The Current Source

Newsletter of the Schenectady Section of the IEEE

Chairperson's Message

2011 is another year of growth for the Schenectady Section of the IEEE. This year we have added the Education Society Chapter, started and chaired by Jon Ashdown, a PhD candidate at RPI. This brings our section to eight societies and one affinity group – Women in Engineering.

The section has also grown in seniority adding fifteen new Senior Members and two Fellows. Joining our Senior Member ranks in 2011 are: Ishwara Bhat, Robert Delmerico, William Siegmann, Eric Kathe, Zhaoran Huang, Biplab Sikdar, Yun Zou, Huiming Bu, Mohammed Agamy, Luiz Claudio Araujo, Juan De Bedout, Probir Ghoshal, Suvranu De, Ruben Fair, and Michael Yakimov. Our 2011 Fellows are: Francine Berman, and James Lu. Congratulations to all!

The section has hosted twelve well-attended events this year, with an additional two scheduled for the Fall. The Education Society and the Signal Processing Society Chapters have leveraged the distinguished lecturers program and brought us: "The Science of Audio" by James Johnston, "Photo Forensics" by Nasir Memon, and "How People Have Won the Nobel Prize" by Robert Reilly. The section has experimented with different formats for the events with our Computer Society and Signal Processing Society Chapters hosting an afternoon seminar on Biometrics and Security in April. Our chapter chairs are continuously looking for speakers and volunteers; please contact them with ideas for events.

Continuing our tradition, the section has sponsored the Future Cities competition in January. Marc Happes, David Doria and I volunteered as event judges and we presented the award for "EXCELLENCE IN LOW IMPACT ENERGY GENERATION AND USE". The Future Cities Competition leads into National Engineers Week that is supported by our section's volunteers. This year's team included Louie Powell, Jamie Barrett, and Peter Sutherland; all three presented seminars that provide valuable PDH credits for the Professional Engineers in the community.

The section has also sponsored the Second New York State Superconductor Technology Summit 2011. Chandra Reis, our section's historian, was the section liaison in planning the event and along with Becky Nold, our newsletter editor, helped with the sign-up table. We are thankful for their committed service and for making our section stand out in the community.

Through the continued efforts of our student activities chair Marc Happes, and with the help of our PACE chair Ali Mohammadpour, the section has further strengthened the relationships with the student branches at RPI, Union, and SCCC. The section has cosponsored the Student Professional Awareness Conference at RPI; more details are available in the article from Ali.

The section was also present at the Sections Congress, a triennial gathering of section leadership sponsored by the Member and Geographic Activities (MGA) Board. Loken Bam traveled to San Francisco to represent the Schenectady section and he prepared a short article to share some of his experiences.

Most recently, our section helped organize the Central Area Industry Day that was held on October 21 at the College of Nanoscale Science and Engineering at SUNY Albany. The event was organized by Asif Hassan, the Central Area Chair, with the help from Peter Sutherland who served as our section's liaison. Peter and I participated in several teleconferences and took part in recruiting the speakers and volunteers. Peter also served as the Industry Support Chair. Andrew Delson, our student member from SCCC, volunteered as the audio/visual chair. Lokendra Bam and Jamie Barrett, from our section, and Fazel Yavari, our student member from RPI, helped with the sign-ups at the event. I prepared a short article to share some of the highlights.

We have prepared the nominations for the 2012 Executive Committee Society Chapters and we welcome all of you to engage us, volunteer, and help us serve you better. As usual, we will hold elections at our holiday luncheon in early December. Keep checking our section's web site and your email for the announcement.

In closing, I want to thank all our volunteers for making our section one of the most active sections in Region 1.

All the best,

Jovan Bebic
Chair,
IEEE Schenectady Section

2011 Section Congress

The IEEE is organized around both regional areas and technical societies. The Schenectady Section is the local regional organization, and engineers from many areas of interest interact here. The technical societies form the technical organization and many of the societies have local chapters under the Schenectady Section.

Just as the technical societies have conferences, the sections periodically have a world conference as well. **Loken Bam** represented our Schenectady Section at the 2011 World Sections Congress in San Francisco on August 20 – 22.

In addition to general sessions, Loken was able to take in seminars; one on Conducting Conferences and Workshops, another on Section Finances, and a third on preserving Section history.

On the final day of the Congress, during the closing ceremony, several recommendations were adopted by primary section delegates. This is one way the membership voice can be transmitted back to IEEE.

The final five recommendations selected include:-

- IEEE to develop a comprehensive long-term strategy to increase the number of next generation youth pursuing science and engineering careers.

- As members maintain their IEEE membership over many years, IEEE should reward them for their loyalty. Create Global Fidelity Programs including: (a) Membership recognition at 5-10-15-20 years of membership (b) Bonus might include reduced fee, IEEE merchandise, etc.

- IEEE membership should include a Society membership as part of the basic membership fee.

- Increased support to students in technical activities with grants to attend conferences and organization of technical competitions.

- To encourage interest among pre-university students in engineering careers, IEEE to publish a periodical (paper or electronic) targeted at high school students that highlights engineering activities of interest, and has articles promoting the benefits of an engineering career.

Concluding his report, Loken expressed thanks for the opportunity to attend the Sections Congress, which was an IEEE World Gathering.

2012 Section& Chapter Nominations

Executive Committee
Lokendra Bam, Chair
W: 334-6054
lokendra.bam (at) ge.com
Kristin Short, Vice Chair - Treasurer
k.short (at) ieee.org
OPEN, Vice Chair – Secretary
Maja Harfman Todorovic, Vice Chair - Membership
Maja.harfman (at) ge.com

Signal Processing Society
David Doria, Chair
daviddoria (at) ieee.org
Fred Wheeler, Vice Chair
fred.wheeler (at) gmail.com

Women in Engineering
Haleh Najafzadeh, Chair
najafzha (at) ieee.org
Mahsa Tourgoli, Vice Chair
Tourgoli (at) slu.edu

Education Society
Jonathan Ashdown, Chair
jonashdown (at) ieee.org
Keion M Clinton, Vice Chair, Programs
clintokm (at) sunysccc.edu
Donald L. Riggs, Vice Chair, Membership
riggsd (at) sunysccc.edu

RPI Student Chapter
Partha Panwala, Chair
panwap (at) rpi.edu
Richard Radke, Faculty Advisor
rjradke (at) ecse.rpi.edu

Union College Student Chapter
Matthew Marchesani, Chair
marchesani.m (at) ieee.org
John Spinelli, Faculty Advisor
spinellj (at) ecse.rpi.edu

On the web at:
http://www.ieee.org/schenectady

Power Engineering Chapter
James Barrett, Chair
Jbarrett (at) msepower.com
Bo Yang, Vice Chair - Secretary
bo2.yang (at) ge.com
Holden Tseeng, Vice Chair - Programs
htseeng (at) cgpowersolutions.com
Ali Mohammadpour, Vice Chair – Membership
mohama3 (at) rpi.edu

Computer Chapter
Frank Wickham, Chair
fwickham (at) ieee.org
Howard Halstead, Vice Chair
halstead (at) ieee.org

Industry Applications Society
Jeremy Thomas, Chair
jeremy.thomas@ge.com
Aboozar Ghavami, Chair
aboozar_ghavami@yahoo
Brent Vild, Vice Chair, Secretary
BrentVild (at) eaton.com
Siavash Sadeghi, Vice Chair, Programs
sadeghi_siavash (at) ieee.org

Computational Intelligence Society
Xue Ya, Chair
xueya (at) research.ge.com
Rui Xu, Vice Chair
xur (at) ge.com
Dongui Wu, Vice Chair
drwu09 (at) gmail.com

Electron Device Society (EDS)
Behroos Nakhkoob, Chair
nakhkb (at) rpi.edu
Fazel Yavari, Vice Chair
yavarf (at) rpi.edu

Engineering in Medicine and Biology Society (EMBS)
Milos Todorovic, Chair
milos.todorovic (at) ge.com
Judy Kilday, Chair
kildaj (at) yahoo.com

Nominations

This newsletter communicates the Executive and Chapter officer nominations to the Schenectady Section Membership. Officers in uncontested elections will be elected by acclamation at the December-Holiday lunch meeting. Volunteers are always welcome and are usually offered an open or appointed position until the next election year. Additional 2012 nominations may be communicated to the Section Chair, however, contested elections will precipitate a mailed ballot.

Do you have a flair for graphic design and an ear for news? Your present newsletter editor would gladly yield this position to a new, energetic volunteer!

Student Professional Awareness
RPI 2011 IEEE S-PAC

Student Professional Awareness Conferences (S-PACs) explore the subjects that affect engineers' careers, regardless of how well engineers prepare themselves technically. First introduced in 1979, S-PACs are an effective vehicle to transmit the professional awareness that enhances the technical education students receive in engineering school. S-PACs provide an opportunity for students to learn about non-technical aspects of professional success from the varied experience of successful engineers. The conferences have potential to increase student membership and to encourage ongoing participation in IEEE. S-PACs are becoming a strong force for improving the electrical engineering profession over the coming years.

A Student Professional Awareness Conference was held by the RPI IEEE Student Branch at Rensselaer Polytechnic Institute, on September 24th at Rensselaer Student Union. The event was supported by Cypress semiconductor and IEEE Professional Activities Committee for Engineers (PACE) Network. With about 70 attendees, the event taught skills on leadership, networking, and navigating a successful career. Presentations from IEEE national speakers, Jignasa Ray on "networking for the career you want", and Carl Selinger on "stuff you don't learn in engineering schools", as well as a presentation from Dr. Sam Salem from GE Energy on "leadership, networking, and life after college" were well received by the audience. Prizes were also raffled off including PSoC kits from Cypress Semiconductor, t-shirts, books, and an iPod Nano. Overall, the event attracted a large audience and promoted professionalism and the presence of IEEE across the RPI campus. *- Ali Mohammadpour, PACE Chair*

2011 Section Events (January – August)

Applications of Graphene in Energy Storage	Energy Sources for the Future
The Science of Audio	How People have Won the Nobel Prize
Photo Forensics	Bigger than Photovoltaics in New York, Solar Energy
Can Biometrics Improve Security	New York State Superconductivity Summit 2011

Lunch events are held on average once per month. Most members are receiving notices electronically for every event. If you are not, please update your profile on the IEEE website. Events are also advertised on the local Section website at http://www.ewh.ieee.org/r1/schenectady/events.html . Please check often! Reservations are required due to the cost of the lunch (as paid by the Section). All lunch events are free for IEEE members who RSVP by the deadline,

What do __you__ want to hear about?

If you have suggestions for Section Event speakers or topics that might be of interest to the members, please contact the Section Chair, Jovan Bebic, jbebic (at) ieee.org, or the Meeting Coordinator, Lou Tomaino, l.tomaino (at) ieee.org

A Brief History of the Internet

On October 18, 2010, Union College and the Schenectady Section were pleased to host the 71st Steinmetz Memorial Lecture. The speaker was Professor Leonard Kleinrock, who gave a colorful and exciting look into the creation of the Internet. Starting with the early work on packet switching he gave a description of the critical events in the growth of the Internet. Kleinrock then presented a vision of where the Internet is heading with a focus on the edge where user participation, flexible applications and services, and innovation are appearing. One very interesting aspect was a discussion of what could or should be different with structure and control of the technology – the present system having started with no knowledge of the reach and global participation that was to come.

Professor Leonard Kleinrock is Distinguished Professor of Computer Science at UCLA. Known as a "Father of the Internet", he developed the mathematical theory of packet networks, the technology under-pinning the Internet, while a graduate student at MIT. This was in the period 1960-1962, nearly a decade before the birth of the Internet which occurred in his laboratory when his Host computer at UCLA became the first node of the Internet in September 1969. He wrote the first paper and published the first book on the subject; he also directed the transmission of the first message ever to pass over the Internet.

Call for Contributions

The Current Source is always open for contributions for future newsletters. Do you have an article about a historical moment, a future event, or a notable discovery that might be of interest to the local IEEE community? How about a picture of some momentous occasion? Please contribute! We do however have to reserve the right to refuse any material of a commercial nature. *The Current Source* is published by the Schenectady Section of the IEEE. If you are interested in volunteering for *The Current Source* or wish to submit material for consideration, please contact the editor.

IEEE Region 1, Central Area Industry Day

The 2011 Central Area Industry Day was hosted at the College of Nanoscale Science and Engineering at SUNY Albany on October 21. The event brought together the leaders from industry academia and IEEE for the day to explore the role of IEEE in bringing industry and academia together. The event was organized by the Central Area Chair Asif Hassan, who also served as General Chair. Pascal Nsame, the chair of the Green Mountain Section served as the Technical Program Chair, and was instrumental in pulling the event together. The event drew over fifty participants, who were welcomed by Dr. Charles Rubenstein, IEEE Region 1 Director.

The program included five keynote presentations that covered best practices in collaboration between academia and industry. In the morning session, Dr. Michael Liehr, VP of research at College of Nanoscale Science and Engineering provided an overview of the college and of various available models for collaborative research. He was followed by Dr. Percy Gilbert, VP of technology development at IBM who talked about the state of technology and the technical challenges related to making continuous improvements. Dr. Bruce Fardanesh, Chief Technology Officer at NYPA, then changed the pace "from micro and nano to mega and giga" and talked about the research that NYPA is doing with collaboration with US universities.

The afternoon session keynote presentations were opened by Dr. Mohamad Savan from Polytechnique in Montreal Canada, who talked about the exciting field of biomedical engineering and emerging brain-machine interfaces. He was followed by Dr. Kannan Tinnium, the Power System Platform Leader at GE Global Research, who talked about GE's approach to developing products and services for smart grid.

The program included additional presentations, five from industry and seven from academia, all on the theme of exploring various models for collaboration between industry and academia. Both the industry and academia are experimenting with several fascinating new models that are making strides to remove the barriers to entry and increase entrepreneurial participation from the broadest base possible. While it is still early to evaluate the effectiveness of these new models compared to more traditional hierarch-ical organizations, it is clear that they are appealing to grad-uate students and are catching the attention from investors.

. *– Jovan Bebic, Chair Schenectady Section of IEEE*

Your Story, My Story, History

Whether you are a history buff or not, you have to admit the Schenectady Section has a history to be proud of. Right now, the Section is without a historian and we'd welcome a volunteer for that position! Not sure what a Section Historian does? Read on.

Loken Bam attended a workshop on Preserving Section History (see article above) and has information on a new wiki web tool for Section History. A Section Historian would help with learning about the tool and encouraging members to use it. The IEEE History Committee and its staff supply this Global History Network (GHN) wiki platform to facilitate recording history, including IEEE Milestones, topic articles, first-hand histories, archives, and oral history interviews.

To learn more about IEEE GHN, go to this link and log in with your IEEE web account. You may choose to start with 'First-Hand Histories' if you have personal history to record. The histories can be either institutional or of local technological heritage.   http://www.ieeeghn.org/wiki/index.php/Special:Home

Dr. Manoj R. Shah has been awarded the very prestigious IEEE Nikola Tesla Award for 2012. This is the highest award by the IEEE in Electric Power Engineering, and is 'given to a team or to an individual that has made an outstanding contribution to the generation or utilization of electric power'. Congratulations, Manoj!!

Biometrics / Security Seminar

On April 29, 2011 the Computer Society and Signal Processing Society Committees co-sponsored the Biometrics/ Security Seminar at College Park at Union College. This was an all-afternoon event and there was certainly some involved event planning, as the schedules of high-level speakers rarely align and are often a moving target.

The trade-off for attendees was more "bang for your buck" with three very high profile speakers all in the same place. The new format paid off, as the event was a success! There were over 40 members in attendance, along with 18 guests. Speakers were: Nasir Memon, PhD, who spoke on "Photo Forensics - There is more to a picture than meets the eye". Nalini K. Ratha, PhD, who spoke on "Can Biometrics Improve Security?". and Marc A. Promutico, FBI Coordinator for the Albany Infragard Chapter, who spoke on "InfraGard's Role in Critical Infrastructure Protection". **- written with input from David Doria, picture by Howard Halstead**

Nalini Ratha (Research Staff Member, IBM), David Doria (Chair, Signal Processing Society), Nasir Memon (Professor, Polytechnic Institute of New York University), Marc Promutico (Special Agent, FBI), Jovan Bebic (Section Chair), Howard Halstead (Chair, Computer Society), and Frank Wickham (Vice-Chair, Computer Society)

IEEE-USA Government Fellowships:

Each year, IEEE-USA sponsors three qualified IEEE members to serve as government fellows: one Engineering & Diplomacy Fellow and two Congressional fellows. The fellows spend a year in Washington, serving as advisers to the U.S. Congress or key U.S. Department of State decision-makers. IEEE-USA's Government Fellowships link engineers with government, providing a mechanism for IEEE-USA members to learn firsthand about the public policy process through personal involvement.

The congressional fellowship consists of an appointment to the personal staff of a U.S. Senator or Congressman, or to the professional staff of a Congressional Committee. The Fellow, along with the Congressional sponsor and IEEE-USA, negotiates a starting date, although IEEE-USA recommends that Fellowship terms run from January 1st to December 31st. For an application Kit for the 2010 Congressional Fellowship Program, visit:
http://ieeeusa.org/policy/govfel/documents/cfappkit13_000.doc

The State Department fellowship begins in January of each year and offers an opportunity for an engineer to provide technical expertise to the State Department, and help raise awareness of the value of engineering input while learning about and contributing to the foreign policy process. For an application Kit for the 2013 Engineering & Diplomacy (State Department) Fellowship Program, visit:
http://ieeeusa.org/policy/govfel/documents/Stateappkit13.doc

The postmark application deadline for 2013 Fellowships is 16 March 2012. For more information, visit:
http://www.ieeeusa.org/policy/govfel/default.asp

Washington Internships for Students of Engineering (WISE)

SUMMER 2012 PROGRAM Monday, 4 June - Friday, 3 August: WISE seeks applications from outstanding engineering students who display evidence of leadership skills and have a keen interest in public policy. Minority students are encouraged to apply. Applicants should select a sponsoring society(s), fill out an application form, write two (2) brief essays in response to questions, arrange for two (2) faculty references, and forward an official transcript. The deadline for Summer 2012 applications is December 31, 2011. For more info and application forms, please visit:
http://wise-intern.org/application/index.html

"…one of the best summers of my life. One which truly transformed my dreams and goals. .when I left D.C. I really wanted to instill in my fellow engineers the appreciation of the interaction between public policy and engineering."
-- Marc Canellas, WISE 2011

Superconductor Technology Summit 2011

The IEEE Schenectady Section sponsored and helped organize the Superconductor Technology Summit on August 4 and 5, 2011. Business leaders, public officials and prominent scientists and engineers from the Capital Region and across New York State marked the 100th anniversary of the discovery of superconductivity by Kamerlingh Onnes. GE, Philips, SuperPower, and IEEE hosted the summit, which consisted of a banquet at the Glen Sanders Mansion and a day of speaking at the Schenectady Museum.

At the Summit, world-class speakers from industry, academia, and government discussed the current and future impact of superconductor technologies. In addition, they explored the State's unique opportunity to strengthen its presence in and benefit from business opportunities in superconductor technologies.

Among the twenty-three honorees recognized for their work in superconductivity in New York State were Dr. Ivar Giaever, 1973 Nobel Prize winner for his discovery of tunneling in superconductivity; Carl H. Rosner, founder of Intermagnetics General Corporation (Latham, NY), Richard Hitt of Hypres (Elmsford, NY), who drove the development of superconducting electronics prototypes; and Dr. Venkat Selvamanickam of SuperPower (Schenectady, NY), a pioneer in the development of high temperature superconductor wire. IEEE Schenectady Section member Kathleen Amm was inducted for her leadership as Technology Leader for MRI Technologies and Systems at GE Global Research.

A banquet address was given by Peter Gifford. Peter is the son of Bill Gifford, who invented the Gifford-McMahon Cycle over 50 years ago. Peter and Bill were honored for their leadership in cryogenic technology. The centennial address was given by Dr. Dirk van Delft, Director, Museum Boerhaave, Leiden, The Netherlands. Dr. Delft has written a biography of Kamerlingh Onnes who discovered superconductivity at Leiden University. A transcript of the speech is presented at the Schenectady Section website near the bottom of the Summit Event page. The direct link to the speech is:
http://ewh.ieee.org/r1/schenectady/Events/2011-08-05/ExcerptS%20SC%20Conf%20Address.docx

Be sure to attend the Holiday Luncheon and Introduction of Officers on December 2! Watch for the email announcement!