



# Madison Section NEWSLETTER

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April 2005

## Healthcare Communications – Challenges and Solutions in Sharing an Electronic Health Record Joint Meeting with UW-Madison Student Branch



**Date/Time:** Thursday, April 21, 2004, 6:00 PM - 7:30 PM (Evening dinner meeting!)

**Speaker:** Darren Berg, Technical Services Engineer, Care Everywhere Division of Epic Systems Corporation

**Location:** Room 1800, Engineering Hall, UW-Madison Campus - parking available in lot 17 next to Engineering (see map online)

**Menu:** Pizza and soft drinks (FREE for all members)

**RSVP:** by April 18th to Les Schroeder via email (l.schroeder@ieee.org) or call 608.444.9144

*Non-member guests are always welcome!*

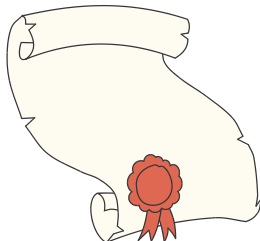
Computerization and the use of information technology is relatively new to healthcare when compared with a number of other industries. Only in the last few years has there been a concerted effort by the industry and by government to move healthcare out of the paper age and into the computer age with an Electronic Health Record (EHR). Like many emerging technologies, this has produced a wide variety of unique solutions, many proprietary, and not standards based. Healthcare providers have adopted many of these products, and face daily challenges with communications between systems within and across organizations. This has led to a number of hurdles in reaching an industry vision of a single patient chart that can be accessed seamlessly by any healthcare provider caring for that patient. The presentation will focus on what makes healthcare communication challenging, some industry standards for communication, overview of solutions employed by Epic and the direction the government and industry is headed for sharing electronic health records.

Darren Berg was born and raised in Edmonton, Alberta, Canada and holds a Bachelor of Science degree in Physiology as well as a Bachelor of Science in Electrical Engineering (Biomedical Engineering Specialization), from the University of Alberta. Prior to moving to Madison, Darren worked for the Glenrose Rehabilitation Hospital in Edmonton, working on three dimensional imaging modalities for scoliosis patients. Darren is currently employed as a Technical Services Engineer with the Care Everywhere Division at Epic Systems Corporation. He is responsible for the technical coordination and installation of the Care Everywhere product, which allows sharing electronic patient records between multiple deployments within healthcare organizations.

## New Senior Members

Congratulations to the following IEEE Madison Section Members who became IEEE Senior Members in the last few months:

Rad Barac  
Mitchell M. Bradt  
William E. Brumsickle  
Craig A. Heilman  
Ronald J. Pulvermacher  
Sanford Rotter  
Michael J. Schulte  
William A. Sethares



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## UW-Madison Student Section Officer Recognized

Magesh Thiyagarajan, Vice President of the UW-Madison IEEE Student Section, was recently awarded IEEE's Best Graduate Scholar Award of the Year 2004, from the IEEE Nuclear and Plasma Sciences Society.



Magesh Thiyagarajan was born in Chennai, India. He received the Bachelor of Engineering degree in Electrical and Electronics Engineering from the University of Madras, India in 2001. He received the prestigious Medal of Honor from the University of Madras for excellence in academic work during his undergraduate studies.

Mr. Thiyagarajan has recently completed the M.S degree in Electrical Engineering with a concentration on Plasma Engineering in May 2004 from the Department of Electrical and Computer Engineering at the University of Tennessee, Knoxville. There he was a Graduate Research Assistant in the Microwave and Plasma Laboratory, under the direction of Professor Igor Alexeff. His thesis work was on the Atmospheric Pressure Resistive Barrier Plasma Discharge for Biological Decontamination and Sterilization of Micro-organisms. This system allows the use of plasmas to kill bacteria, viruses and spores. The device works well, and is patented, licensed, and is generating royalties. He has designed a diagnostic Method of Ion Current Measurement in the Atmospheric Pressure DC Discharge that rejects plasma electrical noise. He was also actively involved in other research projects such as Experimental Ball Lightning, Plasma Stealth Antennas, MHDs and Plasma Thrusters.

Mr. Thiyagarajan has authored and co-authored nine archival papers in journals and conference proceedings in his area of research. He has been awarded the prestigious University of Tennessee Citation Award for Extraordinary Professional Promise for the year 2004. Mr. Thiyagarajan is a member of the honor societies Tau Beta Pi, Eta Kappa Nu, Order of the Engineer. He is a student member of the IEEE.

Mr. Thiyagarajan is currently concentrating on his Ph.D. dissertation research topic — developing a large volume laser initiated and radiofrequency sustained high pressure inductively coupled plasma source, at the University of Wisconsin – Madison.

He was nominated for this award by Professor Emeritus Igor Alexeff of the University of Tennessee at Knoxville.

*Magesh Thiyagarajan can be reached at the Center for Plasma Theory and Computation, University of Wisconsin – Madison, 1500 Engineering Dr., Madison, WI 53706-1609; Phone: +1 608 658-4542; E-mail: [tmagesh@ieee.org](mailto:tmagesh@ieee.org).*

## Songs in the Key of E



We all know electrification changed music (insert name of your favorite guitar hero here), but there's a whole other range of instruments that relies on electronics to work. From the Singing Arc to the spooky tunes of the Theremin to the techno pop of the synthesizer, learn how electronic instruments have married the interests of engineers and musicians. Check out the

IEEE Virtual Museums newest exhibit,

Songs in the Key of E, for a fascinating history of such instruments: <<http://www.ieee.org/museum>>.

The IEEE Virtual Museum is IEEE's award-winning outreach site for pre-college youth and the general public that uniquely combines engineering principles with the history and social context of technology.

## Salaries for U.S. IEEE Members Decline, According to Survey

BY CHRIS MCMANES

For the first time in more than 30 years, the median income for U.S. IEEE members fell. That's according to the findings of the 2004 IEEE-USA Salary and Fringe Benefit Survey.

Median incomes are based on primary income sources, such as base pay plus any earnings from being self-employed, commissions, or bonuses for members working full time in their specialty area. In 2003 the median stood at US \$99 500, a drop from the \$101 000 reported in 2002. Median salaries had shown substantial gains since 1994's figure of \$67 000. In 1996, the median was \$72 000; in 1998 \$82 000; and in 2000 \$93 100.

IEEE-USA's Internet-based survey, which went to more than 80 600 U.S. members, was conducted in late 2004 and asked about 2003 income. The 15.6 percent response rate and the 12 584 respondents were the highest ever recorded by IEEE-USA. The majority of respondents—11 182—were full-time workers. Of those, 10 114 were employed in their primary area of technical competence.

The latest survey also doesn't bode well for purchasing power, which showed its first decline since 1988. Adjusted for inflation and stated in constant 2004 dollars, 2003 purchasing power fell to \$102 501 from \$106 418 in 2002, a decrease of 3.68 percent. The 2003 figure is only slightly above the 2000 figure of \$102 480. Richard Ellis, who analyzed the survey results for IEEE-USA, says he was not surprised by the findings.

"The end of the dot-com and telecommunications booms had obvious negative effects on demand for people with skills in electrical, electronics, and computer engineering," says Ellis, who was director of research for the American Association of Engineering Societies' Engineering Workforce Commission from 1985 to 1996. "When you add in allowances for large numbers of foreign guest workers in the United States and the huge increases in work that's being outsourced overseas, then it's predictable that lots of U.S. high-tech workers would be unemployed and the price of



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- **Modern Wireless Data Communications: Preparing for Next-Generation Systems**  
*June 8-10 in Madison, WI*
- **Electrical Grounding of Communications Systems**  
*June 15-17, 2005 in Madison, WI*

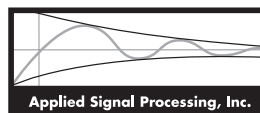
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College of Engineering Department of Engineering Professional Development

labor would go down, just like any price goes down when supplies are high and demand is low. That's just elementary economics."

Recent statistics from the U.S. Department of Labor support Ellis' contention. The department reported that in 2000, there were 444 000 employed electrical and electronics engineers, versus 363 000 in 2003, a drop of 81 000. The salary survey is the basis for the IEEE-USA Salary Service, a suite of tools allowing employers and individual IEEE members to benchmark technical professionals' salaries. The survey can be taken any time, and members who participate receive free access to the Salary Service. This career management tool, along with the survey, is available at <http://www.ieeeusa.org/careers/salary>.

U.S. IEEE members using the service also receive individual salary calculators for each year they take the survey. The calculator lets members gauge what their current salary should be, based on what others are earning, and what effect potential changes, such as getting an advanced degree or moving to another part of the country, might have on how much they could earn.



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