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Issue 2



Chairman's Corner

This is the second issue of e-Scanfax and it comes to you a little late because our Publications Chair, **Doug Staszkesky** has been stricken with a very serious medical condition. In the interim, several of us are trying to pick up Doug's duties and hopefully we can keep the next several issues coming to you in a timely matter. We all wish Doug a speedy and complete recovery.

It's budget time for the Chicago Section Executive Committee and we are planning some new and exciting events for 2007. A social event for members and their families is in the works along with a Section-wide Technical Conference. More on this as we firm these things up but in the meantime we will need a number of volunteers to pull this off. Interested? Contact me at <mailto:mailto:jazulaski@prodigy.net>.

Regards, John Zulaski



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Encryption's Transformation from Bad to Good

After his invention of **Pretty Good Privacy (PGP)**, an email encryption software package, **Phil Zimmermann** was investigated by U.S. customs as a threat to U.S. security. Indeed, in 1990, the use of encryption was legally questionable.

Phil, the keynote speaker at the **Illinois Institute of Technology Voice over Internet Protocol (VoIP) Conference**, was eventually cleared, and since then, encryption has gone mainstream. Legislation, such as Sarbanes-Oxley, now actually encourages data encryption. And, even the government uses Zimmermann's PGP.

The use of encryption continues to grow. Phil told the 200 people gathered on October 26, the first day of the two-day conference, which was co-sponsored by the IEEE Chicago Section: "We have no choice: We must encrypt VoIP."

Security is a threat to VoIP in a way that it isn't for the traditional Public Switch Telephone Network (PSTN), where wiretapping can occur with

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alligator clips at a phone box or at a telephone company and no where else. In contrast, with VoIP, software on one computer can compromise an entire network. Someone from across the globe could suddenly benefit from insider trading tips. An organized crime operative could use mp3 files of recent telephone conversations to extort money.

To guard against such a “man in the middle attack,” Phil developed Zfone, a system that creates and encrypts two session keys for each phone call – one for the sender and one for the receiver. Phil’s system then asks the two callers to recite the abbreviated codes out-loud to each other to see if they match. While Phil believes that relying on humans for the final verification is the most secure protocol, he is developing systems that match the codes by algorithms for internal applications at businesses such as banks which own their own Session Initiation Protocol (SIP) servers.

Encryption hampers wire-tapping, but Phil contends that Zfone hurts the bad guys more than the good. Phil’s Zfone encryption prevents organized crime from getting the content of conversations, which is what it is after. Government wire-tapping, on the other hand, focuses on analyzing traffic patterns, and intelligence agencies will still be able to do that.

Presentation and Potato Pancakes Very Compatible

On October 17, almost 100 IEEE members gathered at **Elite Electronic Engineering** in Downers Grove for a joint meeting of IEEE and the **Society of Automotive Engineers (SAE)**.

IEEE Electromagnetic Compatibility (EMC) Society publicity chairperson Steve Laya explained that the joint meetings are very popular: “It’s more exciting with more people. In addition to meeting with your regular members, you get to network with people you don’t normally see.” The presentation began with SAE Program Chair Ed Widder, Treasurer of the EMC Society Bob Hofmann, and **Fox Valley Sub-Section** Chair **Bernie Sander** updating everyone on the activities of their groups.

The evening’s speaker, **Bill Kimmel**, a well-known expert in the EMC field and principal of **Kimmel and Gerke Associates**, provided an overview of electromagnetic compatibility and how compliance requirements vary in different industries such as telecommunications, military, and automotive. And, he gave some tips on how to deal with EMC. Specifically, he reviewed what the requirements for a product might be based on where it is going to be, how to design to meet those requirements, and how to test that a product will survive in its environment. Finally, he encouraged all to document what they do for future reference.

In the question and answer, Bill opined that computer simulation software has been developed to predict Radio Frequency (RF) emissions but simulation technology has not advanced as far for RF immunity. He also favors the concepts behind simulation and modeling but indicated such tools have a long way to go to be efficient enough to be adopted routinely by manufacturers.

While the presentation was excellent, the "Oktoberfest" social hour – complete with bratwurst, potato pancakes, beer and German music – was also a big draw. Elite Electronic Engineering underwrote the free event, and they do know how to throw a party!

Engineers’ Noblesse Oblige as the World’s Consummate Problem Solvers

At the October meeting of the IEEE Chicago Section Career *Networking Group*, **Mike Birck**, Chairman of the Board of **Tellabs**, urged the 30 engineers gathered at the **DeVry** Addison campus to use their problem-solving skills to address four global issues: terrorism, dependence on nonrenewable energy, increasing medical costs, and global climate change. He gave facts and

examples about how to approach each problem, but, each time, admitted, “I don’t know the answer to this.” He did give some clues and encouraged engineers to put on their thinking caps. He posited that taking the politics out and thinking like engineers would be beneficial: Define the problem and solve it!

Engineers can tackle our dependence on nonrenewable energy, for example, with solutions such as ethanol. A clean way to turn coal into gas would allow us to use the energy stored in coal under Indiana and Illinois, which is more than that stored in the oil in the Middle East.

Lawyers and business people are usually in positions of policy-making authority on global issues, but engineers can contribute their problem-solving skills to such decision-making. Mike encouraged engineers to run for public office and for engineering organizations such as IEEE to step onto the global stage to address world issues.

He also urged engineers to solve a problem closer to home: their own demise. Today, less than 5% of graduating high school seniors in the U.S. are choosing engineering as a career. And, 80% of the world’s engineers now work and reside in Asia. Asia owns the world’s manufacturing base and is about to own the creativity base. A company can now hire eleven engineers in China for what it costs to hire one in the U.S. If the world is to benefit from engineers’ problem-solving skills, they can’t become extinct!

For more perspective on these global issues, Mike recommended the book, *The World Is Flat: A Brief History of the Twenty-first Century*, by Thomas L. Friedman.

LEDs Now Accent Architecture

Light Emitting Diodes (LEDs) illuminate which Chicago landmarks? After the “Oh pahs” at the Parthenon Restaurant in Greektown, **Erik Moser**, Commercial Engineer for **Osram Sylvania**, answered that question in his presentation on “**LEDs for Architectural Lighting**” for the **Industry Applications Society (IAS)/Industrial Electronics Society (IES)** dinner meeting on October 18th.

LED lighting is still very much under development, with package sizes and power supplies not yet standardized. According to Erik, the research focus today is on trying to get the trapped light out and increasing the conversion efficiency. Like all light sources, LEDs generate heat, but they do not radiate the heat: It needs to be conducted away. Erik showed projections of LED performance through 2010, but warned that what can be achieved in the laboratory is two years away from production.

What interested attendee Barry Feinberg, however, were the applications, “We know how it works,” he said, “but what’s interesting is how it will be used.” Twenty years ago, LEDs were barely able to light up the display on a calculator. More applications, such as traffic signaling, have appeared since 2000. The quick response rate of LEDs compared to incandescent lighting make them ideal for auto brake lights. And, because LED lumens per watt surpasses other “instant-on” light sources, LEDs are ideal for automobiles and emergency lighting, where power is limited.

Of the traditional lighting markets, LEDs biggest presence is in signage. The “Chicago Tribune” sign on the Tribune Tower, for example, is lit with LEDs.

Erik demonstrated how a LED light is a point light source which produces crisp shadows, making it ideal for architectural accent lighting and for architectural grazing and edge light. The Riverbend building at 333 N. Canal features blue LEDs that “graze” the North side of the building. The Goodman Theater downtown gains its colorful façade from LED lighting. And, LED lighting creates the changing faces on the Crown Fountain in Millennium

Park.

With LEDs impressive performance compared to other lighting sources, expect to see more and more new applications.

Upcoming Events:see [IEEE Chicago Calendar](#)

Officer Profiles

*We'll periodically put profiles of Chicago **IEEE** Section officers here so you can learn more about the people who are leading the effort to make your section more useful to you.*



Ron Kollman IEEE Chicago Section - Vice Chair

I am Ron Kollman and currently Vice Chair of the IEEE Chicago Section. My involvement with IEEE started with the Microwave Theory and Techniques (MTT) Chapter in Dallas during my employment with Raytheon there. Returning to Illinois I decided to become involved through Norm Phoenix in the Electron Devices/Circuits and Systems/Solid State Circuits (ED/CAS/SSC) joint Chapter. I worked to get speakers and improve communication to members. Later Jack Sherman asked if I would revive the Antennas and Propagation/Microwave Theory and Techniques (AP/MTT) joint Chapter for Chicago. Taking the job for three years I brought speakers in from around the world to help educate engineers in specialties which are my passion. Passing the chair position for AP/MTT on and bringing a few people on board to help the new chair, I moved on to become more involved with the Chicago Section which included roles as Secretary, Treasurer and my current role.

The Vice Chair position is loosely defined and I have taken on the project of automating the Section's calendar of events. A Section's main function is to support the Technical Chapters, Subsections and Affinity Groups within the area of responsibility as defined by the IEEE Region. The Chicago Section encompasses a large population within Region 4 and it is a difficult task for the volunteers to handle all of the information pertaining to the Section. As such, and since we are a technical body, I have pushed to automate the administrative work as much as possible. With this in mind I am working with a graduate student at IIT, Adam Berg, to push a project forward to automate meeting announcements for the various entities that hold meetings and conferences.

Currently I am owner of a small business, Haynes-Bent, Inc., specializing in Electromagnetic Simulation and Design. I encourage potential entrepreneurs to create their own businesses as well. The beginning of this Millenium has not been good for engineers or employees in general. This may change but will always fluctuate and, although business has risks, the rewards can also be great.

Your membership in IEEE during the good and bad times is not a waste. There are actually two parts to IEEE for those engineers in the United States. IEEE proper (www.ieee.org) is a worldwide institution concerned primarily with technical information and is based in Piscataway, NJ. IEEE-USA (www.ieeeusa.com) is concerned more with the politics concerning engineers and is based in Washington, D.C. Most everyone is familiar with the former for technical needs but not the latter. I was involved in 2004 with a fly-in organized by IEEE-USA at our nation's capital to get our Representatives and Senators to try to help engineers stay in the field before we lose too much of our talent to other professions. The Engineers and Scientists are professionals and have driven this country's progress for centuries. You belong to a great

institution and I encourage involvement to keep us growing.

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