

# E.I.T. Links

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

“In a few minutes a computer can make a mistake so great that it would have taken many men many months to equal it. ”  
 ~Author Unknown

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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](mailto:sknode@gmail.com).

Note: This newsletter contains links found during Jul 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)

### Links for this Issue

#### AI General

- [Humans and machines will merge in future](#)  
– An interesting piece on a growing feeling that a merger of man and machine is on the near horizon.
- [Measure Success of Aspiring Police Officers and Firefighters](#) – This is another automatic test grading AI application, this time to assist aspiring police officers and firefighters. The use of artificial intelligence for teaching continues to grow.

#### Brain

- [First Detailed Map of the Human Cortex](#) – A visual high-resolution map of the human cortical network reveals that the brain has its own version of Grand Central Station, a central hub that is structurally connected to many other parts of the brain.

#### Chatterbots

- [Artificial Intelligence from intellichat™ Finds 'Missing Link' In Internet Sales and e-commerce](#) – Chatterbots (an area of personal interest to me as the CTO of [BotKnowledge](#)) continue to develop into more and more capable substitutes for expensive human intervention. This bot, which attempts to get closure on sales, seems impressive. Already, it has interacted with 44 million users in two months! (NOTE: As a developer of similar intelligent agents, I am continually impressed by the progress shown.)
- [Microsoft Demonstrates Robot Receptionist](#) – Microsoft continues to attempt to make inroads with Chatterbots (remember Clippy?). This one uses a combination of visual and voice recognition as well as speech synthesis to handle basic tasks. Microsoft itself plans to use the software robot to handle shuttle requests in its own buildings, which typically have a pair of receptionists to handle visitors and shuttle requests.

#### Data Mining

- [Geospatial Data Mining for Market Intelligence](#) – Excellent overview of how geospatial data mining can be used for serious business applications. Several good examples are provided. (NOTE: There is also a podcast available.)
- [Feeding the Masses: Data In, Crop Predictions Out](#) – Related to the article in Wired that was mentioned in last month's newsletter, this continues the idea that massive amounts of data allow for more accurate decision-making. In this case, a consulting firm using advanced data mining makes better predictions about crop yields than the USDA. A sign of things to come!
- [World Wide Wellness: Online Database Keeps Tabs on Emerging Health Threats](#) – This automated system scours online discussions and news services for information about emerging health threats worldwide. The hope is to get an idea of threats before the World Health Organization and Center for Disease Control even are aware of developments. Still another example of automated systems assisting in decision-making.

### Decision Making

- [Digging a Smarter Crowd](#) –The social bookmarking website, DIGG, will now base its recommendations on the “wisdom of crowds”. NOTE: There is a popular book, “The Wisdom of Crowds”, which illustrates situations where the wisdom of a group outperforms experts in some instances. This book will be one featured in the new EMBA 630 course on decision-making.)
- [From Operational Business Intelligence to Competing on Decisions](#) (audio link available)– The use of Business Intelligence (BI) to make more effective decisions is growing. In this article, several ideas are presented on how to effectively use BI for decision-making.

### Educational Technology

- [Higher Education Delivers Digital Solution With ALEKS Math Placement](#) – Over the last two years, the University of Illinois has

been using ALEKS, a Web-based software system that employs artificial intelligence, to address the issue of accurate student placement, thereby significantly increasing student pass rates.

### Expert Systems

- [Expert System Helps "Autostrade per l'Italia" Sort, Classify and Streamline Email Traffic](#) – Another example of an expert system which functions much as an expert in helping with business operations. This system automatically categorizes and sorts 20 thousand emails per month, allowing the company to respond more quickly to customer requests.
- [Remote weather stations give farmers timely advice](#) – Farmers are now getting instant advice on when to plant; apply fertilizers, herbicides and insecticides; irrigate and harvest their crops. Sensors collect data on wind speed and direction, air temperature, humidity, precipitation, solar radiation, leaf wetness, and soil moisture and temperature at two depths and transmit it wirelessly to computers which decide the advice to give. (NOTE: I have long used software from [EXSYS](#), a product which has also been used to develop agricultural expert systems.)

### Future

- [Supermarket of the future](#) (video) – An extremely interesting and informative video showing how sensors and smart software will help in designing the supermarket of the future.
- [Kevin Warwick - "I, Cyborg": Implants, RFID, Microchips & Cybernetics](#) (audio) – Kevin Warwick's latest interview discussing his amazing ideas about embedding chips in humans. (NOTE: I have long followed Dr. Warwick who has already done two such operations on himself. See his website, <http://www.kevinwarwick.com/>)

### Information Overload

- [IORG Discusses Solutions for Info Overload](#) – Guess what?? Now there is an

organization, the Information Overload Research Group (IORG), just formed to specifically deal with ideas about information overload. Read this fascinating article which documents some of the tremendous costs of information overload.

- [A Messy Art](#) – How a neurosurgeon manages to deal with the vast amount of information available to her. This narrative walks you through the process of how she deals with overwhelming and sometimes conflicting information sources..

### Intelligent Agents

- ['Gordon Gekko' trading bot profits from mood swings](#) – A "bot" which adjusts how aggressively it trades to match market conditions. The bot includes in its analysis not only consideration of other traders' behaviors, but also consideration of past market trends to attempt to predict the future. There is mention of the bot's success.

### Knowledge Management

- [An Update on Knowledge Management in the Federal Government](#) (audio available) – This will update you on how Knowledge Management (KM) is continuing to spread in the federal government. There is a significant increase in KM growth within the last few years.
- [Research Publications Online: Too Much of A Good Thing?](#) – As the number of online publications continues to rise, scholars are actually citing fewer papers in their own work, and the papers they do cite tend to be more recent publications. This trend may be limiting the creation of new ideas and theories.
- [Filtrbox](#) -- A new product, Filtrbox, claims to be the solution (at least partially) to information overload. Take a look at the features for yourself. (NOTE: I will be trying out this product and will provide an assessment after I have some experience with the product.)

### Manufacturing

- [3-D Printing for the Masses](#) – I have included several previous links to items relating to 3D printing. However, this article shows how the idea has now spread to virtually anyone. The new service, launched last week, makes this technology accessible to anyone: budding artists, architects, product designers, and general hobbyists. A small design company might want to make samples to show a client, or an artist might want to make copies of the same sculpture created digitally, for example.

### Medical

- [Self-Assembling Tissues](#) – It appears that we are on the cusp of being able to assemble human-like tissues, perhaps to replace damaged ones.
- [Tech Tools Will Change the Way Medicine Is Practiced](#) – Clinical decision support (CDS) tools are set to fundamentally change the way medicine is practiced. Apparently, the major roadblock is not technological, but cultural (surprise!).
- [Controlling a Gut Bot's Position](#) – Previous newsletters have had links to small robots that can be swallowed to get a look at a patient's internal digestive system. This latest development allows for such robots to be stopped and then restarted.

### MISC

- [LIFT Conference: Kevin Warwick](#) (audio) – Yet another talk by Kevin Warwick. In this presentation Warwick takes a look at four different mergers involving the use of implant technology and micro electrode arrays, like technology for identifying and tracking humans, robots with biological brains, deep brain stimulation for therapeutic purposes and neural implants to enhance human abilities.
- [Say goodbye to the computer mouse](#) – According to predictions, gesture recognition and touch screens will soon replace the mouse.

## Nanotechnology

- [Magnets Capture Cancer Cells](#) – In a novel approach, magnetic nanoparticles coated with a specialized targeting molecule were able to latch on to cancer cells in mice and drag them out of the body.

## Neural Networks

- [Cold Calculation Predicts Death Row Executions](#) – An unusual application of death row prisoners will live and which ones will die with great accuracy. As always, by finding, *automatically*, subtle patterns in the input data, neural networks are able to outperform other methods.
- [Artificial Intelligence Aids Astronomers](#) – Neural networks are also aiding astronomers by analyzing dips in the light coming from systems, thereby aiding in star calculations. The neural network being used can analyze 15,000 light curves in 10 seconds.

## NLP

- [Speak up](#) – A number of two-way translating devices have been under development as part of the Spoken Language Communication and Translation System for Tactical Use (TRANSTAC) programme run by the Defence Advanced Research Projects Agency, known as DARPA.

## RFID

- [It's No Longer Tracking, It's Locating](#) – RFID chips are expanding in their use. Now, they are part of a process of tracking employees, children, etc. As the cost continues to drop, RFID chips are being embedded in everything to facilitate the keeping track concept.

## Robots

- [The transformers](#) – A lab in Israel is developing electronic border policemen that

can anticipate and counter the actions of terrorists. The concept is a fascinating one, including more progress in having robots cooperate with each other.

- [Research bots leverage open-source for child-like intelligence](#) – More evidence of the growth and importance of ‘open source’ information and software. This project is an important one for sharing the development of “smart” robots.
- [New Generation Of Home Robots Have Gentle Touch](#) – Developments in the home robot industry continue to advance rapidly. This is the latest and greatest. (NOTE: While at the National Defense University, I used a similar ‘bot’ for demonstration purposes from [Geckosystems](#) –videos available at their site.)
- [Robot Asimo can understand three voices at once](#) -- A new breakthrough, the ability to deal with multiple voices at once and distinguish among them. This represents quite an advancement for language understanding by robots.
- [Robot chef gets a boost from wireless kitchen](#) – This kitchen chef robot can make use of wireless connections to sensors to “learn” how to manage the kitchen. As a result, the robot knows where everything is, and it can learn simple tasks simply by observing the movements of the objects.

## Search Engines

- [Artificial intelligence tied to search future](#) – A partial solution to information overload is better filtering by search engines. This article outlines some efforts to improve search using Artificial Intelligence.
- [Wow, How Did Cuil Get So Much Publicity on Day 1?!](#) -- A new search engine (CUIL, pronounced COOL) has emerged with a claim to be more accurate than Google. Developed by two ex-google engineers, this search engine was released with an amazing amount of hype.

## Sensors

- [Nanosensors for Medical Monitoring](#) – An interesting application of sensors to continuously monitor blood biomarkers and report findings. This might be a boon for those with serious diseases who need such monitoring.
- [Smart contact lens feels the pressure of glaucoma](#) -- A smart sensor can now be embedded in the material that is used to make contact lenses. Such a device could measure the changes in eye pressure for glaucoma patients.
- [Sensor detects bad milk, blood coagulation and road stress](#) -- Yet another use of sensors, this time to detect bad food at the checkout counter. Similar uses include monitoring bridges for stress.

## Speech Recognition

- [A Prosthesis for Speech](#) – Scientists at Boston University are designing a speech prosthesis that may one day translate thought into spoken word for people with certain speech-related disorders.
- [Google Gadget Tries To Transcribe What Politicians Say](#) – Google has launched a new service (Google elections video search) which attempts to translate candidates video speeches into text, thus allowing viewers to jump to the parts of interest to them.

## Virtual Reality

- [IEEE Ethics Contest Gets Second Life](#) –An interesting application of virtual reality, presenting ethical scenarios in 2<sup>nd</sup> life. Acting out the scenarios makes them more interesting (and relevant?) than just reading about them.
- [Doing Business Virtually -- Have Your Avatar Call My Avatar](#) – More and more companies are finding serious uses for virtual reality environments, often to hold meetings in unique and unusual places.

- [Google Launches Virtual World](#) – Google has developed its version of a virtual environment, Lively, which has some impressive features.
- [Linden Labs and IBM Break the Metaverse Barrier, Teleport Across Virtual Worlds](#) – The next step in virtual worlds, the ability to transport from one to another. This is a success story of such a transportation, thus facilitating the use of such worlds.
- [The Virtual World as Web Browser](#) – Importing data from the real world into the virtual world is becoming easier, according to Linden Labs, the creator of 2<sup>nd</sup> Life. The company is also working to make it easy for users to share 2-D data such as Microsoft Word files or PowerPoint presentations.
- [Sneeze-sensing software gives avatars a good laugh](#) – The further development of anthropomorphic characteristics in virtual reality avatars, this time laughing.

## Web 2.0

- [Mapping Infectious Diseases](#) – An excellent example of a mashup of some Web 2.0 technologies to allow for tracking the spread of infectious diseases.
- [Why Most Online Communities Fail](#) – Obviously, not all social networks succeed. Here are the main reasons for failure.
- [Patients Like Me](#) – Interesting application of a social network to enable persons with specific ailments to find others who have the same affliction.
- [Governments Around the Globe Have Become Early Adopters of Web 2.0 Strategies](#) – Governments have become one of the earliest adopters of Web 2.0 technologies. Several examples are included in this article.
- [Second Life used for virtual recruiting by State of Missouri](#) (video) – An example of a state (Missouri) which does **all** of its recruiting for government IT positions in 2<sup>nd</sup> Life!