



IEEE New York Monitor

The monthly newsletter of the NY Section

Advancing Technology for Humanity

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Welcome to a new edition of the NY Monitor!

The Editor writes:

I was the editor of this newsletter from January 2011 through June 2012. Now that I have been given the responsibility to edit it again I welcome all of you back to my work. As before I'll try to offer you a complete calendar of events planned by the NY Section and other IEEE Groups and Sections in our vicinity. Whenever possible we'll also keep you abreast of those happenings by publishing reports, photos, slide presentations. If you personally attended any of the sessions the reports and photos will rekindle pleasant memories. If you did not have the time to attend you will get to know of what you missed. This will also give you an idea of all our diversified activities and encourage you to participate in them for more knowledge or networking with peers. Through the Monitor we'll encourage all members, especially the younger generation, to contribute articles, view points, reports, photos and other informative items. The Monitor is constantly scanned by Google and other search engines. When an item is published here you have got an indelible reference to your work tucked somewhere in the cloud. You can include that reference in your resume

or in any other profile of yourself. That is a far better way to market your soft skills than to delegate that task to another human being. Do not for a moment believe in the myth that engineers cannot communicate. ***They can and they do communicate***, they sell their ideas to venture capitalists, they bid for projects, they pass on their experience to the next generation, and all of these depend on writing skills. Your first attempt may appear messy but we are here to give a hand. It is the IEEE's priority to help all colleagues to grow, be successful, to network and to disseminate information that will eventually advance technology for humanity.

An appeal to our Life Members: Please contribute articles to the Monitor. You can write about your professional experiences. That can help a person who is just starting his/her career in engineering. You have been a member of the IEEE for so many years because you found the engineering profession rewarding, interesting and also fun. You could tell the younger generation all about it. Thus, we may be able to keep engineers in our profession and not veer off to nonproductive financial services. Today all over the world we need more engineers and the IEEE

is in the forefront for fostering development of young people to meet that urgent need.

All of the above can be done *only* if you, the members of the NY Section, do collaborate with the editor, whoever it may be. For example, please notify the editor about any event your chapter or group may be planning. Please send a MS Word file, if any, on the event. A pdf flyer does not help, since we cannot embed a pdf inside a pdf. The editors are not omniscient. They have no way to know about your event if you do not notify them in time. If you have slide shows, presentations and audio-video clips of your events please try to park them in a cloud

storage and send its URL to the editor. Often it is not even possible to include more than one or two photos in the body of the newsletter. We want to serve you in the best manner possible but you must appreciate the human aspects of editing and posting of a newsletter. If you have comments and suggestions for improving the contents or the display of the Monitor please send them to a.dutta-roy@ieee.org.

Thank you and I wish you enjoyable reading.

Your editor
Amitava Dutta-Roy

IEEE NY Section officers for 2014

Section chair:	Neil Weisenfeld
Vice chair (Section activities):	Wilson Milian
Treasurer:	Kim K. Smith
Secretary:	Warner Sharkey
Junior past Section chair:	Dr. Shu-Ping Chang
Senior past Section chair:	Balvinder Deonaraine

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GREETINGS to all. As the Section Chair for 2014, I'm excited about serving in that capacity and am confident that the New York Section will benefit from a leadership team of dedicated and experienced volunteers and I look forward to working with them.

IEEE's mission statement holds that our core purpose is to foster technological innovation and excellence for the benefit of humanity. I have seen, first hand, the devastating effects of Hurricane Sandy on Region 1 and the subsequent focus in 2013 on infrastructure, resiliency and hardening to avoid a similar occurrence. It is important to note that our IEEE societies and, especially the members in the New York Section, represent areas of infrastructure including that of energy, transportation, communications, devices and components, computer systems and management. Accordingly, our membership is uniquely qualified to support the storm resiliency efforts being undertaken in our area in 2014 and beyond



to strengthen our systems by contributing to the design and implementation of projects. We must support them in any way we can. Such an endeavor certainly qualifies as *work for the benefit of humanity*.

I would like to thank all of you who have given your time as volunteers to IEEE over the past years and welcome those of you who have newly committed to serve as volunteers; I look forward to working with you.

Among the challenges facing us in the year ahead will be expanding our membership, maintaining our technological excellence and reaching out to our communities and schools to foster and advance interest in engineering as a career among students. I'm asking for your assistance in these endeavors.

Warm Regards,

Neil Weisenfeld, P.E.
Chair, New York Section IEEE



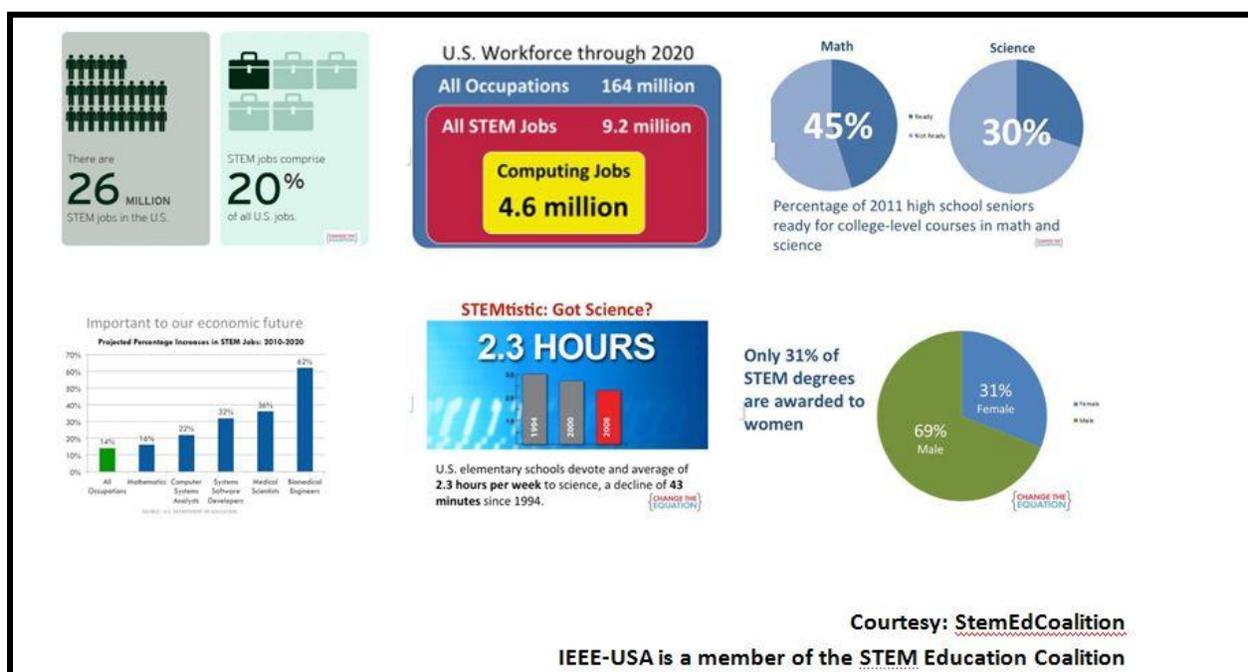
ACTIVITIES IN REGION 1

OUR NY Section belongs to Region 1 administrative unit of the IEEE. The director of Region 1 (aka R1) for 2014-2015 is Vincent Socci (Vince), Ronald A. Tabroff (Ron) the vice-chair, Charles Rubenstein (Charles) the secretary, Bala S. Prasanna (Bala) the treasurer. R1 has 22 Sections under its umbrella. The Region is vast and thus subdivided into four areas. Our own Robert Pellegrino (Bob) is the chair of southern area that includes NY Section. Bob is the point of contact between the Region 1 and New York, Connecticut, Long Island, New Jersey Coast and Princeton/Central Jersey. The other units of Region 1 are Northeastern, Central and Western areas.

Members of the NY and other Sections in the neighboring R1 areas are encouraged to participate in all events organized on behalf of the Region. We understand that it is always not possible to do so. There are practical problems of time and cost etc. In the Monitor we'll try to bring you the reports on those events so that you don't miss a beat.

During the last couple of months two very important events were realized by Section in R1. The first of them, a conference on STEM – Integrated STEM Education Conference (ISEC 2014) sponsored by the IEEE Princeton/ Central Jersey Section, IEEE R1 and IEEE Education Society. Below you will find a report and photos taken at the ISEC 2014 and compiled by your editor.

THERE is no doubt that the IEEE-sponsored STEM Conference at Princeton , NJ on 8 March, 2014 was a fantastic success. If you are interested (I think you should be!) to see the names of the speakers at various levels, keynote speeches and panel discussions you could go to the site: <http://ewh.ieee.org/conf/stem/> - Editor.



Impressions of ISEC 2014

Nita Patel, Keynote speaker at STEM

KUDOS to the organizing committee (Susan Donohue, Nagi Naganathan, Ashutosh Dutta & Vignesh Subbian) for the 2014 Integrated STEM Education Conference. The event held at Princeton University on Saturday, March 8, 2014 was a fantastic opportunity to connect educators, volunteers and those interested in advancing STEM



Nita Patel

education for a day of sharing ideas, hearing success stories and establishing collaborations for the future.

In celebration of International Women's Day, all of the keynotes were women prominent in technology. The day began with a funny, engaging keynote by Dr. Karen Panetta, Associate Dean of Graduate Education at Tufts University. Dr. Panetta spoke about inspiring the next generation of engineers by connecting them with ideas and projects that

demonstrate how they can make an impact on their communities and the world around them. Dr. Panetta also encouraged us to promote the incredibly diversity, not only technically but also socially, within engineering. "There truly are no limits," shared Dr. Panetta.



Dr. Karen Panetta

After the keynote, attendees dispersed to attend one of five (5) individual tracks. The tracks were K-12 STEM Pedagogy, K-12 STEaM (STEM + Art), Post-secondary/Higher Education Programs, K-12 Robotics and Women in STEM. I attended a talk by Frehiwot Whhib, where she presented some interesting research on the difference between social coping for men and women. She spoke of how these different strategies play a role in why there are fewer women in STEM professions and encouraged us to explore ways to provide more women-friendly environments. A team presentation by Julie Fetzer, Katherine Czerniejewski and Dana Voll followed. They discussed the importance and subtle differences in recruiting strategies and how they play a role in attracting women to STEM. Finally, I heard CJ Chung present the concept and success story of the first Global Robotics Art Festival and how encouraging young people to use their creativity by coupling it with technology.

Ms. Nita Patel (IEEE Women in Engineering International Chair) was the pre-lunch keynote. She shared statistics on trends for women in STEM and touched on just a couple of the challenges around the complex problem of engaging more girls in STEM fields. In fact, more women are graduating today and are doing better in school than boys; however, traditional stereotypes about inherent limitations continue to persist. "The key takeaway is that we need to articulate the difference between reality and perception and we make a change by influencing the influencers," shared Ms. Patel.

Dr. Alicia Abella (AVP Cloud Services Research Organization, AT&T) presented a keynote after lunch on why STEM education is vital for the Future of America. Highlighting the increasing demand for STEM workers, Dr. Abella urged us to not underestimate what the next generation can achieve. She shared several programs conducted by AT&T (some in conjunction with Princeton) that helped to highlight the incredible creativity and innovation of these young participants. "In just a few hours, these kids created something remarkable," commented Dr. Abella.



Dr. Alicia Abella

After this keynote, attendees once again were distributed among five (5) tracks. This time, the track themes were K-12 Integrated STEM, Issues and Perspectives in STEM Education, Integrated STEM in Post-secondary Education, 3D Printing/Design in Education and K-12 STEM Outreach. I attended the presentation by Elizabeth Bondi and Briana Neuberger on multidimensional comparison of project-based learning programs. It was interesting to see a classification for different learning styles (from (a) strict single teacher presenting to a large class of students to (b) small teams working collaboratively with instruction from a teacher). Although thorough research was not yet done, I found it interesting that there did not seem to be significant difference in education outcome in one method over the other. There were a few more sessions in the afternoon and I closed the day with a presentation by Srijoy Dutta and Rohan Mathur on a digital literacy project in India supported through EPICS. It was great to hear from these high-school seniors about developing, planning, and executing on a project to change a community.

Overall, the conference was a smashing success in my mind. I enjoyed speaking with the pas-

sionate educators in attendance and hearing the different, interesting topics around STEM

education. 

Editor’s note:

THE author of the above article Nita Patel , P.E., is a Systems and Software Engineering Manager at L-3 Warrior Systems. Nita is currently the Women in Engineering International Chair, on the Computer Society BoG and Eta Kappa Nu BoG. Outside of the IEEE, she is active with Toastmasters and the United States Chess Federation. She was one of the three keynote speaker at ISEC 2014. Her presentation may be downloaded from <http://1drv.ms/1kPMmYN>.

We also have the pleasure to give you a link to the STEM keynote presentation by Alicia Abella, PhD, AVP, AT&T Laboratories: <http://1drv.ms/1it9dep>. This presentation too may be downloaded from the site.

The STEM topic draws much attention these days, especially as it tries to attract more women. On December 11, 2013 the non-profit German Center for Research and Innovation in New York promoted a panel discussion on the topic of “Engaging Women in STEM: Perspectives from the United States and Germany.” Professor Iraj Kalkhoran, Associate Provost of Undergraduate Academics, Polytechnic Institute of New York University described the situation in the USA, especially at his Institute. To see and hear the speeches and the panel discussion go to the podcast at <http://www.germaninnovation.org/news-and-events/podcasts?year=2013> . The German Center has promoted many seminars that describes science and technology in the USA and Germany.



Three pictures at the IESC 2014 were taken by our Southern Area Chair, Robert Pellegrino



Ashutosh Dutta, Karen Panetta



L to R – Nagi Naganathan, Rebecca Mercuri,

Ashutosh Dutta and Habib Ahson



Kevin Meredith, Rebecca Mercuri

More pictures of ISEC 2014 may be downloaded from please go to: <http://goo.gl/4PBf4R>. All those pictures were either taken or compiled by our own Dr. Ashutosh Dutta, Coordinator of R1 Employment and Career Activities

2014 IEEE R1 Student Conference at NJIT, a report

Jonathan Avila, IEEE R1 Student Activities Committee Vice Chair

The Region 1 Student Conference was held at the New Jersey Institute of Technology on 28 and 29 March, 2014. One hundred and fifty registrants attended the two-day event. Students from as far north as the University at Buffalo, University of Vermont, and University of Maine, among others, were in attendance.

The event was coordinated in a mere 2 1/2 months by a team of mostly new undergrad and graduate volunteers recruited just in time for planning at the beginning of the year. Babak Beheshti (Chair, R1 SAC) set the wheels in motion by providing a nice foundation for the committee's student volunteers to take and embrace this conference as their own. Led by 22 Year-Old NJIT Alum Jonathan Avila (Vice



Chair, R1 SAC), the student volunteers coordinated everything from student branch outreach, event competitions, advertisement, company sponsorship, food and drinks, registration, and among other things, budgeting. Grant Griffiths (Chair of Regional Events, R1 SAC) produced many of the materials used to promote the conference, along with Anish Kshatriya (Webmaster, R1 SAC) and Benjamin Franco (Social Networking Chair, R1 SAC) whose website and social site skills, respectively, proved invaluable in the lead up to the conference.

The Conference started off at night on 28 March with two events running simultaneously at NJIT: the conference STEP Event (Student Transition and Elevation Program) and Micromouse Competition Warm-ups. The STEP

Event was initiated by Suzanna Schmeelk (Chair of Graduate Affairs, R1 SAC) with support from Tejas Addagarla (Vice Chair – Graduate Affairs, R1 SAC), with the help of Elie Rosen (PCJS YP Chair) and Rob Vice (R1 YP Coordinator), as they planned the agenda for the STEP Event which was held in Tiernan Hall. In a building adjacent to the STEP Event, student members from across the northeast came to make last minute adjustments to their robots and algorithms during the Micromouse Competition Warmups, which was held in the Faculty Memorial Hall ECE Student Lounge – Home of the IEEE NJIT Student Branch. Soon Wan (R1 Membership Development Chair), a long-time Micromouse Competition Coordinator, received help from the fine student volunteers in the NJIT Student Branch. Led by Daniel Pinedo, the Local Steering Committee consisting of Jonathan Agudelo, Saumil Patel, and Stephen Senophat, among others, brought the maze in for a packed but productive session of testing and refinement.

On the following morning, the venue was shifted to the Campus Center Atrium of NJIT, and the conference opened with two informative presentations by Michael Williams (Treasurer, R1 SAC) who introduced Dr. Kapil Dandekar (Drexel University) on the IEEE Engineering Projects In Community Service (EPICS) Program, and by the Keynote Speaker Nancy Ostin (IEEE-HKN Director) on the merits of becoming an IEEE - Eta Kappa Nu member, professionalism, and getting involved. A short recess occurred before the second half of the morning was filled by Student Branch Showcase presentations from the students themselves! Coordinated by Bala Kotharu (Chair of Student Organizations Subcommittee, R1 SAC) and his team consisting of Elizabeth Amyouny, Wei Wei, and Katalin Frolio (Northeast, Western, and Southern Regional Officers, Respectively in R1 SAC), students branches submitted about 10 different 10-minute powerpoint presentations, showcasing different projects, fundraising initiatives,

awards, and activities that they have been involved in.

Mouser Electronics sponsored an hour-long lunch, and the Badges and Lanyards for the event. The sponsor also had a table where many students interacted with the vendor to know more about the company and its products. Rob Vice and Elie Rosen conducted a panel session for Young Professionals that lasted one hour. Students received some “heart-to-heart” advice about professional life, including career transitioning, day-to-day job activities, graduate school vs. working in industry, and how the IEEE as a professional organization can enhance and augment their career. Students were also encouraged to ask questions pertaining to these topics among others.

Presentations ended with a short discussion on student involvement in R1 SAC, featuring a brief presentation by Paola Garcia-Cardenas (Region 9 Relations Officer, R1 SAC) on reaching out to other regions to understand how they do business, and how we can learn from them as an organization, as a possible avenue for involvement with Region 1 Student Activities.

Students were then free to participate in various competitions throughout the day. The Micromouse Competition, coordinated by Soon Wan, was held in the atrium after student attendees volunteered to help move the Micromouse Maze from Faculty Memorial Hall to the Atrium. Soon spent a good part of the morning rearranging the very maze he repainted to its competition layout. Thirteen groups were registered to participate. Winners from the Micromouse Maze included:

1st Place – UMass Amherst –
Micromouse: Venus – Team Members:
Justin Marple, Rohan Kapoor, Aaron Lucia, Dylan Pare, Aaron Dunbrack

2nd Place – University At Buffalo –
Micromouse: Microbull - Team Mem-

bers: Mack Ward, Kyle Thompson, Joe Materski, Scott Will

3rd Place – Stony Brook University –
Micromouse: Stuart Little - Team Mem-
bers: Shiwei Fang, Saket Ati, Thomas
Bundy, Steven Leo, Neeshim Roy

The Ethics Competition, coordinated by Roger Avendano (Recording Secretary, Interim Chair of Communications, R1 SAC), was held in Faculty Memorial Hall. About 9 groups were placed in different classrooms in the building to ponder over this year’s prompt before presenting a 10 minute case to a panel of judges. Winners from the Ethics Competition included:

1st Place: Stevens Institute of Technology (2nd year running)

2nd Place: University of Vermont

3rd place: New York University

The Paper Competition, coordinated by Lance Doiron (Industry Relations Executive, R1 SAC), had the presentation portion of the competition held in the Atrium as well. Paper submissions are to follow.

The T-Shirt Competition was also coordinated by Roger Avendano, where students could

submit their votes on their favorite Student Branch T-Shirt over the internet. With only one winner, most students voted for this student branch:

Winner: Long Island University

Students returned for an Awards Ceremony and Dinner held at the Best Western – Robert Treat Hotel. Tom Brennan, Vice President of the NY/NJ Chapter of OWASP, served as the dinner speaker for the night, as students were treated to dinner afterwards. Vince Socci (IEEE R1 Director) handed out various awards and participation certificates for the conference competition winners and participant student branches during the morning Student Branch Showcase.

Planning for the next conference will begin in late April, alongside a parallel effort to plan for an offshoot event to be held again in Newark, NJ – the 2014 R1 Student Branch Leadership Workshop, which will utilize hotel rooms previously not used in the 2014 Region 1 Student Conference.

Pictures taken by Jonathan during the Students’ Conference may be found at:

<http://goo.gl/wWeMjb>. You can see the pictures individually or as a slide show. 

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Micromouse competition

Thanks to Soon Wan, responsible for membership development and SAMIEEE at Region 1 and the coordinator of the micromouse competition, general pictures of the Students’ Conference and the competition available at <https://www.dropbox.com/sh/lu68dfavvdp4au>

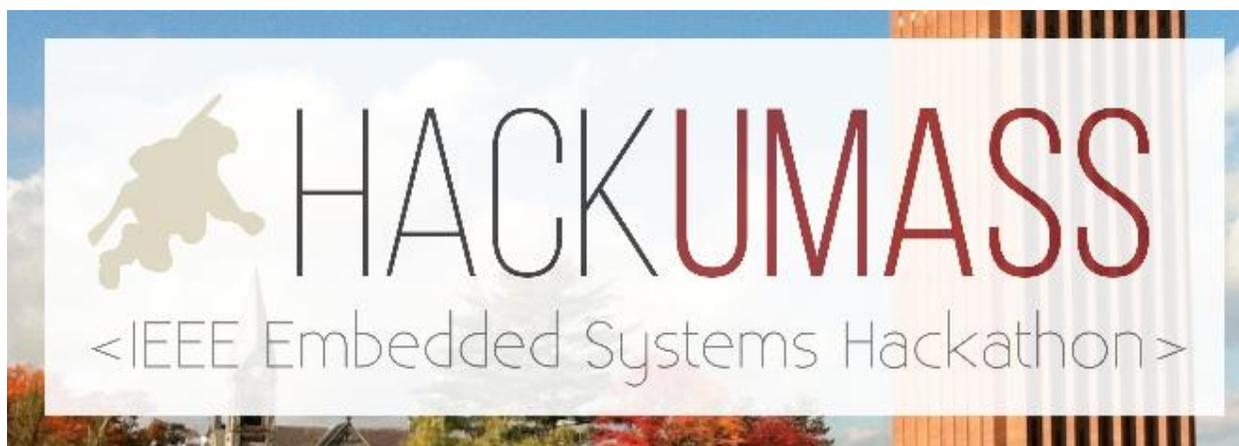
[d/dyk4_oCjXD](http://dyk4_oCjXD). Please read about the participants and winner of the competition in Jonathan’s article above. Two video clips taken by your editor on the Micromouse competition may be seen at: http://youtu.be/Pzxts_dU6F4 and <http://youtu.be/JuYLu1pZYaA>

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HACKUMASS

A report by Soon Wan, Membership Development, R1

(Note: HACKUMASS was not a part of the Students' Conference described above)



On 5 April, 2014, University of Massachusetts Amherst IEEE Student Branch hosted a fantastic 24 hours embedded systems hackathon – HackUMass. It's an event where innovators, problem solvers, and creators could come together and build something great. It didn't have to solve the world hunger, or even present a solution for global warming! HackUMass was a place where the students could combine their existing skills and new ones to develop something that they had always wanted to build.

84 student hackers from all over the Northeast formed 24 teams and hacked for 24 hours. Five of the teams were awarded special recognition for their hacks after the demos yesterday. There were so many impressive projects that it was challenging for the judges to make the final selections. The UMass Amherst IEEE Student Branch leaders have set a high bar for future

IEEE hackathons.

HackUMass was one of the 6 pilot embedded system hackathons that the IEEE Technical Activities Board (TAB) Strategic Planning Committee approved. The goal is to raise more activity for students in the area of ECE versus the existing CS offerings such as IEEEExtreme. The tie is with hardware and a flipped education model where less instruction is given and more of a support role is filled. The Program will provide students with the skills required by embedded engineers and a learning experience equivalent to a 10 week course in a matter of hours (~9 hours and some additional info sessions, 1-3 hours each). Statistical data has shown that this approach is a great way to educate the students on hardware and maximizing their experiences through the success of failure. HACKUMASS photos can be viewed at <http://goo.gl/ItMtem>.

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How to be a good engineer

We all have our own ideas as to how to become a good engineer. Our young colleague Nagi Naganathan presented his views of how to become a star engineer at the Students' Conference: Nagi is active in R1 as Secretary Princeton /Central Jersey Section, SSCS Chair PCJS and Computer Society Vice Chair PCJS.



Engineer to Star Engineer

Nagi Naganathan
March 28, 2014



To view Nagi's presentation please go to <http://goo.gl/yWodfa>, download the pdf version

IEEE Senior Members

Ilir Proгри

Senior member is the highest grade for which IEEE members can self-nominate, or be nominated. So, if you are an electrical, electronics, or computer engineer what does it mean to you? A lot, really! First, the IEEE being an established professional organization with global reach, your experience and competence as an engineer will be recognized all over the world. Second, if you happen to be an employee of an organization (and if you want) a letter of commendation will be sent to your employer on the achievement of Senior member grade. Third, Senior members are eligible to hold executive IEEE volunteer positions. Fourth, Senior members can serve as references to oth-



er applicants (e.g., your boss and colleagues) for Senior membership. (Please see complete description of other benefits of Senior members at http://www.ieee.org/membership_services/membership/senior/index.html.) These benefits are so helpful for career development that most of the Senior members never leave the IEEE. They make up 8 percent of the entire IEEE membership, an increase of 2 percent from 2004, the year I become a Senior Member. Their yearly renewal or retention rate has gone up from 90 to almost 96 percent during the same period. As the data suggest that Senior Member Elevation Clinic has benefited both our members and the IEEE and this article gives a peek into the quality

and content of the benefits of the Senior Member Elevation Clinic.

Does it mean that anybody and everybody can self-nominate himself or herself to Senior membership? Obviously not. The IEEE Web site, at the link above, also gives the requirements for Senior membership. In addition to ten years of professional experience a candidate for such membership must provide references from current IEEE members holding the grade of Fellow, Senior



member, or Honorary member. Here comes the problem. Though not always but very often a candidate cannot locate those required references among his immediate colleagues, former teachers or an extended circle of IEEE members. To alleviate this problem some Sections in Region 1 have held Senior Member Elevation Clinics. These Clinics offer the potential candidates opportunities for networking with other Senior members or Fellows who live in the geographical vicinity.

Member Elevation Clinic Benefits to the Candidates for Senior Membership

Senior Member Elevation Clinic offers a unique opportunity to our members towards their professional development in the areas of: education; experience; significant performance; and networking opportunities with an elite community of other distinguished senior and/or fellow members.

In addition to the advantages already outlined by the IEEE, there are two significant outcomes that every candidate or applicant may directly benefit from the Senior Member Elevation Clinic such as enhanced credentials and expanded

networking opportunities. The Senior Member Elevation Clinic offers a unique opportunity to enhance and assess every candidate credentials by **one or several peer reviews** from senior and other fellow members which results in a significantly improved resume of the candidate or applicant. The Senior Member Elevation Clinic offers a unique opportunity to **network with an elite community** of other distinguished senior and peer members who are willing to serve as reviewers and references and willing to help the candidate in the best possible way.

Senior Member Elevation Clinic Benefits to the IEEE Sections

Senior Member Elevation Clinic also offers professional and networking development opportunities for meeting IEEE Section officers and local IEEE Technical Chapters. Consequently, this unique activity **enriches and enhances section leadership and prepares future leaders** for the IEEE Sections and Regions, Technical Chap-

ters and Societies. IEEE benefits from high retention rate of Senior Members and increased membership of IEEE Senior Members in the IEEE Technical Societies. Moreover, IEEE Sections and should benefit from **increased rebates and funding** from the IEEE, IEEE Regions and IEEE Technical Societies. To read how the Worcester

County Section has successfully implemented its annual clinics please visit

http://www.giftet.com/SMEC/2014/60_SMCB.pdf.

Ilir Progri, PhD, SM IEEE is the CEO and President of Giftet, Inc, Worcester, Mass. He is also the chapter coordinator at Region 1. --Editor

The IEEE and its Fellow Grade Program – 50th anniversary

Two well known professional associations of engineers in the USA, one the American Institute of Electrical Engineers (AIEE) and the other being the Institute of Radio Engineers (IRE) in 1963 decided to merge to form the IEEE. Both of the precursor societies had Fellow programs to honor accomplished engineers. In 1964 the IEEE also resolved to continue with its own Fellow program by elevating only ten of its members to Fellow grade. About 10 000 IEEE

members who demonstrated extraordinary records of accomplishment in IEEE's fields of interest have been elected as Fellows. It's not easy to be elected as an IEEE Fellow. For, literally only one-tenth of 0.1 percent of the total voting membership can be elevated in any given year. (The inset shows a lapel pin that the Fellows can wear.) - Editor

APPLAUDING 50 YEARS OF FELLOWS

Rosann Marosy

In 2014, IEEE will mark its 50th Fellow Class. It represents decades of honoring IEEE Fellows whose extraordinary accomplishments have changed the world. Only one-tenth of one percent of the total voting membership can be elevated in any one year. Over the last fifty years, IEEE has elevated roughly 10,000 members to this honor. This is a very small percentage compared to the total membership. Unquestionably, Fellows are the crown jewels of the organization. One can only imagine what the next fifty years will bring, and the new technology that will be developed, discovered, or taught, and what new IEEE Fellows will be recognized for their achievements.



Throughout the year To mark this occasion the IEEE has issued a commemorative coin (both sides of the coin are shown above) and distrib-

uted to its Fellows. The coin should be of great value to the recipients as a unique symbol of honor and prestige, and personal sentiments.

Throughout the year, various celebrations will take place to honor those who have achieved this distinction.

If you know an IEEE Fellow, congratulate him/her again for receiving this honor. You can recognize them personally, or you can acknowledge them publicly at region, society, section meetings, and/or conferences. -----

The author of this piece is Ms. Rosann Marosy, the Fellow Manager at the IEEE headquarters



Fellow Grade and Personal Satisfaction

Panagiotis Papamichalis

The following article (first published in the Institute on January 15, 2014) is reproduced here with the kind permission of the author and Kathy Pretz, the editor of The Institute – Editor.

WHEN I was a graduate student at Georgia Tech, the professor who influenced me most was Ron Schafer, a world-renowned professor of signal processing. His teaching was exceptional, and he made everything sound so simple—even when the topic was far from it. He was highly respected by the students and staff.



Schafer was an IEEE Fellow and a member of the IEEE Signal Processing Society. I realized then that being an IEEE Fellow was a stamp of approval for work well done. To achieve it, one must constantly strive to succeed, whether in research or innovation, which was a great motivator to me as a young engineering student.

This honor is all the more great because no more than one in 1000 IEEE members are elevated to Fellow each year.

When I became an IEEE Fellow in 1999, I was working at Texas Instruments, in Japan, as director of the company's research center there. Not only did I appreciate the recognition, but so did my company. It was important to them that they were employing knowledgeable employees worthy of such a title because it gave their customers confidence that the products and services were being made by top engineers.

I was extremely lucky to be employed by Texas Instruments, particularly at that time, because it was introducing low-cost digital signal processing (DSP) chips, and they became a big commercial success in the digital revolution of the cell phones, digital cameras, and MP3 players that we enjoy today. Developing efficient

implementations with DSP and educating the company's engineers about them was my contribution to the field, for which I was elevated to IEEE Fellow.

Being a Fellow became even more essential for me when I decided to switch careers to academia to become a professor. Working in the industry was a lot of fun, but I also greatly enjoyed teaching as an adjunct at different universities. When I was offered the opportunity to move to academia as chair of the electrical engineering department at Southern Methodist University (SMU), in Dallas, I jumped at it.

I learned that the academic environment places even more emphasis on being an IEEE Fellow, as this is a reliable indication of the quality of one's work. At SMU, I have been teaching and doing research on image, signal, and speech processing, and I am also currently an associate dean of its School of Engineering.

I should note it's not an easy job selecting Fellows. This responsibility of providing accurate

and honest assessment of the nominees' qualifications places a heavy burden on the Fellow Committee, which is made up of current Fellows who spend untold hours evaluating the candidates' credentials.

In the end, it is the quality of the people elected to be IEEE Fellows that makes the election a highly sought-after designation. I am honored to be among them.

To learn more about the IEEE Fellows program, read our story "Fifty Years of Recognizing Extraordinary Accomplishments."

Panos Papamichalis is the chair of the 2014 IEEE Fellow Committee. He is the associate dean for academic affairs and a professor of the electrical engineering department at Southern Methodist University, in Dallas. Before joining SMU, he spent 23 years with Texas Instruments and was named a TI Fellow.

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Designing Your Smartphone

Ronald O. Brown

Many people, many skills make it happen

Smartphones are a wonder; many of us can't imagine living without them. Have you ever thought of what goes into the designs of the phones, apps, and all the equipment and activities that make the wireless network work?

The short answer is that a small army of engineers, computer scientists, physicists, and



chemists with a plethora of skills, including technical project management pull it all together. These men and women have degrees and skills in most every technical field. Let's look more closely.

Let's start with your phone:

- Electrical and mechanical engineers reduced the size of your Smartphone to something that fits into your hand. Do you remember the 1980s when a voice only cell phone was sometimes called a brick?
- Human factors folks ensured that

the case fits comfortably into your hand and pocket, while the keys remain large enough that you can use them.

- Mechanical engineers made sure that it is sufficiently rugged so it won't break when dropped.
- The touch screen, initially developed by physicists and chemists, was refined to be cost effective by engineers.
- Computer engineers, or many times just a single individual, developed the all-important apps we all love.
- An electrical engineer developed the tiny antenna that is now hidden inside. Remember when cell phones had ugly protruding antennas?
- And don't forget the chips inside that make the phone go. These were developed by electrical and computer engineers.

Moving on to the network:

- There are the towers where your call first goes. Mechanical engineers ensure the towers are strong enough to stay up during ice and windstorms and electrical engineers design the antennas on them.
- Fiber optic and copper cables, and microwave designed by electrical engineers connect towers to switches and routers.
- These switches and routers which guide you voice call, instant message, email, search, or video to its destination are designed by electrical and computer engineers.
- Importantly, your cell service remains on when the power goes out because electrical and mechanical engineers have designed backup generators that are installed at most locations.

Less obvious are computer systems, designed by electrical and computer engineers, running in the background:

- Some monitor all of the equipment in the network, many times reporting problems for repair before users notice them.
- Others enable users to add or change service, like buying a new app, have it available almost instantaneously, and have it billed to your credit card.

Finally, look how have engineers been able to affect the price of your service.

- In the 1980s a cell phone cost \$3500 to buy plus \$45 for monthly service. To make a call it cost was 45¢ per minute for airtime, plus long distance charges. And this only gave you voice in metropolitan areas. Rural service was essentially nonexistent.
- In today's dollars, this would be \$7,500 to buy, \$96 for monthly service, and 96¢ per minute for airtime. If the price of gas had fallen the same way, you'd now pay 56¢ per gallon.
- Good engineering has reduced this to about \$100 per month for voice, data, and video with a free Smartphone, no airtime charges, and you can roam most anywhere!

From this everyday example, you see engineers not only do exciting things, but they are real game changers. I could have said similar things about other engineers who design things: High definition TVs, electric vehicles, trash sorting systems, high efficiency LED lights, and the list goes on.

The final analysis is clear: engineers solve problems; make life better; and have fun doing it! ---

The author of the above article Dr. Ronald O. Brown is a Casco based networking and IT consultant with a passion for STEM education. He is a Life Senior Member of the IEEE, past IEEE Maine Section Chair, current Secretary, and on the Board of Directors of MTUG -- Maine Technology Users Group. He can be contacted via <www.ronaldobrownconsulting.com> and his e

ron@ronaldobrownconsulting.com>.

Calendar of events

15 May – 26 June, 2014

Course: Power Systems 101

Place: Persons Brinkerhoff, Room 209, One Penn Plaza, New York, NY 10119

Details of this course is available at <http://goo.gl/VSP7Y3>. Please e-mail to Arnold Wong at wongar@coned.com for the registration form.

May 28, 2014

PES/IAS/LMAG Monthly presentation

Forensic Engineering

Abstract: Engineering forensic investigations require a different approach and set of skills to that of design. The engineer no longer acts as an advocate for the client, justifying the design and seeking to have it implemented. Rather, independence from the client is needed, including independence of thought, approach and conclusions which may often be in conflict with the desired end. Where conclusions are detrimental to the business interests of the client, these nevertheless need to be fully and clearly communicated.

Standard protocols for proposals, communications, documentation, site work, reports and related activities will differ from design and study projects. Where the project may involve litigation and / or expert witness services, additional care is needed and special attention to the choice of words and phrases is required. General knowledge of laws and procedures which are followed during testimony, discovery of evidence and cross-examination will assist both the engineer and the client in achieving a just settlement.

This seminar presents an introduction to these topics and methods of approach when an engineer is faced with a request to investigate a failure, whether real or perceived.

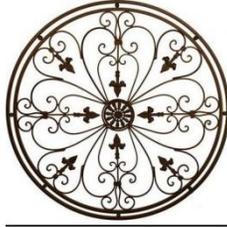
Speaker: James Cohen. The speaker at the presentation Cohen is an Associate Principal in Arup's in New York where he is the Global Contact and responsible for coordinating Arup's North American activities in expert services, concentrating in engineering investigations and solutions to problems in the built environment. Mr. Cohen is a graduate of Cornell University and Imperial College of Science and Technology and a licensed engineer in New York and other states. With over 35 years' experience, Jim's experience has been diverse, including failure analysis, natural hazard mitigation and response, dynamics, advanced analysis techniques, and instrumentation. He has been involved with leak mitigation, demolition, preparation of codes and standards on wind and seismic loads; vibration and fatigue testing of major structures; cable design; blast analysis, design, analysis and inspection of existing facilities; and, dynamic and impact analysis. He is active in ASTM, ASCE, ICRI and other professional organizations, has published

numerous papers on forensic engineering topics and has testified as an expert in court on several occasions.

Place: ConEd Building, 4 Irving Place (x 14th Street East, one block from Union Square), New York City.

Time: 5 pm for refreshment; the program starts at 5.30 sharp.

RSVP to Arnold Wong (wongar@coned.com). For reasons of security no walk-ins please.



The IEEE-USA annual meeting

This year the IEEE-USA has decided to hold its annual meeting in Region 1. The venue is Crown Plaza Hotel near Providence-Warwick Airport, RI. The meeting will be held from 16 – 18 May, 2014. The program for the entire meeting promises to be an interesting one. On Friday, 16 May experts will lecture on and discuss technical innovations that will ease our lives. Remember that we at the IEEE are committed to encourage advancing of technology for humanity! The general chair of Innotek, the conference on innovations within the IEEE-USA meeting is our R1 Secretary Dr. Charles Rubenstein. The

conference has already attracted some notable speakers from various sectors of university, government, private sector and standard bodies. I personally know one of them. He is my colleague and friend Dr. Alessandro Bassi. He has been in the forefront of EU initiatives on Internet of Things (IoT). A native of Italy and now based in South of France Dr. Bassi is a frequent cross-border traveler and a terrific speaker. He has given a talk on IoT at the NY Section. Mark those dates in your calendar. You can see the program and the registration procedure by visiting <http://sites.ieee.org/innotek/>.



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