, or perhaps incursion by farming machinery. It does this by undertaking line tests and bandwidth measurements to home in on a telltale signature of a cable cut.

- Forget HAL 9000; Here Come the Cylons – After linking together over 16,000 computer processors to create a neural network with over 1 billion connections, researchers at the X Lab exposed their new creation to 10 Million digital images found in YouTube videos. How did Google's artificial brain do? It performed far better than any previous effort, roughly doubling its accuracy in recognizing objects in a list of 20,000 items. Perhaps most significantly, Google's AI brain taught itself to recognize a cat without any guidance from the research team.
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NLP

- Glasses provide live language translation (video) – Live, realtime translation built into your glasses. Enter: Project Glass. British hacker and DIYer Will Powell has built a pair of glasses that can (albeit roughly)

project a translation of your conversation onto your glasses.

Robots

- Robot avatar body controlled by thought alone – For the first time, a person lying in an fMRI machine has controlled a robot hundreds of kilometers away using thought alone. The ultimate goal is to create a surrogate, like in *Avatar*, although that's a long way off yet.

- A Robot Takes Stock – The short figure creeping around the Carnegie Mellon University campus store in a hooded sweatshirt recently isn't some shoplifter, but a robot taking inventory. Andyvision, as it's called, scans the shelves to generate a real-time interactive map of the store, which customers can browse via an in-store screen. At the same time, the robot performs a detailed inventory check, identifying each item on the shelves, and alerting employees if stock is low or if an item has been misplaced.

- These Robots Install Solar Panels – Now companies in Germany are developing mobile robots that can automatically install ground-mounted solar panels day and night, in all sorts of weather.

Sensors

- Building an Organ on a Chip(video) – Cells grown on the Wyss Institute's organ-on-chip devices behave more like cells in the body. The devices could improve the speed and success of drug discovery and reduce animal testing.

- Indiana's Sewers: An Outpost on the Internet of Things – South Bend invested about $6 million installing sensors and estimates it has saved $120 million in infrastructure improvements. Not a bad return on investment! The city is now able to do a better job predicting and responding to basement backups in low-lying areas; using its new residential basement "heat map," South Bend can now direct utility cleaning crews to areas where they are most likely to be needed. And through the new monitoring capabilities, the city has also been able to reduce the flow of water through its treatment plants by up to 10 million gallons of water per day.

- FIFA: Soccer Refs Might Use Sensor Networks to Keep Score – The proposed soccer version uses six cameras and triangulation software to track the ball. It's nearly 100% reliable and accurate to 3.6 millimeters, according to the U.K.'s Daily Mirror. The referee receives notification automatically when a ball crosses the finish line.

- The Future of Smart Systems – Tech analysts envision a future with "smart" devices and environments that make systems more efficient. But the early evidence is that the costs and necessary infrastructure changes to make it all work are daunting. And the experts note that people find comfort in the familiar, simple, 'dumb' systems to which they are accustomed.

- From Smart House to Networked Home – Innovaro Inc.'s futures consulting group identified 10 key themes that it feels will help define the tech experience in the coming decade. These 10 "technology trajectories" will give people a powerful new "toolkit"—new devices, services, and capabilities—that will forever alter the way that we go about everyday activities, from dating and shopping to learning and working.

- OpenIoT: a Showcase of interesting Things – This is more the case for internet connected things – their form is determined by the function of the physical Thing, what it will do, how it will be held, carried, or touched, what it needs to connect to… but the other side of the IoT device (connection to the internet, and processing via a silicon brain) doesn't affect the physical shape, and therefore gives no clues to the device's purpose.

Speech Recognition

- [Infographic] The 1,000-Year Evolution of Speech and Voice Recognition – From the

Brazen Head to Apple's Siri, voice and speech recognition has come a long way. Check out the significant developments along the way in this great graphic.

- Transcribe Videos And Make Them Searchable With Koemei – Wouldn't it be great to be able to search videos for what people are actually saying instead of relying on tags or descriptions? Koemei (pronounced "co-may") aims to do just that through their cloud-based speech recognition software that rapidly transcribes video and audio, even if people have accents or more than one person is speaking.

- Voice Recognition Software Can Diagnose Parkinson's – Using data from 50 patients with Parkinson's, who had their voices recorded once a week for six months, Little was able to develop an algorithm to detect changes in voice purely associated with Parkinson's. In recent tests, the software accurately picked out Parkinson's patients from a random population with 86 percent accuracy. [NOTE: You can have your own diagnosis, based on your speech, by making a short phone call, http://www.parkinsonsvoice.org/index.php]

Virtual/Augmented Reality

- The Avatar Economy – Companies now produce and sell robots that allow users to navigate through a remote working environment, interacting by means of a computer screen. Realistically, however, avatar workers can probably be effective janitors or doctors even if they are farther away and sensory fidelity is weaker.

Web 2.0

- News.me for iPhone Makes Friends the Editors of Twitter & Facebook – Within the News.me network, there is also a menu of simple, text-based reactions: "Ha!" "Wow" "Awesome" "Sad" "Really?" You can also write your own. These reactions have nuanced meanings. They make you think. They also make for interesting ways to browse for stories. It's these kinds of easy, subtle social dynamics that turn basic, single-purpose iPhone apps into paradigm-shifting social networks: think Instagram or Path.