E.I.T. Links

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

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"The past can't see you, but the future is listening."
– Terri Guillemets , quotation anthologist (b.1973)

By Steve Knode, steve@steveknode.com

Links for this Issue

AI General

- How Artificial Intelligence Could Change Your Business – The field of AI isn't a new one, but it's now become so hot that tech giants like Google and Facebook have been snapping up not only companies but also students and other experts trained and prepared to leverage the technology for business.

- AI Takes to the Skies – Could airplanes in flight be employed as a vast sensor network to determine atmospheric conditions? Could data available today be used to infer winds on a large scale without special plane-based wind sensors and new infrastructure to access and combine signals from planes?

Apps for Smartphones and Tablets

- Curb parking space auctions – The app, called MonkeyParking, allows drivers who score a notoriously hard-to-get San Francisco parking spot to sell it for $5, $10, even $20 and then hang out there until the buyer arrives to take their place.

Brain

- The brain may be able to repair itself from within – Duke researchers have found a new type of neuron in the adult brain that is capable of telling stem cells to make more new neurons.

- Neuroscience's New Toolbox – With the invention of optogenetics and other technologies, researchers can investigate the source of emotions, memory, and consciousness for the first time.

- Memories may be passed down through generations in our DNA – The researchers now hope to carry out further work to understand how the information comes to be

stored on the DNA in the first place.

- [Modeling how neurons work together to perform movements: not as random as we thought](#) – In a bid to better understand the brain and also to create robotics limbs that behave more realistically, a team of three European universities has developed a highly accurate new model of how neurons behave when performing complex movements.

- [Computer chips in your brain](#) (video) – The Science Channel's *Futurescape* says we will indeed see a Matrix movie like downloading of information in the future. Imagine a world where information can be downloaded straight to your brain. It's not as unrealistic as you might think.

Chatbots

- [TURING TEST SUCCESS MARKS MILESTONE IN COMPUTING HISTORY](#) – The 65 year-old iconic Turing Test was passed for the very first time by computer programme Eugene Goostman during *Turing Test 2014* held at the renowned Royal Society in London in June.

Data Mining/Business Intelligence

- [Untapped Opportunities In AI](#) – Here's a simple recipe for solving crazy-hard problems with machine intelligence. First, collect huge amounts of training data — probably more than anyone thought sensible or even possible a decade ago. Second, massage and preprocess that data so the key relationships it contains are easily accessible (the jargon here is "feature engineering"). Finally, feed the result into ludicrously high-performance, parallelized implementations of pretty standard machine-learning methods like logistic regression, deep neural networks, and k-means clustering (don't worry if those names don't mean anything to you — the point is that they're widely available in high-quality open source packages).

- [Data Mining 200 Years of Patent Office Records To Reveal The Nature of Invention](#)

– The elaborate records kept by the US Patent Office since 1790 are allowing researchers to study the nature of invention and how it has changed in 200 years.

- [Predictobot](#) – Predictobot will automatically turn your spreadsheet into a predictive model.

- [How To Predict A Lifetime Of Diseases](#) – Doctors have long suspected that those who have heart disease also tend to get gout. Knowing correlations like this is important for predicting and preparing for what will happen to patients in the future. The correlations are also important for understanding how diseases work. Is there a mechanism behind gout that's related to heart disease? Could medicines for gout **help with heart disease, too**?

Educational Technology

- [Ohio Program Teaches 'STEM' Through Drone Simulations](#) – An Ohio high school course is attempting to spark interest in high-tech careers b   y guiding students through simulations of drones, the aerial devices commonly known for their use on the battlefield and other applications such as firefighting and video surveillance.

Future

- [Wild ride ahead: glimpse at humanity's long range future](#) – In 1964, astronomer Nikolai Kardashev devised a method to categorize advanced civilizations based on energy consumption. Type-I utilizes all solar energy that strikes its planet, Type-II, controls all energy in its solar system, and Type-III harnesses power from every star in its galaxy. Others have since added Type-IV, which masters the entire energy output of a universe.   Physicists' rate today's humans at Type-0.7. In the *Runaway Universe*, author Don Goldsmith reminds us that Earth receives only one billionth of the suns energy, and that we utilize just one millionth of that; but with nanotech and strong AI advances expected by mid-century, forward-thinkers predict we could reach Type-I by

2100.

- [Mid-century Earth: a brief glance at our future in 36 years](#) – Positive future watchers believe we will see more progress in the next three decades than was experienced over the last 200 years. *In The Singularity is Near*, author Ray Kurzweil reveals how science will change the ways we live, work, and play.

Information Visualization

- [Hidden miracles of the natural world](#) – Filmmaker Louie Schwartzberg bends the boundaries of time and space with high-speed cameras, time lapses and microscopes. At TED2014, he shares highlights from his latest project, a 3D film titled "Mysteries of the Unseen World," which slows down, speeds up, and magnifies the astonishing wonders of nature.

Innovation

- [10 Breakthrough technologies that will shape the world in 2025](#) – What world-changing scientific discoveries might we see by 2025? Will we have more energy technologies that move us away from fossil fuels? Will there be cures for cancer and other diseases? How will we get around and communicate?

Kurzweil

- [Get ready for hybrid thinking](#) – Two hundred million years ago, our mammal ancestors developed a new brain feature: the neocortex. This stamp-sized piece of tissue (wrapped around a brain the size of a walnut) is the key to what humanity has become. Now, futurist Ray Kurzweil suggests, we should get ready for the next big leap in brain power, as we tap into the computing power in the cloud.

- [Biologically inspired models of intelligence](#) (video) – Ray Kurzweil's keynote speech at the Google I/O conference.

- [Computers will be like humans by 2029](#) – Because of artificial intelligence, computers will be able to read at human levels by 2029 and will also begin to have different human characteristics, said Ray Kurzweil.

Machine Learning

- [New search program aims to teach itself everything about any visual concept](#) -- Computer scientists from the University of Washington and the Allen Institute for Artificial Intelligence in Seattle have created an automated computer program that they claim "teaches everything there is to know about any visual concept." Called Learning Everything about Anything (LEVAN), the program searches millions of books and images on the Web to learn all possible variations of a concept, then displays the results to users as a comprehensive, browsable list of images, helping them explore and understand topics quickly in great detail.

- [The Mission to Bring Google's AI to the Rest of the World](#) – Google, Microsoft, and Facebook are pioneering a new kind of artificial intelligence.At Google, it helps drive the voice recognition service that lets you search the web merely by talking into your Android smartphone. At Microsoft, it underpins the new Skype translation tool that lets you instantly communicate with people who speak another language. And at Facebook, a newly assembled team of engineers is exploring how it might be used to recognize faces in online photos. It's called *deep learning*, and it seeks to remake computing by more closely mimicking the way the human brain processes information, giving machines more power to "learn" as time goes on.

Manufacturing

- [Rethinking Mass Production: Why Making Things One At A Time Is More Efficient](#) – It's a basic tenet of mass production: Making things in batches is the most efficient way to manufacture anything. So why, then, is lean manufacturing evangelist Ted Duclos arguing that America can revitalize its manufacturing base by making

things one at a time?

- [The rise of the super-fast industrial 3D printer](#) – Oak Ridge National Laboratory decided to make a faster printer by embracing thicker layers. Using Cincinnati Inc.'s huge BAAM 3D printer, it is working toward a machine that could print 200 to 500 times faster than a standard desktop 3D printer.

Medical

- [Drill-free fillings are the future as dentists develop 'self-repairing' tooth decay treatment](#) – Trips to the dentist could soon be much less painful as scientists perfect a way to repair tooth decay without the need for dreaded drilling and fillings. The technique, developed at King's College London, effectively reverses decay by using electrical currents to boost the tooth's natural repair process.

- [Biotech Makes Personalized Cancer Vaccines Using Tumor Samples](#) – A highly personalized medical technique is allowing patients with advanced kidney cancer to live nearly three times as long as they normally do. In an experiment involving 21 patients, around half lived more than two and half years after diagnosis with kidney cancer that had begun to spread. Five patients are alive after more than five years. The findings are part of a large wave of positive results coming from a class of oncology treatments called cancer immunotherapies. Many drug companies, large and small, are working on treatments that instigate the immune system to attack cancer.

MISC

- [The First Robot Commencement Address](#) – *T*he first-ever cyber-commencement address given by "*Rossum*" —a machine intelligence running a $22 billion hedge fund—to the graduating class of a top-tier technical university somewhere in America before the year 2030.

- [Google I/O conference videos](#) – All of the videos from the recent Google I/O

conference are available for viewing.

- [The AP's newest business reporter is an algorithm](#) – Journalistic earnings stories can feel robotic, even when written by a news organization as prestigious as the Associated Press. Acknowledging this fact, the AP has decided that it will just have robots produce stories on companies' earnings reports. In an announcement on its blog, the AP announced that it will be moving toward full automation of 150- to 300-word earnings reports. The system, to be rolled out next month, will work by pumping data from Zacks Investment Research into Automated Insights, a firm that specializes in computer-generated prose. Naturally, the reports will still conform to AP style, the system of grammar and word choice that is standard in much of American journalism.

Nanotechnology

- [Self-assembling nanomachines start to click: A nanocage builds itself from engineered components](#) – The ability to design new protein nanostructures could have useful implications in targeted delivery of drugs, in vaccine development and in plasmonics, which is manipulating electromagnetic signals to guide light diffraction for information technologies, energy production or other uses.

NLP

- [Siri Grows Up With Shazam, Streaming Recognition And 22+ Languages](#) Apple announced upgrades that show how the company is further building out the service, laying the groundwork for when it will become a more central part of how consumers interact with Apple devices. Features announced today include streaming voice recognitions, 22 languages and Shazam, along with integration into Touch ID.

Search Engines

- [Ray Kurzweil Says He's Breathing Intelligence into Google Search](#) – Kurzweil

told the Google I/O audience that progress on improving Google search was good, and that it would result in an entirely new way to search the Web and manage information. "You would interact with it like you would a human assistant," said Kurzweil. It will be possible to ask a question of the software just as you would if talking to another person, he said; and you could trust that it would return a fully reasoned answer, not just a list of links as Google's search engine does today. Such a virtual assistant might also take the initiative, Kurzweil said, coming forward when new information had appeared that was related to an earlier query or conversation.

Sensors

- [These Parking Meters Know If You're Driving a Gas-Guzzler](#) – In Madrid, parking meters are joining the fight against air pollution. Starting July 1, newly installed "smart" meters in the Spanish capital will charge higher parking fees to vehicles that guzzle fuel or emit clouds of exhaust fumes.

- [Spansion goes battery-less with tiny 'Internet of things' chips](#) – Spansion says it can eliminate the need to put a battery in the tiny sensors that will deliver the measurements from the Internet of things." That should make it much more affordable to deploy billions of such sensors. The new solution uses chips that can harvest their own energy from the sun, vibration, or heat.

Speech Recognition

- [The voice recognition revolution is almost here](#) – For years, voice recognition was mainly a novelty for nerds or a pain-in-the-neck substitute for people unable to type. That's changed, and fast — even in the three short years since Apple unleashed Siri onto a gazillion iPhones. Dictation software is more accurate, yes, but it's more than that. Advances in natural language processing, which can understand the meaning of the words and recognize habits of speech, have given rise to brave new possibilities for the spoken word— like the Internet of Things and identification by speech recognition.