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A U R U M

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From the Editor

Hello
Our prayers are with the victims of the hurricane Katrina. This tragedy has caused unprecedented devastation and afflicted a serious blow to the critical infrasturucture of affected areas. Such tragic events remind us of our vital dependancy on modern day facilities and services like safe housing, power, transportation, water and seweage, and communication systems.

As builders of these systems, us engineers have an enormous amount of responsibility to the public to build and manage safe and reliable systems. Daily, our products tirelessly serve humanity providing safe living environment. In fact, no other profession has contributed more to the betterment of humanity than engineering. Engineers are responsible for providing safe homes, and making delivery of affordable food, healthcare and drugs possible, among countless other products and services that are integral part of our existence today.

We should feel a great sense of accomplishment and pride in our profession.

Cheers,

Ahsan Upal, P.Eng.
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About Aurum

"Aurum" is Latin word for "gold" and is where the periodic symbol Au originates. The Aurum newsletter is published quarterly each year, with the next issue being in September 2005. The next deadline for submissions is August 19, 2005.

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IEEE Sections Congress 2005

IEEE Sections Congress is a triennial gathering of Section leadership sponsored by the Regional Activities Board. This year this event, labeled "Promoting a World Class Volunteer Community" is being held on October 14th – 17th in Tampa, Florida.

Sections Congress includes four days of working sessions and networking involveing hundreds of delegates from all ten Regions. At Congress they learn how to utilize the resources of the IEEE to maximize their effectiveness as IEEE volunteer leaders. Workshop, panel and tutorial sessions are held on topics of interest to the Sections.

Congress is the one major meeting sponsored by the IEEE which brings together the Institute's grassroots leadership so that they can share ideas, concerns and solutions.

The Congress is also a forum where the Section Chairs speak as the collective voice of IEEE membership, expressing ideas about how the Institute can better serve its members, both now and going forward. The issues generated at the Congress have a major impact on the plans made by the IEEE Leadership for the future of the Institute.

Calling Gold Members Attending SC2005

As part of IEEE's strategic planning activities, the IEEE Publication Services and Products Board (PSPB) would like to invite about 50 GOLD members who are attending the 2005 Sections Congress meeting to come a few days earlier to attend a focus group session. During the session we will discuss the current and future information needs of young practicing engineers. The meeting will start on 12 October with an afternoon session and continue through 13 October. PSPB will pay for the additional two nights at the hotel (12 and 13 October).

is interested in talking with GOLD members about their technical information needs. As we move to more content being delivered electronically, the way we work is changing and evolving. Search features are more powerful and services like electronic modeling tools are readily available with the click of a mouse.

If you are a GOLD member, or know of a GOLD member that is attending Sections Congress and would like to participate in this very important event, please respond to Luis Villegas at l.f.villegas@ieee.org.

What's Behind These Headlines?

Natalie Raffoul, Ottawa GOLD

What's behind a headline, such as the one posted on the Canadian Broadcasting Corporation website, on August 17, 2005, "Microsoft beats Apple, files iPod patents"?! A friend popped me an e-mail this past week asking me what all this meant to the industry. As a "high tech patent person", I'm often asked these types of questions. So, I thought some personal investigation into Apple's troubles might interest our readers.

There has been a lot of buzz in the high tech sector about patents being enforced against some very high profile companies. In Apple's case, it has also faced some highly publicized roadblocks at the [US] Patent Office.

Apple is currently seeking to patent a "[m]ethod and apparatus for use of rotational user inputs", by Jeffrey Robbin, Steve Jobs, and Philip Schiller. The application has been rejected due to a number of existing patents, none of which, contrary to headline speculation, is a Microsoft-owned patent application by inventor John Platt to an "[a]uto playlist generation with multiple seed songs".

Recent news headlines have suggested that Microsoft's patent application tramples on the iconic iPod clickwheel, for which Apple is currently also seeking a patent. But the Microsoft patent application relates to the *organization and delivery* of digital media items based on a user's preference for certain media items over others, rather than a *rotational user input*. So, I downloaded from the US Patent Office the two rejections against Apple's patent application. Both are Non-Final Rejections, and neither cites the Microsoft patent application as being a factor. A Non-Final Rejection means that Apple can again attempt to argue or amend its application to overcome the rejection. This is a relatively common situation in the patenting process, whereby the Patent Examiner cites a number of patents/patent applications to try and force the applicant to narrow the scope of their patent claims. It's nothing new to either Apple or Microsoft.

The most recent Non-Final Rejection experienced by Apple cites seven separate patents and patent applications as the reason for an obviousness rejection. What many people may not know is that, generally speaking, when rejecting a patent application based on obviousness, the more patents or patent applications (commonly termed as 'prior art') cited in combination against a patent application, the weaker the rejection. So with all of this brouhaha, my prediction is that Apple will get their patent, in some form or another, for their iPod clickwheel, and all the questions will be put to rest.

Their own patent application troubles aside, Apple has found itself in the "hot seat" for other reasons of late. According to various reports, the company has been the subject of two separate patent infringement claims over the iPod.

A company called Pats-rights owns a patent called "Internet/Remote User Identity Verification", which they claim Apple is infringing. Reportedly, Apple's digital rights management system, known as Fairplay, may be in breach of this patent. The firm has been quoted as demanding 12% of Apple's profits earned from its iTunes and iPod sales. As this publication goes to print, there also appears to be formal legal action pending by Pats-rights against Apple.

Another claim has also been filed in a US federal court and charges Apple with breaching US patent rights owned by Chicago-based Advanced Audio Devices, entitled "Music jukebox", granted in 2003. As the title suggests, the patent relates to "a music jukebox which is configured for storing a music library therein". Allegedly, Advanced Audio Devices tried to negotiate a deal with Apple prior to filing that would have enabled Apple to use the technology, but with no success.

On the local front, there was recent legal action brought by JDS Uniphase Inc. and JDS Uniphase Corporation with a statement of claim related to intellectual property against Metconnex, an Ottawa-based company.

Metconnex, a relatively new company (founded in 2002), develops and supplies wavelength selective switch (WSS) modules for use in reconfigurable optical add/drop multiplexers (ROADMs). Interestingly, three of its seven senior executives were former employees of JDS Uniphase. Thomas Ducellier, co-founder and CTO at Metconnex, was formerly Director of Research at JDS Uniphase, Dr. Alan Hnatiw, VP of R&D at Meconnex, was formerly with JDS Uniphase, and Ken Scott, VP of Strategy at Metconnex, was formerly JDS Uniphase's VP of Business Strategy responsible for in-house M&A activities

In a statement made on August 4, 2005, Metconnex disclosed that "[o]n July 27, 2005, Metconnex Canada Inc. was served notice that JDS Uniphase Inc. and JDS Uniphase Corporation have filed suit with the Ontario Superior Court Justice with a statement of claim related to intellectual property. A suit was also filed on July 25, 2005 by JDS Uniphase Corporation against Metconnex Inc. with the United States District Court for the Central District of California."

Metconnex has stated "[it] will defend vigorously against these claims. Metconnex respects highly the intellectual property of others and equally expects others to respect its IP. Bolstered by recent design wins, Metconnex will continue to build its business by providing industry leading wavelength selective switching products."

In its filing, JDS claims that "Metconnex's misuse of JDS Uniphase's confidential information has provided Metconnex with a remarkable springboard into the sophisticated optical switching market." The lawsuit against Metconnex seeks more than $11 million in damages and claims that the founders of Metconnex sought to divert market share from their former employer's own customers using their patented technology.

The allegations have yet to be proven in court and Metconnex has filed its intention to defend itself. While the company has not disclosed the resources that

defend itself, it has received about $20 million in equity and operating capital financings from venture capital backers and private investors since it was founded in May 2002. Nevertheless, the total damages being sought coupled with the loss of intellectual property, would likely spell doom for this company.

The Metconnex legal embroil highlights some of the issues that arise when former employees leave a company and decide to start their own venture based on knowledge they obtained while at their previous employer. As a general rule, any confidential or proprietary information gained from being employed by a company remains the property of that company. Only the skills learned on the job belong to the employee.

So...back to the headlines....whether or not founded in truth, they have generated a great deal of chatter in our industry, and now you have glimpse of what's behind them.

Stephen Montgomery: Genetic Locksmith

Helen Ho, Vancouver GOLD

On March 9, 2004 I went to the ASI Exchange in Vancouver. As I was wandering around the exhibit floor a monitor generating colorful 3-D graphics caught my eye—I had spotted the Sockeye Genome Brower demo. I went over to the booth and introduced myself to Stephen Montgomery, who is a Ph.D. student in Genetics working on the project. I noticed his iron ring, and Stephen confirmed that he is also an engineer. As we chatted I found out that Sockeye is a java based application that is designed to allow genomic researchers to easily compare multiple gene sequences in 3-D side by side. Other commonly used applications are specifically designed to view information in the context of a limited number of sequences. This browser is designed to compare data sets across multiple species. Stephen explained to me that the general assumption is that genes that are the same across species, and more importantly possess common structures must hold some sort of evolutionary significance. I immediately started to wonder what I had in common with the cats and dogs in my neighborhood! Later, I caught up with Stephen after the show by email to ask him a few questions about Sockeye.

Aurum: How did you become involved with Sockeye?
SM: I became involved in Sockeye as part of my previous experience in engineering and *in silico* gene regulation analysis. I had worked on a senior project during my undergraduate degree on predicting patterns of gene regulation; I had no previous post-secondary biology experience but had been able to find a project at the BC Cancer Research Centre with Dr. Aly Karsan. This led me to contact with the Genome Sciences Centre and Dr. Steven Jones where, after some genetics training, I started a graduate degree in genetics at UBC during which my previous expertise was applied to aiding in in the creation of a software package which would be useful for comparative and regulatory genomics.

Aurum: What are you most proud of about Sockeye (i.e. how is this different than other genome browsers in use)?
SM: Great question. I think the coolest thing about Sockeye is how we integrate a large amount of data and analysis functionality within a single application. Users can easily pull up related genes from different organisms and perform dynamic analyses to observe the similarities amongst these genes. Furthermore, the results are displayed in the context of known annotation. This is very different than most browsers, which do not have dynamic analysis capabilities. It also allows a user to very easily keep in mind the known functions in a particular piece of DNA sequence when simultaneously looking at it for novel functions.

Aurum: How long has Sockeye been in development?
SM: Sockeye has been in development since August 2002. It has been the product of many dedicated individuals and interactions over this period of time.

Aurum: How many research groups are using Sockeye?
SM: Currently there are over 10 downloads a day, so it is hard to say. As for our active collaborations we have partnerships with research groups at the Centre for Molecular Medicine and Therapeutics, UBC, University of Calgary, the Sanger Institute, and here at the Genome Sciences Centre.

Aurum: What is the ensembl database (the data source) project?
SM: Ensembl is a software system that produces and maintains automatic annotation on metazoan genomes. Basically, they are a data source for genome sequence and annotation information for several different species (including human). They also provide specialized APIs for data retrieval. We use there data and API to access genomic sequence and annotation within Sockeye.

Aurum: How do users submit their own XML based data annotations. How do you control the schema of information as it grows? Is it a free for all or is there a recommended structure that researchers follow?
SM: I'm a bit unclear on this question. Users can define types of annotation in XML within Sockeye. They do this by editing a configuration file by adding information about the name of the object and how Sockeye should display it in 3D. The XML structure that users can use to add new annotation types is more or less static. We have tried to embodied a rich set of customizations and it is foreseeable that new attributes could be added but all the tags are specified in our user documentation from our website www.bcgsc.bc.ca/sockeye. I hope that satisfies your schema questions. The architecture of our XML configuration files has been more evolutionary than rigidly formalized.

Quick Facts:
Genome: "1. The total genetic content contained in a haploid set of chromosomes in eukaryotes, in a single chromosome in bacteria, or in the DNA or RNA of viruses. 2. An organism's genetic material." from Dictionary.com

Sockeye has been used to view similarities between the SARS virus and other related

What's going on with Northern Canada GOLD?

Verona Wong, GOLD Canada Chair

Members of Northern Canada Section, do you feel that GOLD activities in your area have slowed down? You think no young member is active? No, that's not true.

The previous Northern Canada GOLD Chair, Shyam Chadha, has moved on to other volunteer opportunities with IEEE. As a result, the GOLD chair position is become vacant. You can follow Shyam and enrich your professional life through volunteering. Become the next GOLD Chair! No experience required. Enthusiasm welcome. Please contact IEEE Canada GOLD Chair, Verona Wong at vwong@ieee.org.

Southern Alberta GOLD Events

Ahsan Upal, Southern Alberta GOLD Chair

September
Tour of an AltaLink 245kV Electrical Substation in Calgary

October
Presentation on Electronic Protection & Controls of High Voltaqe Equipment

For more information on these events, please contact Ahsan Upal at ahsan@ieee.org.

2005 IEEE PES T&D Conference Postponed

IEEE Power Engineering Society Governing Board has come to the conclusion that the most reasonable course of action, under the dramatic circumstances of devastation in New Orleans, is to postpone this year's Transmission and Distribution Conference and Exposition until next Spring. The events was to be held in New Orleans in October. It is felt that this decision is in the best interest of the participants and industry.

To support the great City of New Orleans and its wonderful team of volunteers efforts will be made to hold the event there next spring. The venue and dates will be announced later.