

# E.I.T. Links

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

“Any teacher that can be replaced by a computer, deserves to be.”  
 ~David Thornburg

By Steve Knode, [steve@steveknode.com](mailto:steve@steveknode.com)

### *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](mailto:sknode@gmail.com).

Note: This newsletter contains links found during Dec 2008, and all of the links were working at time of publication.

Remember, all links here can be found at [www.steveknode.com/news\\_updates.htm](http://www.steveknode.com/news_updates.htm) and previous newsletters are available at: <http://www.steveknode.com/newsletters.htm>

### Links for this Issue

#### Artificial Life

- [AI and the Language of Life](#) – This link contains a few articles about how AI is being used to model complex scenarios, including city driving.

#### Brain

- [How Uploading Works](#) – A fascinating presentation about uploading human brains into computers by one of my favorite futurists, Marshall Brain. (NOTE: There is also a video of the presentation.)
- [Making an Old Brain Young](#) – New ways to manipulate neural plasticity--the brain's ability to rewire itself--could make adult

brains as facile as young ones, at least in part. Drugs that target these mechanisms might eventually help treat neurological disorders as diverse as Alzheimer's, stroke, schizophrenia, and autism.

- [IBM gets DARPA cognitive computing contract](#) – IBM and five university partners have been awarded a DARPA contract to work on a cognitive computing contract that will essentially simulate the brain's power and efficiency.
- [Whole Brain Emulation: A Roadmap](#) – An extremely comprehensive report on how the emulation of the entire brain could likely unfold.
- [New Brain Workout Software Program Sharpens Multitasking Abilities, Memory](#) – There is evidence that software can improve the ability to multitask.

#### Data Mining

- [When Everyone Can Mine Your Data](#) – New software allows almost anyone to mine data by scanning open data repositories on the web and matching data found with their own data.

#### Educational Technology

- [The Future of Higher Education](#) – This report from the New Media Consortium emphasizes how important technology is to the future of higher education. Based on surveys of the key players, there are some

important findings, especially those in the executive summary.

- [Stuck-in-the-Past Va. Physics Texts Getting Online Jolt](#) – Rather than waiting two years for the Virginia Board of Education to review its science standards, then another year for publishers to print new physics texts, the state secretaries of education and technology asked a dozen teachers to write their own chapters in biophysics, nanotechnology and other emerging fields and post them online. This may well be the future of textbooks.
- [An Automatic CS Paper Generator](#) – This software program *automatically* generates computer science papers. Several of these papers have been accepted for presentation at conferences! Apparently, it is becoming more difficult to separate automatically generated papers from real ones.

### Future

- [Global Trends 2025: A Transformed World](#) – Several key and important trends are outlined and discussed, including the implications for the rapidly changing world.
- [The Age of Transitions](#) (video)– Converging technology, transhumanism, and our future in the making. The cutting edge group known as transhumanists see a beautiful future brought about by artificial intelligence, life extension, and cybernetics. Problems and potential are both part of the video which is provocative in some aspects.
- [The Day You Discard Your Body](#) – Marshall Brain writes very insightful and interesting mini-books (see his earlier work, [Manna](#)) and is one of my favorite futurists. Here is his latest, about how someday (soon?) you might well be able to “upload” yourself into another entity for posterity. His treatise covers in some depth the possibilities and the pitfalls.
- [Internet Evolution](#) – This respected PEW research report outlines where the internet is headed. A survey of internet leaders, activists and analysts this report includes

very interesting and relevant predictions.

- [Starwars style holographic 3DTV could be a reality by 2018](#) – Experts are predicting that developments in 3D projection could make a near ‘hologram’ possible within 10 years.

### Information Overload

- [Defeating Bedlam](#) – Several excellent tools which can assist in organizing information are reviewed in this article. (NOTE: I like [zotero](#) personally for my use. It is a free tool that will greatly assist in organizing and documenting sources of information.)
- [my6sense](#) – A new free tool that I am trying out purports to be able to automatically rank which messages are important to you. Using AI, my6sense is able to use its ‘digital intuition’.
- [Amazon Starts Renting Out the Human Genome](#) – Now Amazon Web Services, a subsidiary of Amazon.com, has started offering access to large collections of data. Business customers and scientists can take the information, which ranges from census databases to three-dimensional chemical structures and the genome, and use it as the basis for computing jobs. By gathering and storing the information, Amazon says that it can save businesses the step of assembling and managing data on their own.

### Information Visualization

- [Doug Englebart's Mural](#) – In a tribute to one of the all time greats, [Doug Englebart](#), attendees at a recent conference called the Program for the Future, have created one of the best information murals ever. (NOTE: As a big disciple of Edwin Tufte who specializes in displaying information visually, I find this mural fascinating. Enlarge the picture file to see all of the tremendous attention to the details of Englebart’s career.)
- [MIT's sticky-notes killer](#) – Innovative application by some MIT students attempts to replicate sticky notes in a digital format. I

am trying out this free software to see how it assists in organizing.

- [Back-Button to the Future](#) – Ever want to see how the www looked in the past (minutes ago, hours ago, days ago, etc). A new tool called [Zoetrope](#) is designed to help track such information by letting users browse backward through time.
- [Darpa Plan: Turn Warzone Data into Simple Stories](#) – Drone feeds, informant tips, news reports, captured phone calls -- sometimes, a battlefield commander gets so much information, it's hard to make sense of it all. So the Pentagon's far out research arm, Darpa, is looking to distill all that data into "a form that is more suitable for human consumption." Namely, a story.
- [Project Gutenberg Releases Mobile eBooks](#) – There are now free e-books which can be downloaded onto mobile devices, courtesy of the Project Gutenberg effort.

### [Intelligent Agents](#)

- [Bots Get Smart](#) – Games are now progressing in their approach to play. Using intelligent agent technology, many of the modern computer games feature avatars that 'adjust' to your play. As you play the game, the computer learns your strategy and develops alternate approaches. Much of this type of responsiveness will migrate to other software soon.
- [Software to Plan Your Life By](#) – Some companies are now adopting some of the same concepts as the CALO project that DoD is pursuing (see [Feb 2008 EIT newsletter](#) for a link to CALO). The same technologies that will make CALO a success will be useful to the consumer, namely knowing enough about you to **automatically** take actions to assist.

### [Machine Learning](#)

- [An Optimization Tool That Can Predict The Need For Public Transport](#) – There is now a tool that can predict the need for public transportation (such as taxis) based on real

time data. By combining geospatial data mining and self learning technologies the software provides clear output for managers of public transport, enabling the fleet managers such as taxi owners to manage their manpower better and to know where to send taxis.

### [Manufacturing](#)

- [First Self-Healing Coatings](#) – New protective coatings can automatically 'heal' corrosion. The self-healing elements, enclosed in microcapsules that rip open when the coating is scratched, are compatible with a wide range of paints and protective coatings.
- [Eliminating Human Error on Production Lines Using Artificial Intelligence](#) – There is now an integrated manufacturing system that 'learns' the manufacturing process by mining the records of assembly line parameters and finding key relationships. Already in use at one factory, the system is proving beneficial in reducing defects.

### [Medical](#)

- [Pushing more docs to ditch prescription pad](#) – E-prescriptions are coming. Doctors will now get an incentive to use the digitized system which has large cost savings, but goes against a long culture of handwritten prescriptions.
- [Bringing lab-on-a-chip to a surgery near you](#) – Instead of waiting days for lab results, there will soon be an approach that provides the results almost immediately and cheaper.
- [Adult stem cell breakthrough](#) – A remarkable story about how a patient's own stem cells have been used to provide a new functioning airway to the patient.
- [Injectable artificial bone developed](#) – Artificial 'injectable bone' that flows like toothpaste, and hardens in the body, has been invented by British scientists. This new regenerative medicine technology provides a scaffold for the formation of blood vessels and bone tissue, and can also deliver stem cells directly to the site of bone repair.

## Military

- [Medical robot is doctor's eyes on battlefield](#)  
– The military is planning on using robots to interact with wounded soldiers and collect information which is sent directly to a doctor who is operating the robot. With expert trauma care surgeons in ever shorter supply relative to demand, doctors hope the robot will extend their reach, so a doctor could examine a patient and give advice from his laptop in his office, at home, even from a restaurant. (NOTE: I mentioned something like this several years ago at [this link](#). I have also seen a video of a prototype operation performed where the doctor was not co-located with the patient.)

## MISC

- [The Story of the New Media Consortium \(video\)](#) – If you wish to see some of the history of the New Media Consortium, this fascinating video is for you. You can see how the use of 2<sup>nd</sup> life is progressing.
- [You're Leaving a Digital Trail. What About Privacy?](#) – Students are now swapping privacy for smart phones. Propelled by new technologies and the Internet's steady incursion into every nook and cranny of life, collective intelligence offers powerful capabilities, from improving the efficiency of advertising to giving community groups new ways to organize. However, there are many concerns about how this information could be misused. (NOTE: If you have not yet viewed it, this video is an [excellent example](#) that I have used often to show where we are headed about privacy. I also recommend the book, "World Without Secrets" by Richard Hunter.)
- [Neurobiology Will Become "No-Brainer" Substitute for Software](#) – Interesting thought piece on how software might change dramatically once we have computers and robots that can automatically learn and adapt.
- [What's Next for Computer Interfaces?](#) – Some dramatic developments are near for

computer interfaces. Smaller, more interactive, more attuned to touch seem to be the trends.

- [Scientists find way to calculate people's real age](#) – Biological age can be calculated much more exactly as opposed to just counting birthdays. Scientists can soon predict someone's physiological age objectively without resorting to asking them how they feel or looking at their appearance.
- [The Mother of All Demos](#) – December 9<sup>th</sup>, 2008 was the fortieth anniversary of the demonstration by Doug Engelbart which startled the world.

## Nanotechnology

- [New Products Bring Side Effect: Nanophobia](#) – The extremely small size of nanoparticles gives them some excellent properties for various uses. However, they can also penetrate human skin and run amok inside the human body.

## Robots

- [Videos of Robots](#) – Videos of many robots are here. You can see the tremendous progress in the field based on these videos.
- [Agency sees robots replacing humans in service jobs by 2025](#) – The National Intelligence Council is predicting that by 2025 robots will be capable of taking over many low skilled jobs.
- [Robotics Integrated With Human Body In Near Future?](#) – Spanish researchers have carried out a study looking into the potential future impact of robots on society. Their conclusions show that the enormous automation capacity of robots and their ability to interact with humans will cause a technological imbalance over the next 12 years between those who have them and those who do not.
- [Flybot Takes Wing](#) (video) – In its first flight, Robert Wood's robotic fly mimics the wing motion of real insects to successfully take off. The tiny, flexible robotic parts are

created with a novel fabrication technique.

- [Inventor builds She-3PO robot](#) (video) – One of the most advanced robots yet to be built, this one has features lacking in most.
- [MIT's Huggable Robot Teddy Enhances Human Relationships](#) -- The Huggable is the latest project to come from the MIT Media Lab, and could one day be used for healthcare, education, and social communication applications.

### [Search Engines](#)

- [Search and Find Magazines on Google Book Search](#) – Google's book project continues to expand. Now, readers can have access to millions of articles from titles as diverse as *New York Magazine*, *Popular Mechanics*, and *Ebony*.

### [Semantic Web](#)

- [Semantic Sense for the Desktop](#) – Advances toward the Semantic Web continue to occur. A European endeavor called the [Nepomuk Project](#) will soon see the effort take new steps onto the PC in the form of a "semantic desktop."

### [Sensors](#)

- [Smart Dust Future](#) – First-generation smart dust products are already hitting the market. The tiny sensors are being tapped to monitor building controls, pipelines, factory equipment and drug-making processes. The fact that nodes of smart dust sensors can "talk" to each other through a mesh of wireless radio signals makes the technology a reliable way to track different industrial systems.
- [Intel Looks To Blanket The World With Self-Powered Sensors](#) – Intel is developing self-powered microchips that could be implanted in the human body, a mobile phone, a building, or anywhere else where people wish to gather information.

### [Simulation](#)

- [Living In De-material World: On Microsoft, Train SIM and the Virtual Everything](#) – The world of simulation continues to advance rapidly, with the ability to simulate just about anything on the near horizon. Here is what Microsoft is planning.

### [Virtual Reality](#)

- [Philip Rosedale: Second Life, where anything is possible \(video\)](#) – The TED talks are almost always excellent, this one no exception. If you want to see where 2<sup>nd</sup> Life is headed and some unique applications, watch this video.
- [Mars in 3-D: So detailed it's scary](#) – Want to see Mars up close? Check out these images. (NOTE: Years ago in the Virtual Reality Lab I helped develop at the National Defense University I had the opportunity to "travel" over Mars---quite exhilarating! You can read about it [here](#).)

### [Web 2.0](#)

- [Social Media Predictions 2009](#) – Peter Kim now has a compendium of experts' predictions about where social media is headed in 2009. Several varied ideas are mentioned, some with significant implications.
- [State Department bridges borders with social networking](#) – The State Department now has a social network (using the same product I use to create the ones for my students). The goal of the network is to encourage international exchanges and to help enhance the U.S.'s image abroad, especially with younger generations.
- [Scientific Journal to Authors: Publish in Wikipedia or Perish](#) – A sign of the times is that RNA Biology has decided to ask every author who submits an article to a newly created section of the journal about families of RNA molecules to also submit a Wikipedia page that summarizes the work. Will other journals follow suit?

- [A Social Network for Researchers](#) – A social network specifically designed for researchers is now available. IBreadCrumbs allows you to save, record, and share research information.
- [Enterprise Virtual Worlds More Effective Than Web Conferencing](#) – One of the more interesting conclusions of the report is that virtual worlds are both **more engaging and less expensive** to operate than audio and web conference systems. There also continue to be problems, especially with usability issues.
- [Sharing the Browser](#) – IBM has an experimental browser project that may change the way many people use the Web by allowing them to perform collaborative web browsing..