

N e w s l e t t e r

**Section Chair Column -
 Spring 2005**

David W. Ruden
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I extend my warmest greetings to all my fellow Section members. As the incoming section chair, let me introduce myself very briefly. Six years ago, Diana and I moved to the RTP area after 14 years in various parts of Florida. My background is Computer Science, and my focus lies in embedded-systems programming.



We are all volunteers at the IEEE Section level. Over the 6 years I've been involved with the ENC-Section, I've watched it evolve through the leadership of our previous Section-Chairs. Each has put great effort into improving the state of the Section. My most heart-felt thanks go to them all. I step into a top-notch, well-organized operation. I hope to continue with their good works and

keep the section activities vibrant, valuable, and responsive to the interests of our membership.

Our Section has 40 technical IEEE societies and affiliates, represented by 12 local Chapters. The Chapter function is the primary focus of Section administration, as it is the essential mechanism we have for exchange of knowledge, ideas, and cooperation amongst you, the membership. Our Chapter Chairs have done a super job with these meetings. And I know those of you, who have been able to attend, greatly appreciated the work they've done. As Section Chair, my job is to help our Chapter Chairs; but these meetings are for you, and done mostly by you and your colleagues. Your ideas and interests are most welcomed. Please connect with the Chapter Chair of your interest (ewh.ieee.org/r3/enc/whoswho.htm), or email me. Come to the meetings and just chat. It's amazing how many great ideas come from just that.

Beyond the Chapter interests, the Section has the freedom to hold meetings of almost any nature. I expect to use this freedom to offer a mix of both technical and non-technical topics. In April, for example, we will meet to reveal how IEEE-USA works with Congress on our behalf. Later in the year, we'll have our 4th annual Section-Picnic. As always, you are a big part of these meetings - give me your ideas, and I'll try to put it together.

And finally, the Section spends money to hold our meetings, to pass information on to you, and to cover expenses incurred by the volunteers. This money comes to the Section from a portion of your membership dues, and is a finite amount each year. We had a large surplus, but with increased Section activities over the past several years, this surplus has been consumed.

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While we accomplished some valuable results with the use of this surplus, we have recently had to become more conservative with our spending. Some of you may have noticed that we have no longer been able to provide sandwiches at our meetings. Our choice is between few meetings with more elaborate periphery (location, food, etc.), or more meetings with less elaborate perks. We choose to hold more meetings. Please come and join us. ♦

Membership Development:

Shobha Saraiya

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IEEE is serving members and the Engineering profession for 120 years. Through its members, the IEEE vision is to advance global prosperity by fostering technological innovation, enabling members' careers, and promoting community worldwide.

Efforts are underway to improve the membership for our Eastern North Carolina section. Currently, we are in the process to remind individuals (students, members, and senior members) who have not renewed their membership for the year 2005.

We also encourage promotions. If you know of any potential new Senior Members in our Section, please let Shobha know, and she can help them expedite the promotion process.

Here are key URLs for membership information and the renewal process:

www.ieee.org/organizations/rab/md/keyurls.html

Senior Membership:

www.ieee.org/organizations/rab/md/smprogram.html

Membership Forms: www.ieee.org/organizations/rab/md/membershipforms.html

Renewal: www.ieee.org/portal/index.jsp?pageID=corp_level1&path=membership/renewal&file=index.xml&xsl=generic.xsl

NOTE: IEEE provides a 50% reduction in membership dues if you are unemployed. Check the following web link for more info services1.ieee.org/membersvc/member/mem_intro.htm

Please go to www.ieee.org/organizations/rab/md/mgm.html and learn about the opportunity to earn awards for developing new IEEE Members. ♦

ENCS Engineering in Medicine and Biology Society Chapter News

Thomas Jepsen, Chapter Chair

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The ENCS chapter of the IEEE Engineering in Medicine and Biology Society is sponsoring a presentation on April 13 by Lucie Guo and Xianlin Li, students at the North Carolina School of Science and Mathematics and winners of the 2004-05 Siemens Westinghouse Competition in Mathematics, Science and Technology. The two students, with the aid of mentors at Duke University, developed a science project in which they discovered a gene that could be a marker for the early detection of breast cancer. They will discuss their project and their research methodology at the April EMBS meeting (4-13). See "IEEE Events this Spring" on page 5. This presentation is co-sponsored by the IEEE Women in Engineering affinity group.

We welcome suggestions for other programs and activities; one possibility would be joint sponsorship of a distinguished lecturer with the Winston-Salem chapter. Also, we are beginning to plan for the 2005 North Carolina Symposium on Biotechnology and Bioinformatics, to follow up on our successful NCSBB2004 conference. If you would like to be involved, please contact Tom Jepsen via email or call 919-933-0377. ♦

Employment

David W. Ruden

Our Employment Committee leadership is also changing hands. Esther Lumsden and Harold Meder have been terrific in making this a valuable part of our Section. New Employment Committee leadership is as follows:

Biotech/Health/Pharma:

Walter Heger and Pankaj Agarwal

Software: Manon Baratt and Lee Haslup

Make connections - this works for us if its worked by us! ♦

ENCS Communications Society Chapter News

Thomas Jepsen,
ENCS ComSoc, Chapter Chair
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The ENCS chapter of the IEEE Communications Society (ComSoc) co-sponsored a March 17 talk by Charles Lord on "ZigBee", a low speed/low power wireless technology based on the IEEE 802.15.4 standard. Charles explained how ZigBee is emerging as a low-cost alternative to Bluetooth in the personal area network space, and other applications where low power consumption is a requirement.

If you have a suggestion for a presentation, or would like to be involved in ComSoc planning and activities, please contact Tom Jepsen via email or call 919-933-0377; we look forward to your participation. ♦

K-12 Educational Activities

David W. Ruden
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We would like to get more science/engineering awareness in local K-12 education. If this is also your desire, please contact us. We've got a good organization, but this is one area we need help with. We have lots of ideas and programs to work with, so you will not be on your own here. But we need an extra hand to do it!

Email me directly if you'd like to help the community and us in this area. ♦

Electro-Magnetic Compatibility News

David W. Ruden

In March, the EMC Chapter held an election to transition leadership. The past Chair, Glenn Robb, has done an exemplary job driving the EMC Chapter, and we, the Section, extend our warmest thanks. Glenn would like to introduce the new EMC Chapter leadership as follows: New Chapter Chair is Dave Guzman. The new Chapter Vice Chair is Hasnain Syed Has and the new Chapter Treasurer is Glenn Robb. ♦

Student Activities – Your Ideas Count

Daniel House
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I'm Daniel House, the new ENCS Student Activities Chair. The role of the Student Activities Chair is to encourage student membership in IEEE, mentor student branches at colleges, universities, and technical institutes, and help get students more involved in activities. The more involved students are in college, the more likely they are to stay involved after college.

You can help. After all, you were there once. You were a student, perhaps involved in IEEE. When you graduated, did you stay in IEEE, or did it take you five or ten years to get back involved? What causes that 'gap'? What would have made you stay involved when you graduated?

I've started meeting with student branch officers and their faculty mentors and heard some good ideas for addressing the gap and just getting students interested in staying in engineering. There is a lot of energy and enthusiasm out there. One idea I recently heard involved email mentoring. This is where IEEE members in any field could sign up to answer 'periodic' email questions from a student about life in your company, government agency, educational institution, or chosen field.

I'm interested in hearing your ideas about getting and keeping students in engineering and in IEEE. In particular, what do you think about email-Mentoring? You don't need to make a commitment to sign up. – but I am curious about your opinion on the possible success of email-Mentoring. Should we pursue it further?

Please send me your opinions and ideas. Thank you. ♦

Robotics and Automation Chapter

Grayson Randall
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The R&A chapter is looking to put together a program this year that will have a better mix of automation as well as robotics. Kim Parker has agreed to help our chapter organize the program this year. Thank you Kim. If anyone has any suggestions or requests for

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speakers, please contact Kim or Grayson. We are also looking for interested people to help generate additional activities to increase participation in our chapter. If you would like to get more involved in robotics programs, please drop me a note. Please watch the IEEE calendar for specific upcoming programs.

For those that have requested additional information on the DARPA Grand Challenge autonomous vehicle race and the local Insight Racing team, Grayson has been asked to speak at the Embedded Systems chapter meeting on July 20th. Please watch the IEEE calendar for specific information concerning this meeting. Grayson will explain the DARPA Grand Challenge and will update everyone on continual improvements his team has made. ♦

Mapping The World's Topography from Space

Linda Hayden

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Mapping The World's Topography from Space -The Shuttle Radar Topography Mission (SRTM) was the topic discussed by Dr. Scott Hensley, Radar Engineer



Dr. Scott Hensley (GRSS Distinguished Lecturer and Radar engineer for JPL) and Ms. Eunice Smith (ECSU graduate student)

with NASA's Jet Propulsion Laboratory, during the March 3rd meeting of the IEEE-Geoscience and

Remote Sensing Society Eastern North Carolina Chapter. The topographic data generated by SRTM will be the standard for global topography data for decades to come and provides a valuable data set for accessing future changes to the Earth's topography.

The need to generate maps has existed for thousands of years, dating to the time of the first maps by the Babylonians, 2300 BC. Maps showing a global view of the Earth were already being generated by the Greeks in the 6th century BC. Scientific map making, or cartography, had its origins in Ptolemy's Geography written around 150 AD. Accurate modern map making beginning in the 18th century had to wait till explorers had adequate means to measure latitude and longitude. Topographic map making prior to the invention of aircraft and spacecraft relied on extensive field surveys whereby surveyors would generate vast triangular networks extending from the coasts to mountains such as the Great Trigonometric Survey of India (Mount Everest named after one of the surveyors (Sir George Everest). Modern map making uses sensors, radars, lidars, or cameras deployed on aircraft or



Dr. Hensley and CERSER Lost Colony researchers discussing the application of airborne interferometric radar mapping which penetrates the vegetation canopy.

spacecraft to generate highly accurate maps, both in two and three dimensions such as the Shuttle Radar Topography Mission, flown in 2000 AD.

The Defense Mapping Agency (later National Imagery and Mapping Agency (NIMA) and now the National Geospatial-Intelligence Agency (NGA)) has the mission of providing world wide mapping data for the

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Department of Defense. One of the key mapping products required for many applications is elevation or topographic data. After the successful flights of the Shuttle Imaging Radar SIR-C in 1994 JPL began considering the possibility of modifying the radar for a dedicated topographic mapping mission to generate DTED II products. NIMA and NASA funded the Shuttle Radar Topography Mission, which flew in February 2000 to collect and generate DTED II topography for latitudes between -57° and 60°. SRTM provided the first synoptic view of the Earth's topography over an 11 day mission between -57° and 60° latitude. SRTM was the first single pass spaceborne interferometer ever flown in space.

Dr. Hensley's current research interest also includes studying the amount of penetration into the vegetation canopy using simultaneous L and C band TOPSAR measurements and repeat pass airborne interferometry data, collected at lower frequencies. He is the GeoSAR Project Manager and is currently leading the GeoSAR Processing and Algorithm Development Team for an airborne interferometric radar mapping



Audience during the March 3rd lecture including Mike Muglia and representatives of the UNCCoastal Studies Institute in Manteo, NC

instrument using X and P-bands for mapping true ground surface heights beneath the vegetation canopy. This technology was discussed with regards to its applications to the project, supported by The Center of Excellence in Remote Sensing Education and Research (CERSER), entitled "Science, Settlement and Remote Sensing: Locating the Remains of the Lost Colony." ♦

IEEE Events this Spring

Wednesday, April 06, 2005, 6:30 PM

Adaptive MIMO OFDM Receivers: Implementation Impairments and Complexity Issues (SP Chapter meeting)

Speaker: Professor Ali H. Sayed,
University of California, Los Angeles
Location: MCNC Auditorium

Wednesday, Apr 13, 2005, 6:00 - 8:00 PM

EMBS Meeting - NCSSM Siemens Westinghouse Prizewinners

Speaker: Lucie Guo and Xianlin Li, North Carolina School of Science and Mathematics
Location: MCNC, 3021 Cornwallis Rd., RTP

Thursday, Apr 21, 2005, 6:00 - 8:00 PM

Congress & IEEE-USA Lobby Location: USA IEEE-USA's legislative agenda.

Speaker: Russell Harrison, Grassroots Activities for IEEE-USA
Location: MCNC (3021 Cornwallis Rd), RTP

Monday, May 16, 2005, 9:00 AM to Tuesday, May 17, 2005 1:00 PM

Managing Innovation – two day Industry Short Course

Speaker: Dr. Edwin R. Addison, Lawrence A. Husick
Location: Holiday Inn Sunspree Wrightsville Beach, NC

Thursday, May 19, 2005, 6:00- 8:00 PM

Congress & IEEE-USA Lobby IEEE-USA's legislative agenda. (May ENCS Section Meeting)

Speaker: Bill Carson, co-owner Altapass Orchard
Location: tbd

Thursday, June 16, 2005, 6:00 - 8:00 PM

MONEY MANAGEMENT SEMINAR (PACE meeting)

Speaker: Tim Luker, RVP Primerica
Location: tbd

For the latest updates and additions, please check the online calendar! www.federal-systems.com/ieee/calendar/htdocs/cal.html ♦

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Online Links

ENCS Homepage ewh.ieee.org/r3/enc/

ENCS Calendar
www.federal-systems.com/ieee/calendar/htdocs/cal.html

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