

E.I.T. Links

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

"By 2010, only 20 homes networked together will have more traffic load between them than the entire internet had in 1997." --John Chambers, Cisco

By Steve Knode, steve@steveknode.com

Editor's Note:

As always, plenty of activity to report. The pace of technological developments continues to accelerate. Look for an announcement about the podcast option to accompany this newsletter starting soon.

steve@steveknode.com

Remember, all links here can be found at www.steveknode.com/news_updates.htm

Links for this Issue

Virtual Reality

- [Your Second Life is Ready](#)– The news and developments in Second Life continue to arise. This article will more fully describe the experiences going on in this brave new world. (NOTE: Last issue mentioned that Harvard is conducting a course in Second Life--more will come—see below.)
- [Reuters to Open News Bureau in Second Life](#) – Reuters to Open Virtual News Bureau in Second life – One of the leading news services is going to have a “virtual” news bureau featuring real life and second life news!
- [IBM to Open Islands in Virtual World](#) – IBM is opening 12 “islands” in Second Life where employees and customers can hold meetings, have discussions and receive training.

- [IBM's Chief Steps into Second Life for Incubator Launch](#) – IBM is making an important announcement about investing \$100 million for innovative ideas in Second Life
- [Virtual Worlds are Moving Toward Commercial Reality](#) -- Yet another look at the how Second Life is rapidly becoming commercially viable.
- [Transforming a 2D image into 3D](#) – Watch this short video as 2D images are transformed into 3D images--automatically!

Sensors

- [HP's Memory Spot Chip](#) – HP has developed a chip, the size of a grain of rice, that can be embedded almost anywhere and contain massive amounts of information which can be transmitted wirelessly to the user. Think of the possibilities---many of which are outlined in this article.
- [Scientists Harness Mysteries of the Brain](#) – As I have often mentioned, we are on the cusp of having “smart” sensors that can contain the world’s information. In this article, you will learn how sensors implanted in the brain are allowing people to control things with their imagination.
- ['Agents' could Save You from Fire](#) – As I have often preached, we are rapidly moving from a world of “self-service” to “room service”. As this application clearly shows, intelligent agents are becoming a way of serving as data collectors and informers.

Read how agents can help with fire-fighting by watching and notifying about fires.

[Nanotechnology](#)

- [Dr. Mike Roco on Nanotech - "Industries for the 21st Century and Beyond": BLOG: SciAm Observations](#) - An interesting overview of what is going on in the world of Nanotech. Check out all the happenings.
- [Attack of the Killer Prototype Robots](#) - Discussion of how to get millions of small robots to work together to create things. A harbinger of things to come with nanotech.

[Neural Networks](#)

- [Computer programs help flag insurance fraud before payment - USATODAY.com](#) – Yet another example of the power of neural networks to detect patterns, in this case patterns of fraud in insurance claims. Remember, neural networks continue to “learn” as patterns change, so they adapt to new behavior automatically. For more on neural networks, see my streaming video on the subject at:
<http://www.stevknode.com/ET/NN/nn.html>.

[Robots](#)

- [Penelope Could Revamp Nursing Field](#) – This robot, Penelope, can function as a nurse in the operating room, assisting surgeons and making sure they have the proper instruments.
- [Robots Are Your Friends, ...or They Will Be](#)—An excellent update on many of the developments in Robotics. As you will see from the article, robots are becoming ubiquitous and performing many important functions already.
- [Self-Aware Robot Can Adapt To Environment](#) – A huge step forward in the development of robots is presented here--- robots that can *automatically* adapt to the job at hand! This robot has self-awareness, learning and adaptation all built in.

[Natural Language Processing](#)

- [Me Translate Pretty One Day](#) – The latest in the ever growing field of automatic translation. The potential for such applications is huge. This article outlines a lot of the progress being made.
- [Leading Information Website Harnesses 'Artificial Intelligence' to Build Itself Automatically and the Search Engines Go Crazy For It](#) – Now there is software that can automatically create webpages and websites, keeping them updated without human intervention. Articles are automatically indexed and, if appropriate, added to the website.

[Decision Support Systems](#)

- [Software devises best plan for tackling forest fires](#) – This DSS optimally allocates scarce resources to tackle forest fires. The program helps coordinate hundreds of vehicles and thousands of people. It quickly produces several viable plans for implementation. Currently being used by fire-fighters in Spain.

[Data Mining](#)

- [Doctors using Google to diagnose illnesses](#) – As information grows, the ability for humans, even highly trained doctors, to keep up diminishes. This article points out how Google is helping with difficult diagnoses of illnesses. Almost 6 in 10 difficult cases can be correctly diagnosed with help from Google.

[Brain](#)

- [The Politics of Repairing Humans](#) – As we approach the era of being able to “fix” whatever is wrong with us, the argument will no longer hinge on the technology, but rather on the cultural and political aspects. Be sure to read this very thought provoking article about the prospects.

- [Copper Circuits Help Brain Function; Could Tweaking the Circuits Make Us Smarter?](#)— Perhaps we need to be taking copper supplements in addition to multivitamins. Turns out that copper plays a key role in the proper and improved brain functioning.
- [Atlas Squeaked: A Complete Map of the Brain of a Mouse](#)—The entire brain of a mouse has now been mapped. This provides an electronic atlas to show what neurons in a mouse brain are switched on and off for different functions. This should contribute significantly to understanding the human brain. (NOTE: For access to NY Times articles, free registration is required.)
- [Teenager Plays Video Game Just By Thinking](#)—With an implanted chip in his brain to monitor his epilepsy, this boy can play space invaders without using his hands. As I have pointed out previously, the use of implanted chips to augment intelligence has already begun. First, we start with those for whom the chips are a necessity----but how long before many who aren't incapacitated want the same capability? A video is also available in the article.

Future

- [PC World's 100 Fearless Forecasts](#)— Forecasts in almost every area of technology are available at this link. Check out the predictions for the areas that interest you.
- [In Its Image](#) – This *very provocative and interesting* video talks about the possibility of creating machine intelligence that surpasses human intelligence. Watch it and be enthralled! (NOTE: This video is in the google video format--you will need the free google video player to view it.)

Information Overload

- [MIT Center for Collective Intelligence Kickoff](#)— From MIT's Center for Collective Intelligence comes this outstanding video about how to utilize collective intelligence to get productivity. This lengthy presentation (over one hour) is one of the best I have ever seen, full of examples and

ideas, especially featuring innovation. Once past the introduction, you will enjoy the keynote speaker.

[Pluggd: A Google for Podcasts](#)— Searching for interesting and relevant podcasts has now become easier. This startup software has a method for indexing podcasts, talk shows and other spoken word content. You can search to see if the subject of your interest was actually mentioned in the podcast. Further, the software looks for associations so that it can recommend other similar podcasts.

RFID

- [Dog Tags Go To College](#) – Read how the Army is now going to use RFID to replace dogtags. The RFID chips will contain a lot of information, much of it medical to facilitate faster treatment of injured soldiers.

Search Engines

- [7 Search Evolutions for '07](#)— Here are some interesting predictions for how search will evolve during the 2007 year. Let's hope the predictions come true.

Kurzweil

- [Ray Kurzweil on Book TV](#) – This **three hour** video file is an *excellent piece* on Ray Kurzweil, including some of his earlier exploits. Most of the interview is about his latest book, [The Singularity is Near](#). As an avid follower of his writings and pronouncements, I try to keep up with his latest thinking.
- [HUMANITY: A WORK IN PROGRESS](#)— The latest (audio file) from the man himself, Ray Kurzweil. If you have not done so yet, be sure to visit his website, www.kurzweilai.net and/or read his books, the latest of which is [The Singularity Is Near](#) (see link above). By the way, I recommend his book for insights as to our future.
- [Creativity: the mind, machines, and mathematics](#) – A fascinating debate between Ray Kurzweil and David Gelernter on the

future of artificial intelligence. This webcast will certainly get you thinking about our future.

[Autonomic Computing](#)

- [Software Learns to Tag Photos](#)– Now there is a software program that can automatically tag images according to their content. With a 98% accuracy in an extensive test, the software is proving to be invaluable in accomplishing this previously difficult and time-consuming task.
- [Visual Search for Better Online Shopping](#)– We now have another way in which to search for products we want to buy but are hard to describe. This method involves using pictures of the product to find matches.

[Genetic Algorithms](#)

- [Powerful Batteries That Assemble Themselves](#)– Batteries that can assemble themselves using the techniques of genetic algorithms are now available. This “evolutionary” approach to solving tough problems is growing.
- [Robotic Recovery](#) – Robots have been designed that can build internal models of themselves, thereby allowing them to sense and recover from damage automatically are featured in this article.
- [Evolutionary Design](#) – Interesting [video](#) about how the evolutionary process of genetic algorithms can be used to evolve solutions to several tough problems.

[Intelligent Agents](#)

- [Software generates video news bulletins](#)– Intelligent agent software is being used to automatically generate news bulletins, without human intervention. These news bulletins can even be customized according to desires.
- [Smart or Scary? Software That Follows You](#) – Rity is a software robot that can transfer

itself from one computer to another to serve his masters according to Kim Jong-Hwan, director of the Robot Intelligence Technology Lab at Korea’s Institute of Advanced Science and Technology. The ultimate goal of this very innovative approach is to have an agent that knows your needs and follows you around to help you. Very innovative!

[Expert Systems](#)

- [A Growing Intelligence Around Earth](#)– Satellites that have been programmed to recognize changes in the earth and take appropriate action are now in place. The EO-1 is one of such satellites, possessing “intelligence” and able to incorporate data from sensors.
- [More Expert Systems Migrate To Handheld Devices](#) – Expert systems, one of the oldest and most successful implementations of artificial intelligence, are now migrating to handheld devices. This will make expert knowledge available to those on the go.

[Artificial Life](#)

- [Bye Swarmbots, Hello Swarmanoids](#)– A research attempt to develop 60 small robots, capable of collaborating with each other in 3D environments. Three different types of robots will join forces to accomplish various jobs.
- [Robotic Chair Fall Apart, then Reassembles Itself](#) – A most interesting demonstration and explanation (there is also a very impressive video linked here) of a chair that falls apart (into several separated pieces), the *autonomously* reassembles itself! Although of virtually no practical value, it does illustrate where we are rapidly headed with intelligent systems. Think of the possibilities.

[Military](#)

- [The Future of War](#) – A thought provoking and somewhat frightening article about the future of war. The increase in lethality and the use of robotic systems is highlighted.

[Semantic Web](#)

- [Could the future bring the Internet as your personal adviser?](#)– Further developments for the *Semantic Web* as the attempt continues to give the web more “common sense” and the ability to add context to content. This is one of the hottest and most important topics since, if successful, information retrieval and data mining become much more useful.

[Artificial Intelligence - General](#)

- [Good Morning Earthling!](#)– This excellent website about Artificial Intelligence was created by students, age 9-19, as part of the ThinkQuest project. Check out the excellent information contained here.
- [NEW ARTIFICIAL INTELLIGENCE & WEB 2.0 DEVELOPMENTS](#) – This innovative AI application assists in matching job applicants with job openings. Going far beyond just looking at key words, this application uses advanced language processing to come closer to “understanding” the job requirements and the job skills of the applicant.
- [A Head For Detail](#) – Gordon Bell, a researcher at Microsoft, has for the past seven years been capturing *everything* about his life in a project called, MyLifeBits. His goal is to never forget anything! He has even stowed his entire past into the project. Read this extraordinary account of his efforts and the potential payoffs for such projects.
- [Kevin Warwick: The ITWales Interview](#) – Dr. Kevin Warwick gives an excellent interview in this link. He is a world renown Professor of Cybernetics and the person who put a chip in himself and his spouse so they could communicate brain-to-brain. His website contains additional information at <http://www.kevinwarwick.com/>, and his future plans include future chip implants to further the brain-to-brain ability to communicate.