

THE IEEE NORTH JERSEY SECTION NEWSLETTER

Vol. 61, No. 9

OCTOBER 2014

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interest to me, and entered the pertinent information on-line. I received pricing for each car with recommended dealers. The discount for each car was approximately \$5,000 for \$30,000 vehicles. I printed out the information which contained the car details, MSRP, discount, discounted price and selected dealer's name. I made a reservation to visit the dealer and informed them of the price I was quoted through the Buyers Edge Shipping Club. It turned out that I purchased one car with fewer options and the other car with more options. I still received a \$5,000 discount on each car. I was pleasantly surprised by the cost savings truly realized by using the Buyers Edge Shopping Club. I suggest that you check it out.

Finally, I want to mention that you should consider upgrading your IEEE Membership to Senior Grade. Details for upgrading your membership can be found on the IEEE web Site. It does not cost you anything. Senior Membership brings with it the prestige of knowing that you are an elite member of an elite Society. In case you did not know it, the IEEE is the largest Technical Professional Society in the world. Contact me if you need references or if you have any questions about becoming a Senior Member.

I want to hear from all of our IEEE Members, so keep those calls and e-mails coming. My e-mail is always open.

Sincerely,

Russell C. Pepe

Chair, IEEE North Jersey Section

201-960-6796, rcpepe@ieee.org, atm_pepe@yahoo.com

LinkedIn: www.linkedin.com/pub/russell-c-pepe/0/a85/ba8

The 2014 EXCOM meetings are now in vTools - the schedule is as follows -

Wed	Oct 1	NJIT, Newark
Wed	Nov 5	Clifton Library

North Jersey Section Employment Network Announcement

Join the North Jersey Employment Network for assistance with your job search. By joining our network, you will have access to our LinkedIn group and to seminars in a variety of emerging technologies such as Hadoop, Big Data, Python, Cloud, Analytics, Java, etc.

For additional information or to join the LinkedIn group, please email the Employment Network Chair, Suzanne McIntosh (mcintosh@cs.nyu.edu).

A Note from the Chair

I wanted to remind everyone that 2014 is the 60th Anniversary of the IEEE North Jersey Section. Please join us at the upcoming MTT/AP Symposium and Mini Show to celebrate the occasion. Admission is free and open to the general public. The event takes place at the Hanover Manor in East Hanover, NJ on Thursday, October 2 at 9:00am. If you missed any of the other events schooled this year, try to attend this spectacular occasion.

We just held the Second Annual Advanced Communications Symposium at Stevens Institute of Technology in Hoboken, NJ on Saturday, September 20. The event was well attended. As always, the technical presentations were topical, technical and exceptional. The sponsors, volunteers and presenter are all commended for a job well done.

Every month in the Newsletter, we mention the Buyer's Edge Shopping Club. All North Jersey Section Members of the IEEE are automatically enrolled. Our User Name is "1431", and our Password is "member1". I have firsthand experience using the services of the Club. A few months ago, I bought two new cars. I searched for the models and options of

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Leaders are like Farmers

By,

Harry T. Roman

Preface

Just a little while ago I got into a heated discussion about leadership, and remembered something I had penned over a decade ago for IEEE's publication, IEEE- USA Today's Engineer Online.....so here it is re-printed below with some modifications. It was originally titled, Leaders and Farmers; and the discussion is as relevant today as it was a decade ago. Leadership is the currency of the workplace –and for those that teach the currency of the classroom.

Leaders & Farmers

Business leaders are a lot like farmers. Both are future-oriented, working and preparing their soil, and strategizing plans for next year's harvest. Leaders and farmers function effectively in both the tactical and strategic worlds and appreciate the value of investing knowledge now for anticipated future gains. They know that human intelligence is fundamentally the most important unit of productivity, and with proper guidance and mentoring, it is endlessly renewable.

Here's a way to consider the responsibilities of the leader, as seen through the eyes of a F-A-R-M-E-R.

FERTILIZE your employee "plants" and their surrounding "soil." Good seeds planted in bad soil will not yield, but good seeds in good soil will bring forth their promise. Provide them with the nutrients essential to growth and development. Do this regularly and take pleasure in watching your employees grow and bloom.

ATTACH your employee garden to the larger corporate farm, making its acreage an integral part of the larger harvest. Show its relevance to corporate mission and goals; place economic value on its contributions; and show your employees how their work benefits the whole farm. Also, don't forget to connect your employees to each other. Teach them to build synergies and symbiotic relationships that leverage their common interests, goals and resources.

REMINDE everyone often about their crop growth targets; measure individual and team performance; and provide timely feedback. Review progress in your garden regularly, and aerate the soil as needed, keeping in mind that honest and frank discussion is as important as nutrients. Keep communication channels open, make sure they are used, and urge employees to articulate their work across and up the corporate pathways.

MANAGE your crops judiciously, always remembering that management and leadership are situational and reflect the local existing conditions and the level of employee maturity. You wouldn't fertilize or prune a large plant in the same way you would a small one; just the same, you shouldn't manage and lead different employees all in the same way. Learn to distinguish between situations and individuals accurately and then act (or don't) accordingly.

ENCOURAGE employees to branch out and extend their roots, expecting them to grow as much horizontally as

vertically. Let their roots intermingle and gain perspective; and let them get nourishment from different parts of the garden. Occasionally you may want to transplant or rotate them into other parts of the garden to create interesting new clusters and arrangements of flowers and fruits.

REMOVE obstacles that can impede progress, growth and development in your garden. Nip the weeds of conflict and rumor quickly before they sap off nourishment and retard the growth of the entire plot. Solve small problems before they endanger the whole crop like a damaging insect infestation.

When you think leadership, think F-A-R-M-E-R.

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I would like to close this article with some quotes on leadership.

Leadership is the capacity to translate vision into reality.

—Warren Bennis

Outstanding leaders go out of their way to boost the self-esteem of their personnel. If people believe in themselves, it's amazing what they can accomplish.

—Sam Walton

No man will make a great leader who wants to do it all himself, or to get all the credit for doing it.

—Andrew Carnegie

Leaders aren't born, they are made. And they are made just like anything else, through hard work. And that's the price we'll have to pay to achieve that goal, or any goal.

—Vince Lombardi

Leadership and learning are indispensable to each other.

—John F. Kennedy

The growth and development of people is the highest calling of leadership.

—Harvey Firestone

Talk to you again soon.....

Harry

Harry T. Roman

Life Member, IEEE

North Jersey Section

## IEEE North Jersey Section Seeks Committee Chairs and Section Volunteers

The IEEE North Jersey Section is seeking new volunteers to help conduct business for the benefit of its membership. There are a variety of volunteer positions open and available. They range from technical to non-technical, leadership or just participatory. A list of IEEE North Jersey Societies, Chapters, Groups and Committees are published at the end of the newsletter for those interested in participating. If you would like to become involved with volunteering in some of these efforts or positions or just become more informed about what is happening at the North Jersey Section, please contact Nominations Committee chair, Amit Patel at [a.j.patel@ieee.org](mailto:a.j.patel@ieee.org). You are welcome to attend the Section's executive committee meeting held the first Wednesday of every month to learn more about volunteer activities that require some help. Please check out the website below for published meeting times and locations. Some committees needing volunteers include the following. Please contact the person indicated for additional information.

**Young Professionals** (formerly Graduates of the Last Decade) Affinity Group Volunteers and Committee members needed

**Contact:** Sean Kennedy ([sean.kennedy@alcatel-lucent.com](mailto:sean.kennedy@alcatel-lucent.com))

**WIE** (Women in Engineering) Affinity Group Volunteers and Committee members needed –

**Contact:** Zhiwei Mao ([zmao@fd.edu](mailto:zmao@fd.edu))

**EMBS** (Engineering in Medicine and Biology Society) is seeking active committee volunteers –

**Contact:** [raquelpc@njit.edu](mailto:raquelpc@njit.edu)

**Computer Society Chapter** Committee Volunteers –

**Contact** [zhao@fd.edu](mailto:zhao@fd.edu)

**Technical Management Council** Committee Volunteers –

**Contact:** [almeida@synergymwave.com](mailto:almeida@synergymwave.com)

**North Jersey Section Awards Committee** Volunteers –

**Contact** [k.oexle@ieee.org](mailto:k.oexle@ieee.org)

**Membership Development Committee** Volunteers –

**Contact** [miyer108@gmail.com](mailto:miyer108@gmail.com)

Additionally, if interested volunteers would like to get more general information about the section, including a complete listing of all chapters and committees, visit the North Jersey section website <http://sites.ieee.org/northjersey> or contact anyone listed above.

[Back to Calendar of Events](#)

## How to subscribe to this newsletter if you are not an IEEE North Jersey Member?

To subscribe, send an email to: [listserv@listserv.ieee.org](mailto:listserv@listserv.ieee.org), with the body containing "subscribe northjerseypublic"

To unsubscribe, send an email to: [listserv@listserv.ieee.org](mailto:listserv@listserv.ieee.org), with the body containing "signoff northjerseypublic"

Additionally, you can join the IEEE North Jersey Section Facebook Fan Page at:

[www.facebook.com/pages/IEEE-North-Jersey-Section](http://www.facebook.com/pages/IEEE-North-Jersey-Section)

Follow us on Twitter at: [twitter.com/ieeenorthjersey](http://twitter.com/ieeenorthjersey)

Or join the LinkedIn IEEE North Jersey Section Group at: [LinkedIn Group Invitation](#)

### Important information – Buyer's Edge Shopping

IEEE - North Jersey Group # 1431

The IEEE North Jersey Section is now a Member of the Buyer's Edge Shopping Service. The Buyer's Edge is a buying service that guarantees the lowest prices on major purchases for its 4 million members in the tri-state area of NY, NJ, CT and greater Philadelphia. They offer a Buy-By-Phone, Buy-Online and, in certain benefit categories and areas, Buy-In-Person. Many member benefits are available nationally, like Cars, Furniture and Kitchens; whereas, some benefits, like Appliances, are for the tri-state area only.

It is easy to use the services of the Buyer's Club. Visit the Web Site at: <http://www.buyersedgeinc.com>

Then, enter the following login information: Username: 1431, Password: member1

**Happy shopping!**

## About Senior Membership

Do you know an outstanding IEEE member who is not yet an IEEE Senior Member? Do you feel that you are qualified for such recognition? If you are interested in becoming a Senior Member or nominating a fellow IEEE member please see [http://www.ieee.org/membership\\_services/membership/senior](http://www.ieee.org/membership_services/membership/senior) for an application and for qualification requirements.

Assistance with references is found on the Senior Member Web page and within the application form. You can also contact any of the North Jersey Section Executive Committee members including Membership Development Chair or Society Chapter Chairs at the local level or attend an IEEE North Jersey Section meeting or upcoming Senior Member Drives, where qualified attendees will be happy to actively support you in the nomination process.

## Calendar of Events

- October 1, 6:00 PM to 8:45 PM: IEEE North Jersey Section EXCOM Meeting – Newark NJ**  
**Location:** NJIT, ECE 202, 161 Warren Street, Newark, NJ 07102, [Getting to NJIT](#)  
**Contact:** Adriaan J. van Wijngaarden, avw@ieee.org ([avw@ieee.org](mailto:avw@ieee.org)), [Read More...](#)
- October 3, 6:00 PM to 9:00 PM: The IEEE SAC Social Mixer- Octoberfest**  
**Location:** 58-60 New Street, Newark, NJ 07102,  
**Contact:** John C Taylor ([john.taylor1204@gmail.com](mailto:john.taylor1204@gmail.com)), Daniel Cerone ([dcer@dcerone.com](mailto:dcer@dcerone.com)), [Read More...](#)
- October 8, 6:30 PM to 9:00 PM: IEEE North Jersey Section PACE- Engineers Meet (On the Second Wednesday of every month)**  
**Location:** Clifton Memorial Library, 292 Piaget Ave., Clifton, NJ 07011 [Getting to Clifton Memorial Library](#) (Tel. 973 772-5500)  
**Contact:** Paul Ward, 973 790-1625, [peward@ieee.org](mailto:peward@ieee.org) Richard F. Tax, (201- 664-6954) [rtax@verizon.net](mailto:rtax@verizon.net)
- October 23, 4:30 PM to 6:00 PM: IEEE CS – Aerospace & Electronics Systems Society Seminar on the Development and Usage of Link 16**  
 - Joel Reiss, Cooper Union ME'63, Retired Senior Member of Technical Staff, BAE Systems  
**Location:** NJIT, ECE 202, 161 Warren Street, Newark, NJ 07102, [Getting to NJIT](#)  
**Contact:** Goran Djuknic ([gd@ieee.org](mailto:gd@ieee.org)), [Read More...](#)
- October 30, 11:30 AM to 2:30 PM: IEEE North Jersey Section PES/IAS –Life Grade Luncheon – Dr. Robert Kerwin**  
**Location:** Hanover Manor, 16 Eagle Rock Avenue, East Hanover, N J 07936 [Getting to Hanover Manor](#)  
**Contact:** Ken Oexle at [k.oexle@ieee.org](mailto:k.oexle@ieee.org) or 973-386-1156 [Read More...](#)
- Nov 5, 6:00 PM to 8:45 PM: IEEE North Jersey Section EXCOM Meeting – Clifton NJ**  
**Location:** Clifton Public Library - Allwood Branch, Activity Room, 44 Lyall Road, Clifton, NJ 07012,  
[Getting to Clifton Public Library](#)  
**Contact:** Adriaan J. van Wijngaarden, avw@ieee.org ([avw@ieee.org](mailto:avw@ieee.org)), [Read More...](#)
- Nov 20, 2:00 PM to 3:00 PM: IEEE IT/COMSOC/VTS- Secure Broadcasting of a Common Message with Independent Secret Keys –**  
 Rafael Schaefer, Post Doc. Fellow of Princeton University  
**Location:** Bell Laboratories, Alcatel-Lucent, Main Building, Room: 6A-106, 600 Mountain Avenue, Murray Hill, NJ 07974, [Getting to Bell Labs](#)  
**Contact:** Adriaan J. van Wijngaarden, avw@ieee.org ([avw@ieee.org](mailto:avw@ieee.org)), [Read More...](#)

### IEEE NORTH JERSEY SECTION – Short Courses

**IEEE North Jersey Section Course: C# .NET Programming** - Seven weekly classes (September 6, 13, 27, October 4, 11, 18, 25, 2014) New Jersey Institute of Technology, Newark, New Jersey

**IEEE North Jersey Section Course: Project Risk Management** - Seven weekly classes (September 6, 13, 27, October 4, 11, 18, 25, 2014) New Jersey Institute of Technology, Newark, New Jersey

**IEEE North Jersey Section MD/YP/WIE/PACE - Art of Speechcraft>Returns to Murray Hill** (October 6, 13, 20, 27, November 3, 10, 17, 24, 2014) Bell Laboratories, Alcatel-Lucent, 600 Mountain Avenue in Murray Hill, NJ 07974

**IEEE North Jersey Section Course: Big Data Market Research in Seven Wednesdays** - Seven weekly classes (October 15, 22, 29, November 5, 12, 19, December 3, 2014) New Jersey Institute of Technology, Newark, New Jersey

### IEEE NORTH JERSEY SECTION - SYMPOSIUM

- IEEE North Jersey Section AP/MTT - 29th Annual Symposium and Mini-Show** - October 02, 2014, 9:00 AM to 4:30 PM) Hanover Manor, 16 Eagle Rock Ave., East Hanover, NJ 07936. (973-992-7425)

- **Prior registration is encouraged and appreciated.**
- **You do not have to be an IEEE member to attend any event.**
- **For up to date information, visit our website: [IEEE North Jersey Section](#)**
- **Visit: [vTools Registration](#) to register for a meeting or event**

## Meeting Announcements

**1 October, 2014**

### IEEE North Jersey Section EXCOM Meeting – Newark, NJ

**Meeting Agenda:** This executive committee (EXCOM) meeting of the IEEE North Jersey Section will be held at The New Jersey Institute of Technology (NJIT), in Newark NJ. The meeting will take place in the ECE Building, Room ECE-202, 161, Warren Street, Newark, NJ

There will be a get-together with a buffet starting at 6 pm.

The meeting starts at 7 pm EST and typically ends at 8:45 pm. The meeting is meant to discuss and coordinate the section's activities and new initiatives.

Everyone is welcome to attend this meeting.

Please register in advance for this meeting using VTOOLS to provide the meeting organizers an accurate head count. You can change/cancel the registration if your plans change.

For more information, please contact Russell Pepe (rcpepe@ieee.org), Chris Peckham (cdp@ieee.org) and/or Adriaan van Wijngaarden (avw@ieee.org).

The meeting agenda typically includes reports from the Secretary and Treasurer, reports from the Chapter and Affinity Group Chairs and Representatives, Committee Chairs, news related to the IEEE North Jersey Section, planning and new initiatives.

Parking is available at 154, Summit Street, Newark, NJ 07102

**Location:** NJIT, ECE 202, 161 Warren Street, Newark, NJ 07102, [Getting to NJIT](#)

**Time:** 06:00PM to 08:45PM

**Contact:** Russell Pepe (rcpepe@ieee.org), and/or Adriaan van Wijngaarden (avw@ieee.org).

[For Updates and Registration: Click Here](#)

**3 October, 2014**

### IEEE The SAC Social Mixer- Octoberfest – Newark, NJ

**Meeting Agenda:** Back by huge demand, we're throwing another SAC Social Mixer to ring in the fall semester! Meet us at McGovern's Tavern in Newark, NJ for food, fun, and friends! This is an 18+ aged event.

**Bring a potential IEEE member and you and your new member are free!\*** All others, \$5 at the door for all you can eat food and drinks!

- *Must be 21+ to drink*
- *Potential IEEE Members must sign up for an IEEE membership at the event or online prior to the event, for free admission.*
- *Must show proof of online enrollment in the past 3 months*
- *\$5 event ticket to be paid at event upon arrival*

Everyone is welcome to attend this meeting.

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**Location:** 58-60 New Street, Newark, NJ 07102,

**Time:** 06:00PM to 09:00PM

**Contact:** John C Taylor (john.taylor1204@gmail.com), Daniel Cerone (dcer@dcerone.com)

[For Updates and Registration: Click Here](#)

**8 October, 2014**

### IEEE North Jersey Section PACE – Engineers Meet

**Meeting Agenda:** Engineers Meet NNJ Section PACE (Professional Activities Committee for Engineers) meets on the Second Wednesday of every month.

Our North Jersey Section Professional Activities Committee (PACE) meets for informal discussions about the Engineering Profession. Join us with your thoughts and concerns and meet other Engineers.

Pizza & Refreshments: will be served during the mid-meeting break.

**Location:** Clifton Memorial Library, 292 Piaget Ave., Clifton, NJ 07011 [Getting to Clifton Memorial Library](#) (Tel. 973 772-5500)

**Time:** 6:30 to 9:00 PM, on the Second Wednesday of every month

**Contact:** Paul Ward, 973 790-1625, peward@ieee.org  
Richard F. Tax, (201- 664-6954) [tax@verizon.net](mailto:tax@verizon.net)

**23 October, 2014**

### IEEE CS presents - Aerospace & Electronics Systems Society Seminar on the Development and Usage of Link 16

**Speaker:** Joel Reiss, Cooper Union ME'63, Retired Senior Member of Technical Staff, BAE Systems, of Wayne, NJ

**Abstract:** The well-known Link-16 navigation and communications system embodies many elements of applied mathematics and system/electrical engineering – modeling and simulation, Kalman Filtering, spread spectrum communications theory, navigation technology, network optimization, Markov chain modeling and queuing system applications, to name a few. The development of this remarkable system began in the 1960s and it is now used in the military forces of no fewer than 38 nations. The objective of this lecture is to show how system engineering is applied in the context of a modern aerospace system – how requirements are identified, how a practical solution is derived and implemented, and how the resulting design is used by the customer. The presenter was a charter member of the Link 16 development team since project inception in 1970.

**Biography:** During a 43-year career at BAE, was a charter member of the initial development team which produced the

successful Link-16 series of data terminals, now being used by the military forces of 38 countries, worldwide, including all US services. Responsibilities included analysis, design, development and test of the fundamental navigation and communications architecture of four generations of terminals. Was a leader in the design of the embedded software which supported spread spectrum communications and navigation functionality for these devices. LED - systems integration and test of early terminal versions, including preparation of test plans and procedures for laboratory and flight test evaluation. As part of design activity, was responsible for integration of alternative navigation aids, including GPS, Doppler, and TACAN for Link -16 hybrid navigation solution.

From 1995 to 2013, primary responsibility was in support of operational application of key Link-16 supporting technologies, including hostile radar/jammer geolocation, Link-16 based weapon guidance, and design of aircraft carrier landing systems. A design for a hyper-accurate relative navigation scheme won Best Classified Technical Paper award at MILCOM 2006. Also developed geolocation and landing technology methods not dependent on GPS availability.

BSME - Cooper Union (1963)

MSME- New York University (1965)

Additional Graduate Studies at Polytechnic Institute of NY and Stevens Institute of Technology (1970 -1990).

**Location:** NJIT, ECE 202, 161 Warren Street, Newark, NJ 07102, [Getting to NJIT](#)

**Time:** 04:30PM to 06:00PM

**Contact:** Goran Djuknic ([gd@ieee.org](mailto:gd@ieee.org))

[For Updates and Registration: Click Here](#)

## 30 October, 2014

### IEEE PES/IAS host – Life Grade Luncheon and present: ‘Silicon-Gate’, by its Inventor

**Speaker:** Dr. Robert Kerwin

**Abstract:** Dr. Robert Kerwin will give an informal presentation on the invention and development of the Silicon-Gate process and its paradigm shifting impact on the Integrated Circuit industry.

**Biography:** Robert Kerwin is currently a consultant in electronics technology, intellectual property management, and quality management practices. He retired from AT&T in 1994 as General Manager of the Intellectual Property Division. Prior to that, he was Manager, Corporate Quality, AT&T, after 22 years at AT&T Bell Labs.

At AT&T Bell Labs, Dr. Kerwin was a member of Technical Staff in the Electronic Component Processes Laboratory (1964-1971), supervised the Photolithography Development Group (1971-1974), supervised the Murray Hill Integrated Circuit Design Capability Line for CMOS processing technology (1974-1980), and headed the Component Quality and Reliability Department for AT&T (1980-1986).

He has B.S., M.S. and a Ph.D. degree in Chemistry from Boston College, MIT, and the University of Pittsburgh respectively. Prior to joining AT&T Bell Laboratories, he was a Research Fellow in the Polymer Studies Group at the Mellon Institute.

He is a Fellow of Bell Laboratories and the American Institute of Chemistry and a member of the Society of Sigma Xi, the American Association for the Advancement of Science, and the IEEE. He received the IEEE Jack A. Morton Award “For Outstanding Contributions in the Field of Solid State Devices”, and the Inventor of the Year Award from the NJ Inventors Hall of Fame.

He holds 15 patents including the fundamental silicon-gate process used in all semiconductor memory and microprocessor devices. He has published 15 papers and five book chapters on microelectronics quality management, and intellectual property.

Dr. Kerwin has served on the Board of Examiners for the Malcolm Baldrige National Quality Award (1988-1991), and lectured at the Brookings Institution (1986-1991).

Advanced registration is required prior to October 23<sup>rd</sup>, for 30 only in order of receipt. To registration with \$5.00 fee, contact Ken Oexle at [k.oexle@ieee.org](mailto:k.oexle@ieee.org) or 973-386-1156 for form.

**Location:** 16 Eagle Rock Avenue, East Hanover, NJ, 07936 [Getting to NJIT](#)

**Time:** 11:30 AM to 2:30 PM

**Contact:** Ken Oexle at [k.oexle@ieee.org](mailto:k.oexle@ieee.org) or 973-386-1156 for form

[For Updates and Registration: Click Here](#)

## 5 November, 2014

### IEEE North Jersey Section EXCOM Meeting – Clifton NJ

**Meeting Agenda:** This executive committee (EXCOM) meeting of the IEEE North Jersey Section will be held in the Activity Room of the Clifton Public Library (Allwood Branch, 44 Lyall Road, Clifton, NJ 07012, T: (973) 471 0555).

There will be a get-together with a buffet starting at 6 pm.

The meeting starts at 7 pm EST and typically ends at 8:45 pm, when the library closes. The meeting is meant to discuss and coordinate the section's activities and new initiatives.

Everyone is welcome to attend this meeting.

Please register in advance for this meeting using VTOOLS to provide the meeting organizers an accurate head count. You can change/cancel the registration if your plans change.

For more information, please contact Russell Pepe ([rcpepe@ieee.org](mailto:rcpepe@ieee.org)), Chris Peckham, and/or Adriaan van Wijngaarden ([avw@ieee.org](mailto:avw@ieee.org)).

The meeting agenda typically includes reports from the Secretary and Treasurer, reports from the Chapter and Affinity Group Chairs and Representatives, Committee Chairs, news

## PUBLICATION OF THE NORTH JERSEY SECTION OF THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS

related to the IEEE North Jersey Section, planning and new initiatives.

**Location:** Clifton Public Library - Allwood Branch, Activity Room, 44 Lyall Road, Clifton, NJ 07012,

[Getting to Clifton Public Library](#)

**Time:** 06:00PM to 08:45PM

**Contact:** Russell Pepe (rcpepe@ieee.org), Chris Peckham, and/or Adriaan van Wijngaarden (avw@ieee.org).

[For Updates and Registration: Click Here](#)

area of information theory and communication theory; in particular topics related to physical layer security, cyber-physical systems, and wireless communications.

**Location:** Bell Laboratories, Alcatel-Lucent, Main Building, Room Number: 6A-106, 600 Mountain Avenue, Murray Hill, NJ 07974, [Getting to Bell Labs](#)

**Time:** 02:00PM to 03:00PM

**Contact:** Adriaan J. van Wijngaarden, avw@ieee.org ([avw@ieee.org](mailto:avw@ieee.org)),

[For Updates and Registration: Click Here](#)

## 20 November, 2014

### IEEE IT/COMSOC/VTS presents - Secure Broadcasting of a Common Message with Independent Secret Keys

**Speaker:** Rafael Schaefer of Princeton University

**Abstract:** Rafael Schaefer will be giving a presentation on secure broadcasting of a common message with independent secret keys. This presentation will be held at Bell Laboratories, Alcatel-Lucent, in Murray Hill, NJ, in Room 6A-106, which is located near the main entrance behind the Bell Labs Showcase exhibition area. It is not necessary to register as a visitor to access this area.

Everyone is welcome to attend this meeting.

Please register in advance for this meeting using VTOOLS to provide the meeting organizers an accurate head count. You can change/cancel the registration if your plans change.

The problem of secure broadcasting with independent secret keys is studied. The particular scenario is analyzed where a common message has to be broadcasted to two legitimate receivers, while keeping an external eavesdropper ignorant of it. The transmitter shares independent secret keys of arbitrary rates with both legitimate receivers, which can be used in different ways: They can be used as one-time pads to encrypt the common message or they can be used as randomization resources for wiretap coding. Both approaches are discussed in this talk. If both legitimate channels are degraded versions of the eavesdropper channel, it is shown that the one-time pad approach is optimal for several cases yielding corresponding capacity expressions. Reversely, the wiretap coding approach is shown to be optimal if the eavesdropper channel is degraded with respect to both legitimate channels establishing capacity in this case as well.

**Biography:** Rafael Schaefer is a Postdoctoral Research Fellow in the Department of Electrical Engineering at Princeton University. Before joining Princeton University, he was a research and teaching assistant at Technische Universität Berlin and Technische Universität München. In 2012, he received the Dr.-Ing. degree in electrical engineering from the Technische Universität München under the supervision of Prof. Holger Boche. In 2013, he received the VDE Johann-Philipp-Reis Prize for my work on physical layer security. He is one of the Exemplary Reviewers 2013 for the IEEE Communication Letters. His research interests are in the

### Welcome! New Members of the IEEE North Jersey Section

| Full Name   |            | Current IEEE Grade      |
|-------------|------------|-------------------------|
| Ebenezer K. | Ackon      | Student Member          |
| Ahmad S.    | Alshehri   | Student Member          |
| Denzel D.   | Arthur     | Student Member          |
| Pooja       | Balsara    | Student Member          |
| Dan         | Beaty      | Graduate Student Member |
| James P.    | Budries    | Student Member          |
| Wilmin I.   | Ceballos   | Student Member          |
| Peter       | Charuza    | Student Member          |
| Wei         | Chen       | Student Member          |
| Yangfan     | Cheng      | Student Member          |
| Paul A.     | Delvechio  | Student Member          |
| Zuochao     | Dou        | Graduate Student Member |
| Rey         | Duarte     | Member                  |
| Engelbert   | Eda        | Student Member          |
| Ammar       | Gharaibeh  | Graduate Student Member |
| James G.    | Hayek      | Student Member          |
| Gabriel     | Karlick    | Student Member          |
| John R.     | Kelly      | Student Member          |
| Andrew      | Laforteza  | Student Member          |
| Damian D.   | Lee        | Student Member          |
| Ellen       | Leu        | Student Member          |
| Jaemin M.   | Lim        | Student Member          |
| Peter       | Morfe      | Student Member          |
| Jeanetta    | Muhammad   | Student Member          |
| Shawn M.    | Murray     | Graduate Student Member |
| Patrick     | Murray     | Student Member          |
| Thomas M.   | Nealis     | Member                  |
| Matthew     | Neubauer   | Student Member          |
| Tushar P.   | Patel      | Student Member          |
| Kleo        | Purbollari | Student Member          |
| Patrick     | Ruiz       | Graduate Student Member |
| Amit V.     | Shingala   | Student Member          |
| Joseph      | Sloboda    | Member                  |
| Leyun       | Song       | Graduate Student Member |
| Faton       | Spata      | Student Member          |
| Luciano     | Taranto    | Student Member          |
| Matthew A.  | Tomaro     | Student Member          |
| Nalby       | Varoqua    | Student Member          |
| Aasif I.    | Versi      | Student Member          |
| Tyler       | Wilson     | Student Member          |
| Xiao        | cheng      | Student Member          |
| Sihua       | Shao       | Graduate Student Member |

## Impressions of Sept 20<sup>th</sup> 2014, IEEE North Jersey Advanced Communications Symposium

The 2014 IEEE North Jersey Advanced Communications Symposium (NJACS) was held at the Babbio Center, Stevens Institute of Technology, in Hoboken, NJ, on Saturday, September 20, 2014. The symposium consisted of six keynote presentations and a parallel poster session with 23 posters from students from universities in New Jersey, New York, and Pennsylvania. The symposium was well attended, with 74 participants from New Jersey and New York.

The symposium started at 8:15 am when the registration desk opened, participants got together, and the posters were set up. The program started at 9:15 am with opening remarks from the Symposium Chair, Amit Patel., The Program Chair, Mani Iyer, introduced the invited speakers for the morning session: Peter Kinget (Columbia University) on ultra-low power, short range wireless communications, Amit Mukhopadhyay (Bell Labs, Alcatel-Lucent), on smart cells, and Joe Jesson (TCNJ, Assurenet), on the internet-of-things. During lunch, there was ample time for discussions with the participants, the poster presenters, and to talk with PACE representatives from the North Jersey Section, in particular with Don Hsu (Education Committee Chair) on employment in the internet economy, with Richard Tax (PACE Chair) on contract engineering, and with Russell Pepe (North Jersey Chair) on engineering sales. The afternoon program was chaired by Peter Sakarindr and consisted of presentations by Narayan Mandayam (Rutgers University) on backhauling in TV white spaces, Colin Kahn (Bell Labs, Alcatel-Lucent) on the role of software defined networking in mobile networks, and Rudra Kumar Shivalingaiah (Qualcomm) on self-organizing networks. A summary of all presentations can be found at the end of this article.

In the closing remarks following the technical program, symposium chair Amit Patel introduced the Poster Committee Chair, Hong Man, who announced the winners of the poster competition. The symposium's Poster Committee had invited graduate students and postdocs during the months prior to the symposium to prepare a poster presentation on recent research work and cutting edge developing technologies in communications, data networking and related fields. Master students, PhD students and postdocs were all encouraged to participate. The symposium's Poster Committee had accepted 23 high-quality posters from seven local universities: Columbia University, the City University of New York (CUNY), Lehigh University, New Jersey Institute of Technology (NJIT), New York University Polytechnic School of Engineering (NYU Poly), Rutgers University, and Stevens Institute of Technology. The poster topics ranged from physical wireless component designs to mobile network applications. The poster session was particularly helpful for student researchers to have direct interactions with faculty, industry researchers and regional IEEE officers and volunteers. It served as an excellent platform and opportunity to network for future collaborative research and career advancement. The posters were on display all day and special dedicated exhibition times were scheduled for all attendees.

The poster presenters had plenty of opportunities to interact with the symposium participants. This year, there were two categories of poster awards: the 2014 IEEE North Jersey Section Wireless Communications Poster Awards and the 2014 IEEE North Jersey Section Data Networking Poster Awards. The poster committee, chaired by Hong Man and further consisting of Kit August, Jennifer Chen, Ashutosh Dutta, and Irfan Lateef, evaluated the 23 posters. Hong Man emphasized that all posters had been of an extremely high quality. After a rigorous review process, the following six best posters were selected to receive poster awards:

### 2014 IEEE North Jersey Section Wireless Communications Poster Awards

**First Place:** Huaxia Wang (Stevens Institute of Technology), Single-Tone Jamming Mitigation in MC-CDMA and Coordinated Jamming Communications System

**Second Place:** Christopher Mueller-Smith (Rutgers University), Single Sensor Blind Estimation of Time-Frequency Activity of a Mixture of Radio Signals via Block Tensor Decomposition □ Joint work with Predrag Spasojevic.

**Third Place:** Xin Zhang (Stevens Institute of Technology), Maximum Likelihood Synchronization for DVB-T2 in Unknown Fading Channels

### 2014 IEEE North Jersey Section Data Networking Poster Awards

**First Place:** Xin Gao, Jie Tian, Guiling Wang (New Jersey Institute of Technology), "Detection of Transportation Mode Based on Smartphones for Reducing Distracted Driving"

**Second Place:** Jelena Marasevic, Cliff Stein and Gil Zussman (Columbia University), Algorithms For Max-Min Fair Rate Assignment And Routing In Energy Harvesting Networks

**Third Place:** Yanzhi Ren, Chen Wang, Yingying Chen, Jie Yang (Stevens Institute of Technology), Hearing Your Breathing: Fine-grained Sleep Monitoring Using Smartphones

The first, second, and third place winners received prizes of \$200/\$150/\$100 respectively (one prize per winning poster). All poster presenters received participation certificates.

In his closing remarks, Amit Patel thanked Stevens Institute of Technology for hosting the symposium and for the use of the Babbio Center, which proved to be an excellent venue for this symposium; the auditorium had the right size and was well equipped, and the unobstructed view of the New York skyline across the Hudson during the breaks was impressive. Amit Patel further thanked several IEEE organizations for financial and organizational support: the IEEE North Jersey Section and its Communications Chapter (which had received additional financial support from the IEEE Communications Society), and its Vehicular Technology, Computer, and Joint NJ/NY Information Theory Chapters. Other sponsors included the



**PUBLICATION OF THE NORTH JERSEY SECTION OF THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS**

IEEE New Jersey Coast Section's Computer, Communications, and AP/VTS/EMC Chapters, as well as the IEEE Princeton/Central Jersey Section's Computer and Consumer Electronics/Communications Chapters. This event was also co-sponsored by CTIF-USA, and further received IEEE USA PACE Technical Chapter support.



Symposium participants and poster presenters in the atrium

Please contact the organizing committee or volunteers for any additional follow up questions or feedback on the event.



Amit Patel, NJACS Symposium Chair, opens the symposium

Amit Patel further thanked all co-organizers and volunteers for their hard work that made the symposium a success. He thanked Mani Iyer, Program Chair and IEEE North Jersey Vehicular Technology Chapter Chair, Hong Man, Poster Committee Chair, and the Poster Committee members Kit August, Jennifer Chen, Ashutosh Dutta, and Irfan Lateef. He further thanked Yu-Dong Yao and Jennifer Chen, Local Arrangements, Michael Newell, Registration Chair, as well as Yu Zhou, Jingli Wang and Minhong Sun for all their help at the registration desk, the event coordinator Nagi Naganathan, Adriaan van Wijngaarden, Publicity, volunteers from the IEEE North Jersey Section: Russell Pepe (Section Chair), Richard Tax (PACE Chair), Don Hsu (Education Chair), Kai Chen (Membership Development Co-Chair) and Pitipatana (Peter) Sakarindr (COMSOC Vice-Chair), volunteers from the IEEE New Jersey Coast Section: Krishnna Raghunandan (METSAC Chair), Newman Wilson (Communications Society Chair), Frank Laslo (Section Secretary, ComSoc Membership Development), Kit August (Women in Engineering), Filomena Citarella (Joint AP/VT/EMC Chapter Chair) and Irfan Lateef (ComSoc Chapter Vice-Chair, Poster Committee member).

The slides of the presentations will be made available on the symposium's website:

<http://sites.ieee.org/northjersey/events/2014-NJACS>



NJACS keynote speakers, from left to right: Amit Mukhopadhyay, Joe Jesson, Peter Kinget, and Narayan Mandayam



NJACS symposium participants in the auditorium during one of the presentations



NJACS keynote speakers, from left to right: Rudra Kumar Shivalingaiah, Joe Jesson, and Colin Kahn



NJACS organizers and volunteers, from left to right: Peter Sarkindr, Adriaan van Wijngaarden, Newman Wilson, Amit Patel, Mani Iyer, and Michael Newell

## Summaries of the Keynote Presentations

### Ultra-Low Power, Short Range Wireless Communications: From Using RF Pulses to Ultrasound Clicks

Dr. Peter Kinget, *Professor*, EE Department, Columbia University

This presentation started with an overview of energy harvesting active networked tags as an example application for ultra-low power wireless communications. The first wireless technology under investigation is ultra-wideband RF pulse radio. Using short pulses of RF energy located in the GHz range results in signals with very a large bandwidth but very low power density. The short duration of the signals allows for aggressive duty-cycling to reduce power dissipation. A fully synchronized and self-duty-cycled UWB receiver architecture was presented using two 65-nm CMOS receiver prototypes. This self-duty-cycled, non-coherent OOK receiver occupies an active area of only  $0.53 \text{ mm}^2$ , thanks to careful use of inductors and to the elimination of the need for a complex digital backend. This first-of-its-kind prototype achieves a sensitivity of  $-76.5 \text{ dBm}$  at a data rate of  $2 \text{ Mbps}$  (for a BER of  $10^{-3}$ ) while consuming a mere of  $375 \text{ pJ/bit}$  from a  $1.4 \text{ V}$  supply. This represents a 2.3-5X improvement over state of the art receivers. The receiver SoC includes the entire system from RF input pulses to clocked digital bits. In a power-starved application like wireless sensor nodes, the main transceiver is often woken up by a separate, always-ON wake-up receiver. In the second part of the talk it was demonstrated how the use of over-the-air ultrasound data communications allows for an order-of-magnitude reduction in operating power over RF based wake-up solutions. The 65-nm CMOS  $0.6\text{-V}$  receiver prototype achieves a BER of better than  $10^{-3}$  over  $8.6 \text{ m}$  for a  $0.25 \text{ kb/s}$  free-space link in a typical indoor environment while dissipating only  $4.4 \text{ }\mu\text{W}$  and requiring only  $-18 \text{ dBm}$  transmit signal power.

**Dr. Peter R. Kinget** received an engineering degree in electrical and mechanical engineering and a Ph.D. in electrical engineering from the Katholieke Universiteit Leuven, Belgium. He has worked in industrial research and development at Bell Laboratories, Broadcom, Celight and Multilink before joining the faculty of the Department of

Electrical Engineering, Columbia University, NY, in 2002. He is also a consulting expert on patent litigation and a technical consultant to industry. His research interests are in analog, RF and power integrated circuits and the applications they enable in communications, sensing, and power management. Dr. Kinget has numerous publications and received several awards. He is a Fellow of the IEEE. He has been a Distinguished Lecturer for the IEEE Solid-State Circuits Society (SSCS), and served as an Associate Editor of the *IEEE Journal of Solid State Circuits* (2003-2007) and the *IEEE Transactions on Circuits and Systems II* (2008-2009). He has served on the program committees of many of the major solid-state circuits conferences and is an elected member of SSCS Adcom (2011–2013 and 2014–2017).

### Small Cells – Big Impacts: Performance Improvements and Deployment Challenges

Dr. Amit Mukhopadhyay, *Director*, Bell Labs, Alcatel-Lucent

*Abstract* – Major operators like AT&T, Verizon and Vodafone have been experimenting with Small Cells over the last several years and some of them have already done a “soft launch” in some areas or venues and gained significant experience from their efforts. While some Small Cell vendors have dived head-first into the technology and pioneered many aspects, others have taken a more cautious approach in supporting the new paradigm. Small Cell adaptation is now really taking off and tens of thousands of small cells are expected to be deployed in the next 2-3 years worldwide. This presentation started with an introduction to the new technology and provided a theoretical background on why Small Cells are essential in today’s world of mobile data explosion. The introduction was followed by a discussion on architecture, technology and different variations of Small Cells. Real-life deployment challenges were discussed as well as a brief economic analysis comparing traditional macro cells and Heterogeneous Networks (HetNets).

**Dr. Amit Mukhopadhyay** is a Director of Wireless Network Modeling in the Chief Technologies Office (CTO) organization for Alcatel-Lucent in Bell Laboratories. He leads a team that works on recommending network evolution options for major operators around the world. His current work focuses on next generation wireless technologies, including Small Cells, Heterogeneous Networks (HetNets) and Self-Organizing Networks (SON). He is also deeply involved in converged IMS networks with other broadband access technologies including DSL, Fiber and HFC Cable. He holds a Ph.D. in Operations Research from the University of Texas at Dallas. Dr. Mukhopadhyay has numerous publications in refereed journals. He serves as a Program Evaluator for the Accreditation Board for Engineering & Technologies (ABET), representing IEEE.

### The Exponential Growth of the Internet-of-Things

Joe Jesson, Adjunct Professor, TCNJ, and CTO, Assurenet

*Abstract* – This presentation discussed the growth of the Internet of Things (IoT) and identified non-obvious and surprising new business and technical growth drivers. IoT is the new intersection of low-cost wireless networks, transceiver hardware, and embedded software. Several case studies were discussed for the design, implementation and large scale deployment of IoT for cars, trucks, locomotives, airplanes, shipping containers and other “things”. Applications of IoT recently extended to, e.g., auto insurance and security applications, pill bottles, diamond tracking, music instrument cases, lights, refrigerators, and heart monitors. Verizon and AT&T envision that IoT will easily outnumber the number of smart phone owners today. The presentation included a live IoT demonstration.

**Joe Jesson** owns an Internet-of-Things consulting company in NJ, and is the CTO of Assurenet, a Telematics company in NYC. He is also a Visiting Lecturer and Adjunct Professor in Electrical Engineering at The College of New Jersey. He was the co-founder and CTO of a new GE business unit, Asset Intelligence, when he received the GE Edison Award at GE R&D in NY. He has held technical management positions at Xact Technology, Amoco Oil R&D, BP Corporate, CNA and Engineering Positions at Motorola and was a member of technical staff at the University of Chicago Jones & Searle Research Labs.

### Backhauling in TV White Spaces

Dr. Narayan Mandayam, *Distinguished Professor*, Rutgers University

*Abstract* – The FCC is opening-up TV white spaces for unlicensed use, which has led to innovations in cognitive radio technology, spectrum sensing as well as novel proposals for dynamic spectrum access. Over a good part of the last decade, there has been a tremendous amount research on the theory and practice of cognitive radio networks such as dynamic spectrum access algorithms, networking protocols and software radio platform development. There have also been efforts in the direction of advocating new spectrum governance and policy including models based on spectrum property rights, open access and hybrid versions that include a mix of the previous two approaches. While recent and prospective policy reforms and the wealth of wireless innovations hold great promise for realizing our national goals of achieving ubiquitous broadband and continued growth in our wireless sector and services, a significant barrier to entry is the lack of appropriate wireless backhaul solutions. Realizing the goal of ubiquitous wireless broadband, especially in rural areas represents the next major challenge for information technology which is increasingly dependent on mobile and wireless access. In these rural areas, in the absence of available fiber/Ethernet backhaul of very high bandwidth, we envision a scenario where a TV white space based network of fixed devices/towers can serve as a distribution and backhaul network to connect local traffic using various access

modalities (e.g. WiFi, and even possibly limited wired or cellular connections) to the internet (backbone network) at some distance away. Using the available white spaces and backhaul traffic demands in New Jersey as a case study, we evaluate the feasibility of such backhauling and present a methodology that can be used for other areas as well. Using a basic design involving fixed towers and directional antennas, our results show that the TV white spaces can be an effective medium for radio backhaul as an alternative to the costly laying of optical fiber in rural areas.

**Dr. Narayan B. Mandayam** is a Distinguished Professor of Electrical and Computer Engineering at Rutgers University. He received the B.Tech (Hons.) degree in 1989 from the Indian Institute of Technology, Kharagpur, and the M.S. and Ph.D. degrees in 1991 and 1994 from Rice University, all in electrical engineering. Currently, he also serves as Associate Director at WINLAB. He was a visiting faculty fellow at Princeton University (2002) and at the Indian Institute of Science (2003). Dr. Mandayam’s research interests are in various aspects of wireless data transmission with emphasis on techniques for cognitive radio networks including their implications for spectrum policy. Using constructs from game theory, communications and networking, his work focuses on radio resource management and signal processing for enabling wireless technologies. His recent interests also include modeling and analysis of trustworthy knowledge creation on the internet. Dr. Mandayam is a co-recipient of the 2014 IEEE Donald G. Fink Award and the 2009 Fred W. Ellersick Prize. He is also a recipient of the Peter D. Cherasia Faculty Scholar Award from Rutgers University (2010), the National Science Foundation CAREER Award (1998) and the Institute Silver Medal from the Indian Institute of Technology (1989). He is a co-author of *Principles of Cognitive Radio* (Cambridge University Press, 2012) and *Wireless Networks: Multiuser Detection in Cross-Layer Design* (Springer, 2004). He has served as an Editor for *IEEE Commun. Letters* and *IEEE Trans. on Wireless Communications*, and he also served as a guest editor of *IEEE JSAC* issues on Adaptive, Spectrum Agile and Cognitive Radio Networks (2007) and Game Theory in Communication Systems (2008). He is a Fellow of the IEEE and currently serves as a Distinguished Lecturer of the IEEE.

### Role of Software Defined Networking in Mobile Networks

Colin Kahn, *member, Corporate CTO*, Bell Labs, Alcatel-Lucent

*Abstract* – Elastic computing and storage in data centers has ushered in a new need for highly dynamic networking that is being addressed by software defined networking (SDN). The benefits of SDN in data center networking, both within and between data centers have been firmly established. The key question that was addressed in this presentation is what role SDN can play in the domain of wireless networking. With the ever expanding use of mobile networks for a plethora of applications through a wide variety of devices such as machine-to-machine (M2M), network operators are facing

some new challenges, including accommodating large traffic volumes cost effectively, providing customized network services for new device categories and applications, and handling new shared radio access network and shared spectrum access configurations. The major principles of SDN, such as the separation of control plane and data plane, resource discovery, network abstraction, and programmability of the network by external applications are useful constructs to address the new requirements on mobile networks. It was discussed at a high-level how SDN and network programmability can enhance network optimization, network services, network partitioning, and Network Function Virtualization (NFV). Next, the components of a Programmable Wireless Network (PWN) framework that are required to achieve the network abstraction and programmability were detailed. This was followed by a detailed discussion of the application of this framework to four mobile network use cases: (a) optimized traffic steering between WiFi and cellular for WiFi offloading (b) wireless transport network optimization (c) dynamic network slicing for Public Safety, and (d) optimized video delivery.

**Colin Kahn** is a member of the Corporate CTO Organization at Alcatel-Lucent (ALU). He currently supports 5G and LTE access and core network architecture initiatives, focusing on the development of new solutions that leverage Alcatel-Lucent's traditional strengths in network systems. Over the past 20 years he has worked at Alcatel-Lucent, Lucent Technologies, and AT&T, providing systems engineering, standards and customer support for IS-136 TDMA, CDMA (IS-95, 3G1X and EV-DO), GSM, UMTS and LTE. Prior to joining the AT&T wireless business unit he spent six years in AT&T Federal Systems conducting acoustics related research. Prior to joining AT&T, he conducted fusion energy research at General Atomic Corp. and Princeton University Plasma Physics Laboratory. He holds Electrical Engineering degrees from MIT and Cornell University, and has published numerous papers.

## Self-Organizing Networks

Dr. Rudra Kumar Shivalingaiah, *Senior Staff Engineer*, Qualcomm

*Abstract* – With the evolution of mobile communication networks and growing bandwidth demand for intensive applications, mobile data traffic is expected to increase exponentially (known as 1000x data challenge). Small cells are envisioned to offer significant capacity gains compared to macro-only deployment in addition to providing coverage extensions. Small cell deployments are designed to reduce the cost of service delivery, help open new revenue opportunities, and improve the end-user experience with faster mobile broadband services and better quality voice connections. Minimal CapEx and much reduced OpEx associated with small cells have motivated operators around the globe to consider overlaying small cells on existing macro-layer networks. Self-Organizing Networking (SON) plays an important role in facilitating large scale deployment of small cells. The deployment of small cells is expected to be plug-n-

play by customers for unplanned end-user deployments and a very minimal effort for planned (operator/enterprise) deployments. SON is also considered essential in minimizing the interference between the macro and small cell layers and the impact on the user experience while achieving the goals of coverage and capacity gains. 3GPP provides framework to help standardize the SON techniques across industry by defining certain signaling messages and interfaces. The implementation of SON algorithms is vendor-specific but their design is expected to be based on the 3GPP defined framework. This presentation gave an overview of the small cells, different flavors and deployment scenarios. An introduction to 3GPP SON framework was provided and a typical architecture of SON implementation was discussed. The presentation mainly focused on 4G/LTE small cells and some of the SON features include PCI selection, Automatic Neighbor Relations (ANR), Mobility Load Balancing (MLB), Mobility Robustness Optimization (MRO), RACH Optimization and Energy Saving.

**Dr. Rudra Kumar Shivalingaiah** is a Senior Staff Engineer at Qualcomm Technologies, Inc., in Bridgewater, NJ. His research areas include cellular networks and commercialization of SON algorithms, speech signal processing, echo cancelation, modems, and signal processing applications in fluid mechanics, serodynamics and atmospheric flows. He has a B.S. in Electronics and Communication Engineering from Bangalore, India, a M. Tech in Industrial Electronics from Mysore University, India, and a Ph.D. from the Indian Institute of Science, Bangalore, India. He held various positions prior to joining Qualcomm: Scientific Officer, Indian Institute of Science (IISc), Scientist, National Aerospace Laboratories (NAL), Software Design Engineer, Texas Instruments India, Member of Technical Staff, Bell-Labs (Holmdel, NJ, and Bangalore, India), and Managing Director, VectorMax India in Bangalore.

The slides of the presentations will be made available on the symposium's website:

<http://sites.ieee.org/northjersey/events/2014-NJACS>

Please contact the organizing committee or volunteers for any additional follow up questions or feedback on the event.

## IEEE North Jersey Section Course

### C# .NET Programming

*Saturdays, September 6 through October 25, 2014*

*Seven weekly classes (September 6, 13, 27, October 4, 11, 18, 25, 2014)*

*New Jersey Institute of Technology, Newark, New Jersey (Checks should not be mailed to this address)*

#### IEEE North Jersey Section thanks New Jersey Institute of Technology, for sponsoring this course.

The IEEE North Jersey Section is offering a course entitled "C# .NET Programming". Since 2008, C# .NET has generated significant headway in Fortune 1000 enterprise development systems. Dice.com lists 1000+ C# .NET jobs (up from 820 last year) in the New York tri-state area daily! This course will cover the fundamentals of C# language, the .NET framework, window and web-based applications, ADO.NET, ASP.NET, and XML. It will be useful for anyone to develop applications based upon these tools. You will receive the IEEE Certificate of Achievement and earn 2 IEEE Continuing Education Units (CEUs) when you complete the course. Microsoft Corp. has MCAD and MCS D certifications. You may wish to get certified by taking the necessary Microsoft exams with the knowledge gained from this course. Past attendees got jobs at AT&T, Goldman Sachs, IBM, Microsoft, Verizon, and other Fortune 500 firms.

**Instructor: Donald Hsu, PhD.**, Donald Hsu, PhD., has been a corporate manager for 20+ years and is an experienced trainer. Since 2008, he has trained 700+ people in C++, Java, Oracle, and WebLogic, XML, and C#.NET in 8 different organizations.

#### TOPICS

1. Compare the enterprise development tools using Java to C#.NET
2. Define Visual Studio .NET Version 2008, 2010 and latest
3. Identify C# syntax, data type, control structures and common language runtime
4. Distinguish methods, arrays, object-oriented programming
5. Build graphical user interface, multithreading, files and streams
6. Explain the benefit of using extensible markup language (XML)
7. Select database, SQL server, and ADO .NET
8. Choose ASP .NET, web forms, web services, advanced topics
9. Present student Projects

**WHERE:** New Jersey Institute Technology, Newark, New Jersey

**WHEN:** 7 Saturdays, March 1, 8, 22, 29, April 5, 12, 19, 2014, 9:00 AM to 12:00 noon

**COST:** IEEE members \$500; Non-IEEE members \$550.

**Contact:** Donald Hsu, [yanyou@hotmail.com](mailto:yanyou@hotmail.com)

#### REGISTRATION: C# .NET Programming

Please mail the completed registration with a check (payable to "North Jersey Section IEEE") to:

**Donald Hsu, PhD, Chair Education Committee, IEEE North Jersey Section, P.O. Box 2093, Fort Lee, New Jersey 07024.**

Name: \_\_\_\_\_ Email address \_\_\_\_\_

Non-member

IEEE Member Member #: \_\_\_\_\_

Employer: \_\_\_\_\_

Employer Address: \_\_\_\_\_

Home Address: \_\_\_\_\_

Business (day) telephone #: \_\_\_\_\_ Home telephone #: \_\_\_\_\_

Please enclose required fee payable to: **North Jersey Section IEEE**

I wish to receive IEEE Completion Certificate

Signature: \_\_\_\_\_

## IEEE North Jersey Section Course

### Project Risk Management

*Saturdays, September 6 through October 25, 2014*

*Seven weekly classes (September 6, 13, 27, October 4, 11, 18, 25, 2014)*

*New Jersey Institute of Technology (Checks should not be mailed to this address)*

#### IEEE North Jersey Section thanks New Jersey Institute Technology for sponsoring this course

The North Jersey Section IEEE is offering a course entitled "Project Risk Management". Dice.com lists 5000+ Project/Risk related jobs in the New York tri-state area daily! This course will help you to break down a master project into manageable tasks, develop risk plans, pinpoint possible solutions, and provide strategies to keep the project under control. Using Microsoft Project 2013 software, you will learn to accomplish many projects. In addition, it will greatly enhance your business, communications and interpersonal skills.

You will receive the IEEE Certificate of Achievement and earn 2 IEEE Continuing Education Units (CEUs) when you complete the course. You may wish to take the Certification exam in Project Management administered by Project Management Institute from the knowledge that you learned in this course. \*\*\*\*\*This is not an exclusive PMP-PMI examination prep course. No PDUs are issued for PMP eligibility. \*\*\*\*\* However, past attendees did successfully get the PMP certifications!

**Instructor: Marilyn Moux, PMP, ITILv3, Cloud Essentials, CAP and Security+.**, has been a corporate manager for 20+ years and an IT security professional with experience within the entire Software Development Life Cycle Project Management.

#### TOPICS

- Explain the need for a project risk manager
- Define SOW, PERT, GANTT, CPM, and Scope of the project
- Identify the team members, resources and plan for the strategy
- Calculate schedule, budget variances, and monitor project progress
- Manage changes, estimates, and communications
- Set a baseline, import tasks from MS Excel, export MS Project files to MS Word
- Approve updates and conclude a project plan
- Analyze Cloud Computing, Service Level Agreements, IT Security
- Present student Projects

**WHERE:** New Jersey Institute Technology, Newark, New Jersey

**WHEN:** 7 Saturdays, (September 6, 13, 27, October 4, 11, 18, 25, 2014) 9:00 am to 12:00 noon

**COST:** IEEE (& affiliate) members \$500; Non-IEEE members \$550.

**CONTACT:** Donald Hsu, [yanyou@hotmail.com](mailto:yanyou@hotmail.com),

#### REGISTRATION: [Project Risk Management in Seven Saturdays](#)

Please mail the completed registration form with a check (**Checks payable to "North Jersey Section IEEE"**) to **Dr. Donald Hsu, Chair Education Committee, IEEE North Jersey Section, P. O. Box 2093, Fort Lee, New Jersey 07024.**

Name: \_\_\_\_\_ Email address \_\_\_\_\_

Non-member

IEEE Member Member #: \_\_\_\_\_ Member of \_\_\_\_\_ technical society

Employer: \_\_\_\_\_

Employer Address: \_\_\_\_\_

Home address: \_\_\_\_\_

Business (day) telephone #: \_\_\_\_\_ Home telephone #: \_\_\_\_\_

Please enclose required fee payable to: **North Jersey Section IEEE**

I wish to receive the IEEE Completion Certificate

Signature: \_\_\_\_\_

**THE INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS, INC.**  
**NORTH JERSEY SECTION**  
**MTT-Society & AP-Society Joint Chapter**  
**PRESENTS**



**29<sup>th</sup> ANNUAL SYMPOSIUM AND MINI – SHOW**

**THURSDAY OCTOBER 2, 2014**

**PLACE: Hanover Manor, 16 Eagle Rock Ave., E. Hanover, NJ 07936. 973-992-7425**

For Registration: <https://meetings.vtools.ieee.org/m/26953>

**MINI SHOW FEATURING LATEST PRODUCTS - (9:30 AM TO 4:30 PM)**

**TECHNICAL SESSIONS (8:50AM to 5:10PM)**

| Time        | Topic                                                                                                                          | Speakers                                       | Title                                                                                                 | Affiliation                                          |
|-------------|--------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|-------------------------------------------------------------------------------------------------------|------------------------------------------------------|
| 8:50        | Opening Remarks                                                                                                                | George Kannell                                 | Tech. Chair IEEE MTT/AP NJ                                                                            | LGS Innovations                                      |
| 9:00-10:00  | The Magic of Correlation Measurements                                                                                          | Dr. Enrico Rubiola                             | Full Professor                                                                                        | CNRS FEMTO-ST Institute                              |
| 10:00       | <b>BREAK - MINI SHOW EXHIBITION</b>                                                                                            |                                                |                                                                                                       |                                                      |
| 10:30-11:00 | Microwave & Millimeter Wave Power Amplifiers: Technology, Applications, Benchmarks & Future Trends                             | Dr. James Komiak                               | IEEE Fellow, Engineering/Scientific Fellow                                                            | BAE Systems                                          |
| 11:00-12:00 | Electrically Short Antenna: Passive & Active Antenna for General Applications                                                  | Dr. Ulrich Rohde                               | Chairman, Professor at Cottbus Univ., & Technical University Munich, Germany                          | Synergy Microwave Corp.                              |
| 12:00       | <b>LUNCH - MINI SHOW EXHIBITION</b>                                                                                            |                                                |                                                                                                       |                                                      |
| 1:00-1:30   | RF electro-thermal simulation filters with a Dielectric Resonator                                                              | Dr. Charlotte Blair                            | Senior Application Engineer                                                                           | Ansys, Inc.                                          |
| 1:30-2:00   | Novel Thermal Management Alternatives for RF applications                                                                      | Joe D'Agostino                                 | Founder and President                                                                                 | Amplitude Technical Sales / Thermacore               |
| 2:00-2:30   | Model Based Engineering for Radar development                                                                                  | Dr. Murthy Upmaka                              | Senior Application Specialist                                                                         | Keysight Technologies                                |
| 2:30        | <b>BREAK - MINI SHOW EXHIBITION</b>                                                                                            |                                                |                                                                                                       |                                                      |
| 3:00-3:30   | The Strategic Challenge of UN Military and Civilian Information & Communications Technologies (ICT) in Peacekeeping Operations | Eduardo Artigas<br>Lt Axel Weber<br>David Padi | Chief Mission Support Unit<br>Military Communications Officer<br>Comm. & IT Strategic Support Officer | United Nations<br>Telecommunications<br>Technologies |
| 3:30-4:00   | Cell phone location & detection with direction finding techniques                                                              | Scott N. Schober                               | President / CEO                                                                                       | Berkeley Varitronics Systems, Inc.                   |
| 4:00-5:00   | Introduction to Software Defined Radio for Microwave Engineers                                                                 | Jeffrey Pawlan                                 | Consultant and Owner, DML                                                                             | Pawlan Communication                                 |
| 5:10        | Closing remarks                                                                                                                | Kirit Dixit                                    | Chair IEEE MTT/AP NJ                                                                                  | Microcom Sales                                       |

Registration is on-site. Details are in the October issue of the NORTH JERSEY IEEE NEWSLETTER and Section Home page <http://sites.ieee.org/northjersey/>

**ALL ARE WELCOME (IEEE Membership not required). REGISTRATION IS ON-SITE**  
**THERE IS NO CHARGE TO ATTEND THE SYMPOSIUM OR SHOW.**  
**COMPLEMENTARY BREAKFAST / LUNCH INCLUDED FOR ALL.**

FOR FURTHER INFORMATION

|                               |                       |              |                           |
|-------------------------------|-----------------------|--------------|---------------------------|
| Chair / Exhibition:           | Kirit Dixit           | 201-669-7599 | kdixit@microcomsales.com  |
| Chair MTT/APS Symposium       | Har Dayal             | 973-633-4618 | dayalhar@gmail.com        |
| Technical Program Chair:      | George Kannell        | 973-437-9990 | gkk@lgsinnovations.com    |
| Publicity:                    | Arthur Greenberg      |              | a.h.greenberg@ieee.org    |
| Event / Location Coordinator: | Ken Oexle             | 973-386-1156 | k.oexle@verizon.net       |
| MTT/AP Chapter Chair          | Dr. Ajay Poddar       | 201-560-3806 | akpoddar@synergymwave.com |
| MTT/AP Chapter Vice Chair     | Professor. Edip Niver | 973-596-3542 | edip.niver@njit.edu       |
| Event Coordinator:            | Russell Pepe          | 201-960-6796 | rpepe@att.net             |

Special thanks to Dru Reynolds of Reynolds, Recruiters & NJ Coast Section for her invaluable assistance.

## IEEE North Jersey Section

*IEEE North Jersey Section Membership Development (MD), Young Professionals (YP), Women In Engineering (WIE), and Professional Activities Committees for Engineers (PACE) present:*

### Professional Development Seminar Series: Art of Speechcraft - Returns to Murray Hill

*Mondays, October 6 through November 24, 2014*

*Seven weekly classes (October 6, 13, 20, 27, November 3, 10, 17, 24, 2014)*

*Bell Laboratories, Alcatel-Lucent, 600 Mountain Avenue in Murray Hill, NJ 07974*

**Led by:** Holly Anderson, ACB\*, CL\*; Susanne Arney, DTM\*; Brian Cort, ACS\*, ALB\*; Laurie Kaplan, ACB\*, ALB\*; David La Bruno, CC\* and Host - Mani Iyer, ACB\*, ALB\*

Are you nervous about an upcoming presentation? Want to increase your confidence in communication? The Toastmasters clubs of Murray Hill are once again offering our popular seminar series on the art of Speechcraft. In this 8-week seminar series, you will learn techniques to improve your ability to deliver both written and impromptu speeches through live practice with Toastmasters advisors committed to helping you succeed as a speaker and develop your confidence. Techniques like speech organization, body language, and vocal variety will help you enhance your personal presence.

#### **About the Toastmasters Clubs of Murray Hill:**

Cosmopolitan Toastmasters and the Murray Hill Speakers Club have been helping employees as well as members of the community polish their speaking and leadership abilities for over half a century!

Cosmopolitan Toastmasters meets the 2nd and 4th Tuesdays of each month from 12 pm – 1 pm

Murray Hill Speakers Club meets on odd (first, third and fifth, if any) Thursdays from 12:10 pm to 1:10 pm while on even (second and fourth) Thursdays, the club meets from 5:30 pm to 6:30 pm.

All guests are welcome to both clubs. Check the club websites on the web for contact information.

#### **Biographies:**

**Holly Anderson**, ACB, CL, is the immediate past President of the Cosmopolitan Toastmasters Club. She has also served the Cosmopolitan Club in various officer roles. Holly is a Human Resource Business Partner supporting the Wireless organization in North America.

**Susanne Arney**, DTM is the VP Membership of Cosmopolitan Toastmasters Club, and served as President of Murray Hill Speakers Club and Toastmasters International Area 32 Governor; Susanne is a Bell Labs Fellow and is currently a Senior Director, Enabling Physical Technologies Research in Bell Labs, Alcatel-Lucent.

**Brian Cort**, ACS, ALB is the VP-Public Relations of the Cosmopolitan Toastmasters Club and VP-Education of the Murray Hill Speakers Club. He has served as Past President of both the Murray Hill Speakers Club and Cosmopolitan Toastmasters Club, and as Toastmasters International Area 32 Governor for 2011 to 2012. He is a Distinguished Member of Technical Staff at Alcatel-Lucent, and currently works on 4G Wireless technology.

**Laurie Kaplan**, ACB, ALB, is the VP-Education of the Cosmopolitan Toastmasters Club, having previously served other officer roles. During the last 10 plus years, Laurie has worked for Bowker, CSA, Serials Solutions, and ProQuest in the position of Director, Serials Editorial. All of these companies are part of the same parent company, Cambridge Information Group.

**David La Bruno**, CC, is the President of the Murray Hill Speakers Club (MHSC). He is a Senior Intellectual Property Counsel at Alcatel-Lucent, and currently manages patent prosecution related to the mobile/wireless core network, in particular technology directed to 4G Wireless.

**Mani Iyer**, ACB, ALB, is the President of Cosmopolitan Toastmasters Club having previously served other officer roles. He has also served as the President of the Holmdel Toastmasters Club. Mani is a certified IEEE Wireless Communications Professional (WCP) and a RF Systems Engineer & Architect in the Wireless Division at Alcatel-Lucent.

Toastmasters Educational Designations, (e.g. CC/CL Competent Communicator/Leader; ACB/ACL Advanced Communicator Bronze/Silver etc.; DTM Distinguished Toastmaster) Please see <http://www.toastmasters.org/> to learn more about these designations. A nominal fee of \$20 to cover the cost of materials is required (yes, only \$20 for all 8 sessions!). Space is very limited.

All are welcome! You do not have to be a member of the IEEE to attend. You don't need to be a member of Toastmasters to participate in this program. Seats are very limited (~10). Registration is required at the IEEE vtools link.

**REGISTRATION:** <https://meetings.vtools.ieee.org/m/28039>

**WHERE:** Bell Laboratories, Alcatel-Lucent, Main Building, Room: 6A-106, 600 Mountain Avenue, Murray Hill, NJ 07974,  
[Getting to Bell Labs](#)

**WHEN:** 8 Mondays, October 6, 13, 20, 27, November 3, 10, 17, 24, 2014, 5:30 PM to 7:30 PM

**COST:** \$20.

**CONTACT:** Mani Iyer [mani.iyer@ieee.org](mailto:mani.iyer@ieee.org)



# IEEE North Jersey Section Course

## Big Data Market Research in Seven Wednesdays

Wednesdays, October 15 through December 3, 2014  
Seven weekly classes (October 15, 22, 29, November 5, 12, 19, December 3, 2014)

New Jersey Institute of Technology (Checks should not be mailed to this address)

### IEEE North Jersey Section thanks New Jersey Institute Technology for sponsoring this course

Careerbuilder.com lists 7252 Marketing, 4192 Data, and 1736 Analyst positions in the New York tri-state area daily! As an engineer, you never did marketing. Getting the MBA takes two years. This is a better alternative to learn marketing and how you work as Data Analyst or Market Researcher.

\*\*\*\*\*

This course deals with the collection, evaluation and analysis of the market-related big data. Topics are: market research industry, problem definition, research process, focus group, secondary database, quantitative research, questionnaire design, sampling techniques, statistical testing, bivariate and multivariate correlation, communicating results and management reports. Using IBM SPSS software, you will perform detailed big data analysis.

\*\*\*\*\*

You will receive the IEEE completion certificate when you complete this course. In addition, you will be qualified to work as big data analyst/market researcher in healthcare, finance, social sciences, at private/public sectors, or in government, that require quantitative skills (quants).

**Instructor: Donald Hsu, Ph.D.,** has been a corporate manager for 20+ years and is an experienced trainer. Since 2009, he has trained 750 people in Big Data, Data Warehouse, Management, Global Marketing, and Marketing Research courses in seven organizations. In addition, he does international business in 75 countries.

### TOPICS

- 1. Describe the big data market research industry, problems and research process
- 2. Understand the importance of primary data collection, secondary database, and survey
- 3. Define quantitative research, measurement technique and sampling methods
- 4. Explain the questionnaire design, data processing and statistical testing
- 5. Build the knowledge of bivariate regression and multivariate data analysis
- 6. Communicate results, manage ethical issues, and prepare reports
- 7. Employ IBM SPSS software for frequency analysis, ANOVA, T-test and others
- 8. Review real-world marketing research using Harvard Business School cases
- 9. Present Final Project in Big Data Market Research

**WHERE:** New Jersey Institute Technology, Newark, New Jersey  
**WHEN:** 7 Wednesdays, (October 15, 22, 29, November 5, 12, 19, December 3, 2014) 6:00 pm to 9:00 pm  
**COST:** IEEE (& affiliate) members \$500; Non-IEEE members \$550.  
**CONTACT:** Donald Hsu, [yanyou@hotmail.com](mailto:yanyou@hotmail.com)

### REGISTRATION: **Big Data Market Research in Seven Wednesdays**

Please mail the completed registration form with a check (Checks payable to "North Jersey Section IEEE") to **Dr. Donald Hsu, Chair Education Committee, IEEE North Jersey Section, P. O. Box 2093, Fort Lee, New Jersey 07024.**

Name: \_\_\_\_\_ Email address \_\_\_\_\_

Non-member  IEEE Member Member #: \_\_\_\_\_ Member of \_\_\_\_\_ technical society

Employer: \_\_\_\_\_

Employer Address: \_\_\_\_\_

Home address: \_\_\_\_\_

Business (day) telephone #: \_\_\_\_\_ Home telephone #: \_\_\_\_\_

Please enclose required fee payable to: **North Jersey Section IEEE**

I wish to receive the IEEE Completion Certificate Signature: \_\_\_\_\_

## 2014 IEEE North Jersey Section Volunteer

### *Executive Committee*

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[rcepe@ieee.org](mailto:rcepe@ieee.org)

**1<sup>st</sup> Vice-Chair** – Adriaan van Wijngaarden  
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**2<sup>nd</sup> Vice-Chair** – Ajay Poddar  
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**Treasurer** - Kalyan Mondal  
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### **Member-at-Large**

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**Senior Past Chair** – Amit Patel  
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### *Society Chapters*

#### **Aerospace Electronic Systems Society**

**Chair** – Goran Djuknic  
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**Vice-Chair** – Naresh Chand  
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#### **Antennas and Propagation / Microwave Theory and Techniques Society**

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#### **Circuits and Systems Society / Electron Devices Society**

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#### **Communications Society**

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#### **Computer Society**

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#### **Controls Society**

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#### **Engineering in Medicine and Biology Society**

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#### **Industrial Applications Society**

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#### **Information Theory Society**

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#### **Instrumentation Measurement Society**

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#### **Photonics Society**

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#### **Signal Processing Society**

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#### **Systems, Man, and Cybernetics Society**

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### *Technical Councils*

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### *Affinity Groups*

#### **Consultants Network**

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**Co-Chair** - John C Taylor  
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#### **Education**

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#### **Legal Activities**

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