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CHAPTER REPORT

IEEE Members Voice and Raise the Importance of Science, Engineering and Technology at The Capital

By Fawzi Behmann, Vice Chair, ComSoc NA and Chair ComSoc/ SP/CS Central Texas Austin Chapters

As a senior member of IEEE and active volunteer in the Communications Society, I had the opportunity to participate in the Science, Engineering and Technology Congressional Visits Day (SET CVD), an annual two-day event held April 12-13 to bring scientists, engineers, mathematicians, researchers, educators, and technology executives to Washington to raise visibility and support for science, engineering, and technology.

The overall objective is to improve the innovative climate in the United States and the professional lives of America's technology professionals. Considering the tight budget environment and discussion of the 2017 Federal budget, it was timely to join other colleagues and express IEEE's position seeking sustaining research budgets and independence.

One of the objectives is to support maintaining National Science Foundation (NSF) funds to advance research. This improves America's STEM K-12 science, engineering, and math education program, enabling IEEE to collaborate with education institutions and industry to bring advanced technology to students in a simplified, innovative, compelling and interactive way, while equipping students with hands-on experience to prepare them as future engineers and scientists.

The second objective is to seek support of NIST funds to help American businesses succeed and enable IEEE collaboration with industry so American companies are strengthened to compete in the global market. NIST will contribute to the health of our research infrastructure, e.g. improving America's electrical generation and distribution systems, including promoting the use of alterative energy and the development of the Smart Grid.

For example, in the area of STEM, IEEE supports STEM initiatives with funding for K-12 and the PACE program for Regions 1-6. However funding is limited. On the other hand, the U.S. is endorsing the STEM program partially funded by the NSF. Such funding will help expand IEEE STEM activities in terms of outreach and coverage.

We are seeking STEM funds (from NSF and others) to implement the program and prepare students in the 50 states for greater challenges with an entrepreneurial mindset. The outcome is to eventually contribute to the economy with jobs and new products and services, and to maintain students' Interest in STEM careers and foster collaboration with academia and industry.

The Alliance for Science & Technology Research in America (ASTRA) recently surveyed six million high school students to determine their interest in STEM-related fields. Nearly 30 percent (more than 1.6 million) would like to pursue STEM careers in the future. Keeping STEM students from dropping out of the STEM talent pipeline is essential in meeting the future demand for US STEM jobs.

Science-Engineering-Technology Work Group

I had the opportunity to travel to Washington, D.C. as a part of the Science-Engineering-Technology Work Group to express the importance of research and development activities to the nations' economic growth and stability. On April 12-13 I joined with more than 150 scientists, engineers, and business leaders who made visits on Capital Hill as part of the 20th "Congressional Visits Day," an annual event sponsored by the Science-Engineering-Technology Work Group.

While visiting congressional offices I discussed the importance of the nation's broad portfolio of investments in science, engineering, and technology to promote our country's prosperity and innovation. I also spoke about maintaining the budget for NSF and research for STEM programs to fund initiatives to bring advanced technology such as 3-D printing, Science in a Box, Internet of Things in a Box, and others to students in more simplified, creative, and interactive ways. I also called for support to maintain the budget for NIST budget and research for standards development required for smart alternate energy distribution from the grid to consumers and vice versa.

More than 50 percent of all industrial innovation and growth in the United States since World War II can be attributed to advances pioneered through scientific and technological progress. Achievements from federally funded science, engineering, and technology include global environmental monitoring, lasers, liquid crystal displays, and the Internet, among many other scientific and technical advances.

The federal government supports a unique research and education enterprise that fuels the American economy. This enterprise provides the underpinning of high-technology industries and expands the frontiers of knowledge in every field of science. Much of this research is carried out at academic institutions across

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CHAPTER REPORT

Community Development Opportunity Through IEEE ComSoc Workshops in New Zealand

Nurul I Sarkar, Chair of the IEEE Joint NZ North, South and Central ComSoc Chapter

The IEEE New Zealand (NZ) Communications Society (ComSoc) Chapter is a joint chapter of IEEE NZ North, South, and Central Sections. Last year (2015) was very productive for us in terms of professional development of members in the wider community. We hosted several professional development programs, including an IEEE Distinguished Lecture (DL), invited speakers, and several workshops and seminars. While these programs were very effective for professional development of staff, tertiary students, engineers, and industry practitioners, we have not had a chance to work with local community schools in New Zealand. ComSoc chapter chair, Associate Professor Nurul Sarkar, took the initiative to organize IEEE workshops in the community schools around Auckland. One such event was held at the IQRA (http://www.iqra.org.nz/) Community School on Saturday 12 December 2015. This article highlights the motivation/background and the overall effectiveness of the IEEE workshops for the development of the local community schools.

IQRA is a distinct Auckland-based community school/academy, run by a group of dedicated volunteers/teachers. It aims to provide students ages 6 to 15 with a solid foundation of Islamic knowledge and ethics through technology enabled methodologies supplementing religious education to the traditional primary, intermediate, and high schools. The classes are held once a week mostly on weekends at the Mount Albert community complex (Rocket Park), Auckland. We worked with IQRA Academy and introduced IEEE activities to students and parents through seminars/workshops. The

Associate Professor Nurul Sarkar delivers lecture addressing IQRA students and parents.

ComSoc Chapter Chair with IQRA teachers and students.

children are very talented here and are highly motivated to learn and find a link between Quran and science/technology. The IEEE workshop was very effective in meeting their requirements.

Another motivation for holding this workshop at IQRA was to meet and greet highly educated teachers and parents. The idea was to introduce IEEE to young minds (in terms of technological development and standardization on science and technology) who will be the future members of IEEE, especially when they enter the tertiary institutions.

The workshop began with a short PowerPoint presentation highlighting the IEEE activities in New Zealand and worldwide. An overview of IEEE was presented along with the role it plays in the

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CHAPTER REPORT

17th Congress of Spain IEEE Student Branches: Promoting Engineering and Research to the Next Generation of Scientists

By Oscar M Bonastre, Chair of Technical Activities, IEEE Spain Section

The 17th Congress CNR (http://umh.ieeespain.org/cnr/) for all Spanish IEEE student branches (IEEE SB) was held on 7–9 April 2016 at the Miguel Hernández University, Elche, Spain. The event was supported by the IEEE Spain Section, organized by the IEEE Student Branch located at the same university, and sponsored by industry and institutions located in the regional area. During three days, the congress attracted more than one hundred participants from all IEEE student branches distributed around the country. The event successfully met its main objective, which was to facilitate ample interaction among participants and invited speakers from academia and industry. The program included keynotes given by the Chair of the IEEE Spain Section, experts on emerging trends of optical communications, advanced space propulsion technologies, and IEEE distinguished lecturers on brain-machine interfaces.

The program also included one technical session to promote scientific research as one of the significant missions of IEEE for the advancement of engineering and to foster technological innovation and excellence for the benefit of the community. The talk was scheduled for the last day with the aim of integrating all information received through the Congress. The invited speaker was

Prof. Bonastre addressing his speech to IEEE SB community.

Prof. Oscar M Bonastre, Chair of Technical Activities (IEEE Spain Section) and Guest Editor of well-recognized IEEE publications including *IEEE Communications Magazine* and *IEEE Transactions on Multimedia*, among others. During the presentation, the current and future Ph.D. candidates received essential advice about how scientific research can promote discoveries that would foster innovation and help advance technology for the public good. In addition, the talk covered important issues for Ph.D. candidates such as the critical step in the scientific process dealing with the different categories of publications, depending on the stage of research or the level of information. To conclude, the talk gave examples of how to evaluate the message to be communicated, and essential guidelines to prepare, write, and submit a manuscript for peer review to an IEEE conference, journal, or magazine.

CHAPTER REPORT

Technical Colloquium Conducted by the ComSoc Chapter of Hyderabad Section

By N.Venkatesh, Chair, ComSoc/SPS Joint Chapter, IEEE Hyderabad Section

The IEEE Hyderabad Section includes a large and vibrant student community. On 29–30 January 2016, the Student Chapter of CVR College of Engineering, Hyderabad, organized a technical colloquium jointly with the ComSoc/SPS Joint Chapter of the Hyderabad Section. This event had several distinguished speakers from industry, apart from the IEEE Hyderabad Section, who addressed 330 participants, including 240 students and 50 faculty members from the college and 40 participants from other colleges. More than 130 of the participants were IEEE Members or Student Members, with the event providing the others with a good insight into IEEE and the motivation to join.

Abhinav Kumar talking about 5G.

An objective of the event was to acquaint the students with current technology. This colloquium provided two days of plenary sessions for formal discussions and presentations on current technical topics that made the students aware of many technologies from different streams, such as emerging trends in 5G communications, VLSI technologies, wireless communications for indoor positioning, the Internet of Things, electronic warfare, and radar target detection, among others.

The organizers and volunteers.

Mr. N. Venkatesh, Chair of the ComsSoc/SPS Joint Chapter and a Sr. Vice President at Redpine Signals, provided technical insight into the technologies of indoor positioning. The session covered historic and current navigation methods, and their current move into indoor use. It included details of wireless techniques in locationing using time of flight, received signal strength, and angle of arrival. It provided details of applications of indoor positioning: the locationing of people and assets and the benefits accruing for safety and operational efficiency in various environments. The session also covered the implementation of such systems using RTLS devices and software.

Dr. Abhinav Kumar, a Professor at the Indian Institute of Technology, Hyderabad, conducted a session on 5G communications. The session covered 5G scenarios and their challenges. The speaker compared various mobile communications and emerging trends in 5G communications. This lecture gave the audience an insight into future communication scenarios, the technologies

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CHAPTER REPORT

XII International Siberian Conference on Control and Communications (SIBCON-2016)

By Oleg Stukach, Tomsk ComSoc Chapter Vice-Chair, Russia

The flagship event of the joint COM/AP/ED/MTT/EMC Tomsk Chapter, the Siberian Conference on the latest advances in communications and control systems, was held in Moscow, the Russian Federation, on 12–14 May 2016. Approximately 180 participants from 23 countries presented 232 technical papers in 12 oral sessions. There were five workshops and seven short courses in addition to a number of related events. Discussions included emerging wireless related growth areas such as 5G technologies, networking control, electron devices, wearable electronics, Internet of Things (IoT), and coms/microwave technology in life. The Conference as a whole demonstrated continuing interest in analysis and control methods for communications.

The best activity of a chapter is the organization of conferences. To some extent we are united by a joint passion for organizing events. "Oh, conferences once again," you exclaim, "there are a lot of conferences worldwide." I will try to argue that our event is unique. It is completely unpredictable both in the planning and in the background. As a rule, well known flagship events of ComSoc and other societies follow a similar scenario. Also, participants know exactly what they can expect. They can plan their participation in individual sessions as well as in the cultural program.

Probably that model is not for us. In our conditions the planning of a conference 18 months to two years in advance is a great achievement. We had a few examples of needing to change the venue three days before the start of an event, despite preliminary agreements. A positive aspect of this event was more comfortable meeting buildings.

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Participants of the Siberian Conference on Control and Communications.

New Zealand/*Continued from page 2*

professional development of the members of the wider community. The potential benefits of joining IEEE were highlighted. A short video was presented highlighting the significant contribution made by IEEE in the field of science and technology. The students enjoyed the video presentation and were excited to learn more about IEEE's contributions worldwide. Finally, a number of quizzes were given to the students to test their knowledge and understanding of various aspects of IEEE. The students did very well with the quizzes, indicating they had learned about IEEE effectively.

Approximately 35 students and parents attended the event. With ample opportunity for discussion, people enjoyed talking and networking during lunch/refreshment break. The event was co-sponsored by IEEE ComSoc and the IEEE NZ North section. Organizing chair Associate Professor Nurul Sarkar received positive feedback from the teachers and parents, indicating that the event was successful.

In conclusion, IEEE NZ ComSoc workshops were very effective last year in terms of community development. We are hoping to offer more workshops of this kind to various community schools this year. We thank IEEE ComSoc and the IEEE NZ North Section for their support. We also thank Mr. Ataur Rahman (principal of IQRA Academy) for providing logistical support for the workshop.

At The Capital/*Continued from page 1*

the country, ensuring knowledge transfer to future generations of scientists, engineers, mathematicians, physicians, and teachers. Additionally, technology transfer from academic research adds billions of dollars to the economy each year and supports tens of thousands of jobs.

I was pleased to have the opportunity to participate in this event. I feel strongly that making our voices heard to our elected representatives in Washington is critical to ensure ongoing support of federal R&D programs. The most rewarding experience came when I was welcomed in the offices of Senator Ted Cruz, Senator John Cornyn, Rep. John R. Carter, and Rep. Joe Barton. Highlights of the two-day event included a series of briefings and talks by Members of Congress and executive branch officials including Matt Hourihan, Director, AAAAS R7D Budget and Policy Program.

The George E. Brown Award for outstanding leadership in support of federal R&D was presented to U.S. Senators Chris Coons (DE) and John Thune (SD), and Representatives G. K. Butterfield (NC) and David McKinley (WV). The awards recognized outstanding efforts to promote science, engineering, and technology on Capital Hill.

The Science-Engineering-Technology Work Group is an information network comprising professional, scientific, and engineering societies, institutions for higher learning, and trade associations. The sponsors represent more than one million researchers and professionals in science and engineering. The Work Group is concerned about the future vitality of the U.S. science, mathematics, and engineering enterprise. Additional information concerning the 2016 Congressional Visits Day can be found on the web at: www.setcvd.org

Hyderabad/*Continued from page 3*

involved, the emerging applications served by 5G, and the roadmap ahead.

The event also included a workshop on building devices for the Internet of Things that was conducted by Milan Tandel and Rajasekhar Reddy of Redpine Signals. The workshop was based on the WyzBee IoT platform created by Redpine Signals. One of the highlights of the workshop was a demonstration of the use of multiple wireless technologies within an IoT device. The hands-on example showed how data from sensors could be gathered using the Bluetooth Low Energy wireless protocol and transferred to a cloud server using a standard Wi-Fi link.

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SIBCON has a 20-year history, but for the first time it took place in Moscow, at the Higher School of Economics (HSE). Because of our geographic location, for many people participation in a conference is a rare event. That is why, since 2011, we have located the conference in different cities around the country. Here it is generally difficult to limit the time for presentations, as people want to spend a lot of time communicating and discussing reports. At SIBCON-2015 (see ED-S Newsletter, January 2016), despite planning for additional time, one session continued into the next day, and according to rumors, that was still not enough time. Truly there is nothing more valuable than the luxury of human communication.

The collaboration of industry and academia has great value for us, bringing together and cross-fertilizing ideas from applied areas that have many similarities. Such opportunities arise due to the support of the Conference by National Instruments Company and HSE. A number of papers addressed the problems of engineering design of cyber-physical systems. Significant attention was paid to the analysis and design of network control systems and communication. Also, the papers with applications to problems of measurement based on the National Instruments technologies were presented.

The major goals of the Conference, to bring together researchers from various fields, to advance the state-of-the-art of control theory and technology for communications, and to gain some general and unified perspectives in this interdisciplinary field of advanced research, were achieved.

There are two things that made our work much better. First is a revolutionary reorganization of MCE with additional service to the conference organizers, including cross-check, electronic copyright forms, PDF-express, etc. Second is the change of evaluation criteria for research activity. Many authors, to have stability in the job market, want to write papers indexed in databases. We did not pay attention to scientific writing before. Now we have the opportunity to choose to present the best papers among many submitted works. The percentage of accepted papers is now almost equal to 30 percent, which was almost unattainable previously. It is true that we have additional work due to the higher number of submitted papers submitted. As a result, we keep an eye on the increasing interest of ComSoc: more engineers and professionals are reading in English, and they compare their results with high quality papers. We hope that this sharp move to quality will continue in the following years.

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