

PHILADELPHIA SECTION of the IEEE

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Almanack

Vol. 60, No. 8 www.ieeephiladelphia.org

October 2015

SECTION MEETING

Oct. 20, 2015

Dinner: 6 pm

Speaker: 7 pm

Sheraton University City

Philadelphia

Meal Cost: \$25.00 (students \$15.00)

Parking cost paid by section

Big Blackouts

Robert B. Swayne, P.E.

Medium Voltage VFD Selection and Application

Joseph F. Maida, P.E.

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Note: In the event of bad weather please call the Sheraton after 1pm the day of the meeting at 215-387-8000. Ask the front desk if the meeting has been canceled.

October 2015

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				1	2	3
4	5	6 IEEE Day	7	8	9	10 Arduino Workshop
11	12 ED/CPMT	13 Adcom	14	15	16	17 Arduino Workshop
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IEEE NIGHT

Philadelphia Section Meeting

Joint with: Aerospace and Electronics Systems (AES), Professional Communication (PC), Power Engineering/Industry Applications (PE/IA)

Date: Tuesday, October 20, 2015

Time: Dinner is at 6 pm. Program starts at 7 pm, and 8 pm.

Location: Sheraton University City, 36th and Chestnut, Philadelphia

Cost of dinner is \$25.00 (students \$15.00); meeting only is free (Real cost of dinner is higher, which is mostly subsidized by section)

Reservations are needed, call 484.270.5136 or email the section office. sec.philadelphia@ieee.org or use vtools in the web site

Indoor parking is at location and paid by section. Bring ticket to be stamped.

Note: In the event of bad weather please call the Sheraton after 1pm the day of the meeting at (215) 387-8000. Ask the front desk if the meeting has been canceled.

Big Blackouts – A history of the nation’s major power blackouts and description of our electrical grid

Robert B. Swayne, P.E., Burns Engineering Inc.

November 9th, 2015 marks the 50th anniversary of one of the largest electrical blackouts in the United States, *The Great Northeast Blackout of 1965*. 30 million people were left in the dark, including all New York City. With significant government intervention following and massive planning to prevent future occurrences, New York City again went dark in 1977, and again, 2004, in the largest blackout to hit the United States. New York City is far from the only major city affected by blackouts. Cities and states across the country have been affected at one time or another, including Philadelphia and the surrounding region. This presentation will cover the history of major US Blackouts, their causes, impact and aftermath. The presentation will also describe the US power grid with its three separate systems, transmission voltage levels, AC versus DC transmission, and who watches over this nation-wide web which we all depend on 24/7. Can a major blackout occur again in the Philadelphia region and are you ready? Roll the dice, but be prepared.

Robert B. Swayne, P.E.

Bob is Chief Electrical Engineer with Burns Engineering, Inc., Philadelphia, PA. He has over 40 years of electrical engineering and design experience with a variety of facilities including steel mills, aerospace manufacturing, educational, commercial, industrial, transportation, and substations. His engineering experience also encompasses a wide variety of design projects involving low and medium voltage power distribution systems, power studies, emergency/standby generator systems, life safety systems, lighting systems, power monitoring and SCADA systems.



A graduate of Drexel University with BS and MS In Electrical Power Engineering, Bob is a licensed professional engineer in Pennsylvania, New Jersey, Maryland and California. He is Lighting Certified by the National Council on Qualifications for the Lighting Professions, LEED certified (Leadership in Energy and Environmental Design), and was 2013 Delaware Valley IEEE Electrical Engineer of the Year.

Bob has served positions on IEEE local and national societies including the Philadelphia Power & Energy - Industry Applications Joint Chapter, National Electrical Code panels, IEEE standards committees, and is member of NERC (North American Electric Reliability Corporation). He is currently secretary of the 2016 IEEE Philadelphia Petroleum and Chemical Industry Committee conference.

Bob's interest in blackouts dates back to the first northeast grid collapse which serendipitously influenced his career direction. He has experienced their impact, studied cause and effects and prepared a presentation for the Philadelphia IEEE Section on the nation's power grid, its history, operation and realities of our insatiable dependence on electricity.

(Program continues next page)

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Medium Voltage VFD Selection and Application

Joseph F. Maida, P.E., Maida Engineering Inc.

Medium Voltage (MV) Variable Frequency Drives (VFDs) provide many benefits for starting and controlling the speed of large commercial and industrial motors. Because VFDs inherently provide a soft start, low voltage VFDs can be used for large AC motors. However, there is a point, which is usually dictated by the power sources available and the economics, where MV VFDs have to be used.

This course will review the considerations that should be considered when determining the type of MV VFD to use for an application. Various configurations for MV VFDs will be discussed using pictures of actual installations and equipment. The technical content, which was covered in the Low Voltage VFD Selection and Application Course, will be repeated where it is necessary to explain the MV applications

Some of the benefits and challenges of MV VFDs as compared to LV VFDs will be discussed.

The attendee will gain an understanding of MV VFDs application, the configuration of MV VFDs, which use both indoor and outdoor components that include environmentally friendly liquid filled transformer and cooling towers, and the status of today's power electronics technology.

Joseph F. Maida is an entrepreneur and an engineer. After obtaining a BS and an MS in Electrical Engineering from Drexel University and four of his eighteen current PE licenses, Joseph, with the help and support of his wife Nancy, left his job with Day and Zimmermann, Inc, and started Maida Engineering, Inc. At the time, Nancy was pregnant with their third child. They would eventually have four wonderful and very successful children.

Since 1978, as president of Maida Engineering, Inc., Joseph has personally or administratively overseen many of the numerous large and small projects in various markets and over a number of disciplines performed by his company.

Joseph Maida's technical skills and knowledge have evolved from performing engineering on relatively simple to very large and complex projects. Some of his personal projects, which were completed during the last ten years, include the replacement of the motors, drives, lubrication systems and controls for two helicopter-blade, 4050 HP dynamic balancing towers; the replacement of an existing wind tunnel's AC wound rotor and DC motors with a 18,000 HP synchronous motor and a 22,000 HP, 36 pulse VFD; the engineering and design for a 6 MW, 13.2 KV Mission Critical Electrical Power Generation and Distribution Systems for the Philadelphia Veterans Medical Center; the conceptual design and code analyses and preparation of the functional specifications for the replacement of the motor, drives and controls for the Tram systems within the Saint Louis Arch; the installation of 5 MW Standby Power Distribution System and Priority Load Management Control System for a Pharmaceutical R&D campus; a new cement plant's 34.5 KV and 4,160 Volt, 20 MVA power distribution system; a hazardous area analysis for areas containing fossil fuel dust; numerous power system studies including load flow, voltage drop, short circuit, equipment evaluation, TCC Coordination, motor starting, harmonics, and arc flash analyses; the remodeling of numerous commercial kitchens; the power distribution and control of new outdoor and indoor lighting; a new Command Center; the study for upgrading a large data center's standby and interruptible power supplies; and the installations of new services, feeders and branch circuits for



pharmaceutical, fiberglass and cement plants and commercial buildings, HVAC/mechanical equipment and renovations to buildings; and the MEP design for a 120 apartment university student resident complex.

Joseph Maida has prepared bid and construction documents including drawings and specifications that have been used by its clients for design/build projects and by Maida Engineering to perform design/build projects utilizing the services of both in-house and outside engineers, fabricators and contractors. Some of these design/build projects have included: a new fiberglass manufacturing plant and warehouse, the engineering, fabrication, installation of a NFPA 86 Compliant Combustion Safety PLC (SEL 2) System and the VFD, Motor and PLC Control System for a 3,000 HP Wind Tunnel.

Joseph has written and taught numerous courses on the Application of Low and Medium Voltage VFDs and Motor. Power System Studies, Arc Flash Hazard Analysis, Hazardous Area Analysis, and Control Systems.

Joseph Maida has extensive experience in the interpretation and application of building and fire codes. He has performed many electrical hazardous areas classification studies within chemical, pharmaceutical and cement plants and within oil refineries. He has contributed to the writing of a section of NFPA 70, National Electrical Code and served as the Electrical Engineer on the Uniform Construction Code Review and Advisory Committee for the Commonwealth of Pennsylvania from 2009 to 2011.

Joseph is a member of NSPE, PSPE, IEEE and P.I.E. (Practicing Institute of Engineers) through which he reviews and approves courses and activities for Professional Engineering credit hours of the State of New York.

Registration for the 2015 International Test Conference - Now Open

By Marvin Weilerstein

Philadelphia Section is the sponsor of the International Test Conference

Ever wonder how we are able to manufacture and ship microprocessor with billions of transistors and verify that they are all good? Ever wonder how we are able to verify that boards and systems assembled from disparate components work? Ever wonder how we are able to improve manufacturing yields of ICs to allow us to manufacture bigger and more complex chips at ever lower costs?

The field of electronic test provides the answer to all these questions and more. You are invited to the International Test Conference (ITC) www.itctestweek.org, the world's premier conference dedicated to the electronic test of devices, boards and systems-covering the complete cycle from design verification and validation, test (DFT, ATPG, and BIST), diagnosis, failure analysis and back to process, yield, reliability and design improvement. At ITC, test and design professionals confront the challenges the industry faces, and learn how these challenges are being addressed by the combined efforts of academia, design tool and equipment suppliers, designers, and test engineers.

This year the 46th ITC will be held in the Disneyland Hotel, Anaheim, from October 6 to 8. Two days of www.itctestweek.org/papers/test-week-tutorials precede the conference on October 4 and 5, and www.itctestweek.org/papers/workshops follow the conference.

In addition the www.itctestweek.org/exhibitors present the latest test products.

Visit us at www.itctestweek.org, review our **Advance Program** and register today to hear the latest advances in the field of test.

Section notes

IEEE PHILA. SECTION OFFICERS

Chair: Philip Gonski, P.E.; pgonski@gmail.com
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Secretary: Tal Singer, tsinger@centrak.com
Past Chair: Mark Soffa, msoffa@kns.com

Adcom meets second Tuesday of the month (Oct. 13) at the Sheraton University City. Members are welcome to attend. Reserve a seat by calling the office by the Friday before.

Almanack Staff

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Deadline for the November issue is October 13, 2015

New & improved web site: www.ieeephiladelphia.org

ADVERTISE IN THE ALMANACK:

The Philadelphia Section of the IEEE encourages placement of technical, professional, promotional and commercial advertisements in the Almanack. The Almanack is published ten times a year and is read by more than 4,000 members with an average annual salary of over \$70,000 in over 150 key industries. For more information, contact Peter Silverberg at 856.461.6615 or psilverberg3@comcast.net

Rates:

Full Page: 7.5x10: \$100

3/4 Page: 7.5x7.5: \$75

1/2 Page: 5 x 5: \$50

1/4 Page: 2.5 x 5: \$25

1/8 Page: 2.5 x 2.5: \$12.50

Main Office: 11 Bala Avenue, Bala Cynwyd PA 19004, 484.270.5136 sec.philadelphia@ieee.org

Email blasts: We send emails every week. The first time we send an ad, it costs \$50. We will send the identical ad three more times for \$25 each time. If the copy changes, the \$50 applies. If four times are done, the fifth time is like a first time i.e. \$50. We might be bandwidth limited, so please keep them short.

ED/CPMT Chapter Meets October 12

Philadelphia's ED / CPMT (Electron Devices/Components, Packaging and Manufacturing Technology) chapters are now being led by Alan Mathason, Chief Operating Officer of NextFab. The first meeting will be on Monday October 12, from 6-8 pm at NextFab, 2025 Washington Ave. This meeting will focus on possible projects and discussion topics of the chapters. After the meeting, we'll also get to tour NextFab, Philadelphia's community high-tech prototyping and product development space (more info at nextfab.com).

Register via vtools.

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ELECTRIC EXPO 2015

WEDNESDAY AND THURSDAY **OCTOBER 28-29**

YOU'RE INVITED TO ATTEND

WED: 2 - 8 PM • THURS: 2 - 7 PM

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WHO ATTENDS?

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- Lighting Professionals
- Electrical Contractors
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Call for Volunteers for Future City

Our section is one of the supporters of *Future City*. This STEM program runs on volunteers. The greatest need at this stage of the competition is for mentors. Each school is assigned a mentor to work with the students and share their real world experiences to help them develop their future city. Just 1 or 2 hours a week can make a big difference in how students approach their project and how they start to address it. The list will be on our web site. As of today 18 schools in Pennsylvania and Collingswood NJ are looking.

In January, there is a judging session that also needs volunteers. For everything you would like to know further visit <www.futurecityphilly.org>



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PATH TO LICENSE & FE PANEL DISCUSSION

Tuesday October 1, 2015 – 6:00 – 7:30pm

Urban Engineers' Training Room (7th Floor, 530 Walnut St., Philadelphia)

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Questions? Contact

Giselle Schlegel at Giselle.Schlegel@gmail.com
 Laura-Ann Chin at Laura-Ann.Chin@jacobs.com

The Engineers' Club of Philadelphia's Committee on Younger Members invites YOU to a panel discussion on becoming licensed in the field of engineering. Join in on a panel of three licensed professional engineers and one engineer-in-training on **why it is important to get licensed** and how getting licensed applies to you as a practicing engineer, engineer-in-training or an engineering student. Also, come to learn some tips, strategies and best practices on successfully preparing for both the FE and PE exam.

- **COMPLIMENTARY** pizza & beverages will be served
- Space is limited to the first 40 registrants. RSVP online by Monday September 28, 2015
- Urban Engineers (7th Floor), located behind Independence Hall at 530 Walnut St. is easily accessible via public transportation
- Immediately following the panel discussion, join us for a **casual Happy Hour** Networking Session at **Coco's** (112 S. 8th St, between Chestnut & Sansom St.)

Engineers' Club of Philadelphia's website: www.engrclub.org

Philadelphia Section Looking for IEEE Awards Candidates

The Philadelphia Section IEEE Awards Committee needs your help in the process of nominating members (yourself included) to the Senior Member and Fellow membership grades, and to receive IEEE awards and medals. The committee is seeking the names and biographies of individuals whose meritorious achievements in one of the areas of IEEE interest — Electrical Engineering, Computer Science and allied branches of Engineering, Arts and Sciences — deserve wide recognition. Many significant contributions to the profession that originated in Delaware Valley companies and universities are yet to be promoted and properly recognized by the IEEE.

The **Senior Member** grade is the highest professional IEEE grade for which application can be made. This grade requires the candidate to have been active professional practice for at least ten years. Evidence is requested for significant performance of the candidate over at least five of these years, as an engineer, scientist, educator, technical executive, or technical originator. The awards committee will gladly furnish application forms to interested members, and help in preparing the application.

The **Fellow** grade recognizes unusual distinction in the profession, and is conferred by the IEEE Board of Directors. IEEE Fellows are individuals of outstanding and extraordinary qualification and experience in IEEE fields of interest. Nominations to the Fellow grade are made by peers of the nominee, and are usually supported by other Fellows, by local IEEE Chapters and by an IEEE Society.

The IEEE also bestows recognition on its most outstanding members in the form of a Medal of Honor, IEEE Medals, Technical Field Awards, Service Awards, and Paper- Prize Awards.

The IEEE Philadelphia Section will help nominators and nominees in preparing forms, locating appropriate nominators, endorsing candidates for awards and medals, and sometimes serving as the nomination body. We strongly encourage members of our Section to contact the committee for information, nomination kits, and general assistance in the process.

The various Philadelphia Section Awards available for nomination are:

Philadelphia Section Engineer of the Year Award

The Philadelphia Section Executive Committee seeks nominations for the IEEE Delaware Valley Electrical Engineer of the Year Award. The Electrical Engineer of the Year will be recognized at the Section's Annual Awards Banquet. Nominees should be engineers who are members of the section, and who have demonstrated excellence in technical, scientific, academic, or managerial endeavors. The award emphasizes creative, important, and widely recognized work.

**Nominators are asked to submit a short letter of nomination (1-2 pages) and a resume of the candidate.*

Young Electrical Engineer of the Year Award

The Philadelphia Section Executive Committee seeks nominations for the IEEE Delaware Valley Young Electrical Engineer of the Year Award. This person will be recognized at the Section's Annual Awards Banquet. The nominee must be under 35 years of age before January 1, 2016 and should be a graduate of an accredited curriculum with a degree in Engineering or a related field. The award emphasizes creative, important, and widely recognized work. An additional part of the judging will be the candidate's contribution to professional, civic, and charitable affairs.

**Nominators are asked to submit a short letter of nomination (1-2 pages) as well as a resume of the candidate.*

Benjamin Franklin Key Award

The IEEE Philadelphia Section invites nominations for its annual Benjamin Franklin Key Award to recognize an electrical engineer in the Philadelphia Section for outstanding technical innovation and technological contributions that have had significant practical applications. The award emphasizes technical innovation, such as a system (design and application), a significant improvement to a system, or patents of clear practical values. Emphasis will be put on tangible technical and technological achievements that demonstrate intellectual, industrial, economical or human benefits.

**Nominations should include: 1. A description of the nominee's technical invention, system, project, or patent 2. A proposed citation (30 words or less) 3. The nominee's curriculum vitae 4. Additional evidence demonstrating the invention, system, project, or patent*

Philadelphia Section Corporate Technology Innovation Award

The IEEE Philadelphia Section invites nominations for its annual Corporate Technology Innovation Award. This award recognizes a company or corporation for its outstanding contribution to electro technology. The award emphasis developments, projects, products, and other group achievements, that have been very innovative and successful.

**Nominations should include: 1. A description of the nominee's technical accomplishment 2. A proposed citation (30 words or less) 3. Any additional appropriate information* □

Submit ALL nominations by December 15, 2015 to:

Merrill W. Buckley, Jr., Awards Committee Chair

IEEE Section Office, 11 Bala Avenue, Bala Cynwyd, PA 19004.

Think carefully about your fellow workers and about your own contributions. Don't be shy! We really need your help. Call with the name of a potential awardee; even your own. For more information, please call the Section office at 484.270.5136, or use email at

sec.philadelphia@ieee.org, or contact any member of the committee:

Merrill W. Buckley, Jr. 484.573.5156

Thomas Fagan 484.678.1078

Dr. Victor Schutz 610.649.9331

Donald C. Dunn 856.227.2458

IEEE Day 2015 is 6 October

IEEE Day 2015 will be held on Tuesday, 6 October. This will be the sixth anniversary of IEEE members celebrating the anniversary of the first time IEEE members gathered to share their technical ideas in 1884.

Since the first IEEE Day event in 2010, the number of events worldwide has grown over 600%, from 80 to over 520! The IEEE Day team needs you to help grow this annual event even larger.

This is a great opportunity for you to connect your members to IEEE on a local and global scale. Section and Chapter leadership engagement is critical to IEEE Day's success. Start collaborating with your volunteers and Student Branch leaders to plan and commemorate the day. No idea or event is too small.

Visit the [IEEE Day 2015 website](#) for more information. You can also follow IEEE Day on [Facebook](#), [Google+](#), and [Twitter](#).

Thank you for all you do for the members of IEEE.

6th IEEE Integrated STEM Education Conference (ISEC '16)

Friend Center at Princeton University

Princeton, NJ, March 5, 2016

We welcome submissions for the **6th IEEE Integrated STEM Education Conference (ISEC '16)**, which will be held **Saturday, March 5, 2016** at Friend Center, Princeton University, Princeton, NJ. ISEC is known for presenting cutting-edge research and experiences with integrated approaches to the study of science, math, and technology through experiences and activities based in engineering and other design disciplines.

This year's theme is **Promoting a Community of STE(a)M Learning**. While all papers on methods of and experience with integrating education (or interdisciplinary education) in science, technology, engineering, and mathematics (STEM) studies are welcome, we are very interested in papers on STEaM initiatives that have resulted in the development of a community that encourages, mentors, and uplifts its members in STEM studies, especially among members from underrepresented populations.

Submission opens on **Thursday, October 15, 2015** with a deadline of 11:59 pm EST **Sunday, December 13, 2015**. Your work must not have been published or submitted for publication elsewhere. Your submission(s) will be one or more of the following: a work in progress paper of 2 – 3 pages, a full paper of 5 – 8 pages, or an abstract for a poster by K-12 students you mentor. There is no preliminary abstract phase for WIP or full papers. All presented papers will be submitted for archival in IEEE Xplore.

Information on the Trenton Computer Festival, which will be held on Saturday, March 19, 2016 is available at tcf-nj.org, and on the Information Technology Professionals Conference, to be held Friday and Saturday, March 18 - 19, 2016 is at princetonacm.acm.org/tcfpro/. You are also encouraged to submit abstracts to these conferences; see the web sites for date and submission information.

ISEC 2016 is sponsored by the IEEE Princeton/Central Jersey Section with technical co-sponsorship by IEEE Region 1 and the IEEE Education Society.

More information and templates are available at <http://ewh.ieee.org/conf/stem>. Contact us at isec2016@gmail.com, like us on Facebook (search for ISEC), and follow us @IEEE_ISEC. **We look forward to your participation in ISEC 2016!**

CALL FOR PAPERS

2016 IEEE Radar Conference

Enabling Technologies for Advances in Radar

www.radarconf16.org

Key Dates

Paper Summaries Due: 14 November 2015

Notification of Acceptance: 04 January 2016

Paper Submission Due: 05 February 2016

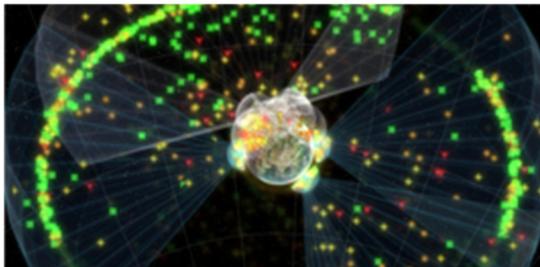
2016 Radar Conference: May 2 – 6, 2016

Loews Philadelphia Hotel, 1200 Market Street, Philadelphia, Pennsylvania, USA

Guide to Paper Submissions

Authors are required to submit a three to four page (inclusive of figures) summary. Electronic submission is required in Adobe pdf format. The cover page must include the title, names of authors (with the contact author identified), organizational affiliation, address, telephone and fax numbers, and email addresses. Authors are permitted to indicate paper suitability for a poster format presentation. Student papers (two to four pages) are also strongly encouraged to be submitted.

All papers must be electronically submitted to the Technical Program Chairman at the *radarconf16.org* web site (available to upload not later than 90 days before the deadline). The deadline for submission of summaries is 14 November 2015. Authors will be notified of acceptance by 4 January 2016, and will receive instructions and forms for publication at that time. Authors will be limited to orally presenting at most two papers at the conference. Your electronically submitted papers in final form will be required by 5 February 2016. They are limited to six pages inclusive of text, figures, and tables. If applicable, government approval for publication as an *unclassified, public-release* paper will also be required with the final paper submission.



Lockheed Martin Space Fence

Main tracks

A list of topics within these tracks is on the web site <www.radarconf16.org>.

Authors can indicate preference for a track.

Component & Subsystem Development

Radar Signal & Data Processing

Antenna Technology

Phenomenology

Radar Systems

Emerging Technologies

Technical Program Chair

David J. Farina

Lockheed Martin MST

djfarina@radarconf16.org

Chair's Message

By Phil Gonski



The upcoming year will certainly be very exciting for our Section. November 6 thru 8 will be our first IEEE WIE Summit held right here in the Sheraton. The event will bring together local employers, students, and engineers focusing on developing and improving leadership skills for individuals at all stages of their careers. Attendees will have the opportunity to hear inspirational and empowering talks presented by successful leaders from IEEE USA North-East region. Emerging technologies will also be demonstrated, engaging attendees to facilitate discussion and potential advancement of STEM outreach class ideas.

Recently, the Section has pledged our support to the upcoming PCIC 2016 conference, which will draw over 1,500 attendees to our Section. Coupled with our sponsorship of the Radar Conference, 2016 promises to bring many exciting events to our area.

IEEE NJ Coast Section
2nd Conference on Mobile Security/Cyber Security and Privacy
November 4, 2015 (Wednesday)
Venue: The Edison Hotel & Conference Center,
3050 Woodbridge Avenue, Edison, NJ 08837 USA

Keynote Speakers




Dr. Ed Amoroso
AT&T

Donna Dodson
NIST

Invited Speakers




Prof. Steven Bellovin
Columbia Univ.

Eric S Green
Mobile Active
Defense

PARTICIPANT REGISTRATION

Mobile security, cyber security, and privacy have become more critical in our business, government, travel, healthcare, and every-day lives. With society's exploding dependence on mobile devices and wireless technologies, effective security solutions have become increasingly important in everyday life. Whether you are a security expert or a novice, practical solutions are crucial in your industry as well as personal life. Join us at this upcoming high-impact one-day conference to hear more about these important topics from business, academia, federal government, and research. Take some time with us to catch up on the latest trends, review the issues, collaborate with colleagues in industry and research, and take away practical ideas to enhance security of your world.

Who Should Attend: This conference is geared to IEEE members, non-members, students, and guests who would like to review the state of the art in mobile security, cyber security, and privacy and become aware of issues and directions of research, academic, and practical solutions.

What Will You Learn at This Conference: If you have considered learning more about security, this is an ideal event to attend. Awareness of mobile security, cyber security, and privacy improves your job, consulting, and life skills. You can get Professional Development Units PDU (Continuing Education Units (CEU)).

POSTER DISPLAYS: The student posters presentations will be on display all day.

Attendee Registration	Before Aug 4	Before Sept 4	Before Oct 4	On or after Oct 4
IEEE member	\$35	\$45	\$55	\$65
IEEE student member / Life Member	\$15	\$25	\$35	\$45
IEEE Life Member	\$20	\$30	\$40	\$50
Non-Member	\$100	\$125	\$150	\$175

Please register at https://meetings.vtools.ieee.org/meeting_view/list_meeting/25959

For More Information please visit the IEEE New Jersey Coast Section website <http://sites.ieee.org/nicoast/>

Save the Date!

Innovation Leadership Forum Presents an Unconference: "How to Become a Great Preneur"

**Saturday, November 14, 2015, Philadelphia University Campus, 9:00 A.M. to
2:00 P.M.**

Sponsored by IEEE Philadelphia Section

What's an unconference?

An unconference combines the level of synergy and excitement present in a good coffee break with the substantive activity and results characteristic of a good meeting. It's an event where incredible things happen as participants choose the topics and facilitate their own discussions. Ours is focused on becoming a great preneur.



Here is a link to a video about this unique event format:
[Unconference 101](#)

What's a preneur?

Preneur is from the French and means "taker" or "one who takes." It's become synonymous with taking advantage of or creating an opportunity. Its forms are seemingly endless. A person who takes the risk of starting a business or businesses is called an entrepreneur. An entrepreneurial individual within a large organization is an intrapreneur. Someone within the environmental sector might be an ecopreneur. A good manager can hope to be a manapreneur. You get the idea.



Whatever type of preneur you are or aspire to be, this is the event for you.

What's in it for you?

That depends on what you put into it, because you and fellow participants determine the discussion and learning topics. For instance, if you are interested in finding out the basics of building preneurial skills, you can post that as a topic and see how many others share your interest. At the very least, you'll get to explore what other great preneurs have done and how they think; find out what's on the minds of your colleagues and what piques their curiosity most about preneurship; and hear a keynote address from a rock star of the preneur world.

Stephen Spinelli, PhD, Keynote Speaker: Stephen is President of Philadelphia University and will kick off the conference. He is an entrepreneur with an early and continuing specialty in franchising that began with being a member of the founding team of Jiffy Lube. [Stephen Spinelli on LinkedIn](#)

Natalie Nixon, PhD, Unconference Leader: Natalie is Associate Professor and Director - Strategic Design MBA at Philadelphia University. She is an experienced unconference leader and a hybrid thinker, comfortably synthesizing creative and analytical thought processes from design and business to arrive at innovative opportunities. [Natalie Nixon on LinkedIn](#)

Join us for this event at Philadelphia University's beautiful campus on Saturday, November 14th from 9:00 A.M. to 2:00 P.M.

John Sudano wins Italian Award

By Peter Silverberg

The program cover that is in this column shows Dr. John Sudano of Cinnaminson NJ receiving the 2015 Award for Physics and Mathematics at “21 Ragusani nel Mondo.” (Translation: 21st Ragusani in the World) The date was August 1 and the location was Ragusa, Sicily as shown on the little map. The presenter is Associazione Ragusani nel Mondo. This is a big deal in Italy. I found some YouTube coverage of earlier years and some articles that I could not translate. One fact I did unearth: Ragusa is a UNESCO World Heritage Site.





21 Ragusani nel Mondo



I Premiati del 2015



DAVID MAURO
INGEGNERE AERO SPAZIALE
MANAGER



JOHN SUDANO
FISICO E MATEMATICO



LORENZO LEGGIO
MEDICO-RICERCATORE
ACCADEMICO



DARIO DEZIO
CUOCO
IMPREDITORE



**PREMIO
ALLA
CARRIERA**
**LOREDANA
CANNATA**
ATTRICE



**PREMIO
DYNASTY**
**LA FAMIGLIA
MIRABELLA**



**PREMIO
SPECIALE**
**GIOVANNI
CACCAMO**
CANTAUTORE

Sabato 1 AGOSTO 2015 ore 20,30 - Piazza Libertà - RAGUSA

CONET Meeting News

The IEEE Philadelphia Consultants Network (CONET, www.PhilaCONET.com) held a meeting on Tuesday, September 1. CONET acknowledges and thanks NextGen Global Resources, LLC for its sponsorship of the September 1 meeting.

The September 1 meeting featured a presentation by Mr. Baw Ch'ng of BAWMAN LLC titled *The Future of Communications*. Mr. Ch'ng specializes in wireless telecommunications & networking systems architecture. Mr. Ch'ng's presentation surveyed the major factors likely to influence the field of communications in the future and discussed what the technological responses would likely be to such factors. Consumer demands, provider considerations, public policy concerns, economics and market landscape were considered. Link technology advances, network architectural re-thinking, standards directions, and new challenges were discussed. Mr. Ch'ng's presentation, and other past CONET presentations, may be accessed at www.PhilaCONET.com.



and

Meeting attendees were also regaled by a *Short History on Vacuum Tube* presentation by Dr. Jonathan Allen (RF expert). Dr. Allen's presentation covered the scientific discoveries and engineering developmental history of vacuum tube receivers.

Kindly visit www.PhilaCONET.com for information on membership, up-coming meetings, past meeting presentations, and to learn more about the wide range of consulting services offered by CONET consultants from CONET's online Consultant Directory. Full announcement of upcoming meetings is on that web site.

You Can Volunteer for the ACE Mentor Program of Eastern Pennsylvania

The ACE (Architecture, Construction, and Engineering) Mentor Program of Eastern Pennsylvania is an affiliate of a national non-profit organization. The mission of ACE is to engage, excite, and enlighten high school students to pursue careers in the integrated construction industry through mentoring and to support their continued advancement in the industry through scholarships and grants. Students are recruited from both public and private high schools throughout Philadelphia and the suburbs, with special efforts made to reach the traditionally underrepresented populations of women and minorities.

- 63% of ACE seniors were minority students vs. the national average of 44.3%
- 98.6% of ACE high school seniors graduate from high school vs. the national average of 80%
- 92% of ACE seniors entered college directly from high school vs. the national average of 66%
- 70% of college-bound ACE seniors major in architecture, engineering or construction management

Students are assigned to teams led by volunteer mentors from firms representing architects, construction managers, engineers (civil, structural, mechanical, electrical, and environmental) and owners. From November until May, teams meet after school every other week with meetings held in the offices of mentor firms or at the school. Each team selects a project and goes through an entire design process, learning various skills along the way. In addition to "office" meetings, teams go on field trips to actual construction sites. At the end of the school year, teams gather to present their projects to assembled mentors, family, and friends, much as an actual design team would present to a client.

For more information on how to get started, please contact our Director, Tiffany Millner at <mailto:easternpa@acementor.org>!



IEEE – WIE Salary Negotiation

Presented by Anthony Gold



Anthony Gold is a serial entrepreneur and investor. He sits on the board of several companies (for profit and non-profit) and invests in promising companies in the Philadelphia region. He started [Anthony's Desk](http://www.anthonysdesk.com) as a way to share his experiences and insights to help both young professionals and seasoned executives in their careers.

For details, please visit:
www.anthonysdesk.com

On June 25th, Anthony informed a crowd of over 25 IEEE members and guests on salary negotiation methods at [WE Automation's](#) office in Philadelphia. His methods included strategies for making salary negotiation beneficial for both employees and employers.

Anthony has long been a supporter of women in engineering. His most recent project, [ROAR for Good](#), is aimed at diminishing attacks against women.

After the presentation, attendees enjoyed a social hour filled with wine and networking.

This event was organized by the IEEE Philadelphia Section WIE group.



PHILADELPHIA CHAPTER



11 Bala Avenue
Bala Cynwyd, PA 19004
484.270.5136
sec.philadelphia@ieee.org
www.ieeephiladelphia.org

Parent-Child or Parent-Grandchild Hands-on Two Half-Day Workshop sponsored by IEEE Philadelphia Combined Chapter of CSS, CAS, SMCS.

Beginner's Guide to Arduino
An On-Ramp to Electronics, Programming
by Ken Paist, Paist Design Group



MEETING DETAILS:

Dates : Saturdays, Oct 10, 2015 and Oct 17, 2015.

Time : 12:30 PM – 4:30 PM

Location: DeVry University, Room 127, 1140 Virginia Drive, Fort Washington, PA 19034

Registration based on first come first serve:

IEEE Member: \$50 | Non Member: \$75

Intended Audience: Middle school and high school students with an adult sponsor. Adults without a student will be put on a waiting list.

Registration: To register online, [CLICK HERE](#).

Parking is available on campus.

Not ready to join IEEE right now? You may still register at the non-member rate. If you choose to join IEEE before the workshop you will be credited for the difference between non-member and member fee.

Learn more about the [benefits of IEEE membership.](#)

~~~~~  
This Two-day IEEE Philadelphia Chapter of CSS, CAS, SMC, Hands-On Workshop is intended to introduce middle school and high school students with an adult sponsor to basic electronics and programming using an Arduino compatible single chip micro-controller board:

Day-1 (Oct. 10, 2015):

- Basic introduction to circuits.
- Soldering.
- Programming the Arduino (in C like Language).

Day-2 (Oct. 17, 2015):

- Control of circuits by Arduino.
- One to Two Projects using Arduino.

The Arduino platform kits can be taken home to try other projects and experiments.

**Things to Bring:** A notebook computer (PC/MAC)with a USB port, running Windows XP / Mac OS X 10.7 or later to load the Arduino IDE.

[View the full day Agenda, Workshop Topics, Presenter and Registration Information](#)

Questions? Contact the IEEE Philadelphia Section office at [sec.philadelphia@ieee.org](mailto:sec.philadelphia@ieee.org) or call 484.270.5136

## Introducing the Special Interest Group on Humanitarian Technology (SIGHT) Philadelphia

*By Mahmoud Kabalan*

The 20th century saw incredible leaps in human development and technological innovations. IEEE engineers have been part of this revolution and continue to be actively involved in shaping the future. IEEE's famous motto, "Advancing technology for humanity," reflects the importance of engineers in improving humanity's wellbeing. However, it is important to reflect on the status of humanity and how to best serve it. Currently, almost 50% of the world's population - more than 3 billion people - live on less than \$2.5 per day while more than 1.3 billion people live in extreme poverty - less than \$ 1.25 per day [1]. Thus, innovation is required at all income levels to improve the status of humanity worldwide. Realizing the positive impact that it could have, IEEE started to give priority to humanitarian technology activities. In 2011, the Humanitarian Ad Hoc Committee (HAHC) was formed to lead IEEE's effort in humanitarian technology. To further engage IEEE members interested in humanitarian activities, the Special Interest Group on Humanitarian Technology (SIGHT) program was instituted.

SIGHT is not only about meeting technological challenges of the developing world. Many developed and industrialized nations face multiple challenges with income inequality and poverty in some inner city neighborhoods and rural areas. Thus, many opportunities for humanitarian work could exist in our own backyards. Innovation for the underserved and struggling populations, termed bottom of the pyramid (BOP), presents many challenges and opportunities. However, humanitarian work does not mean charity. Many entrepreneurs have shown that competitive and successful businesses can be started that focus on serving the bottom of the pyramid populations [2]. Potential areas for innovations at the BOP are healthcare, infrastructure (energy), communications and education among many others.

To promote humanitarian work within IEEE, SIGHT has the following objectives that can be found on its website:

- "To bring together members/IEEE OUs working in or wishing to work in humanitarian fields and to encourage and promote them in activities that use humanitarian technologies by giving them an opportunity for participation.
  - Increasing awareness of IEEE members and engineers of the potential of their work to improve the standard of living of underserved populations, and encouraging them to increase efforts in this direction.
  - To engage with NGOs, Civil Society Organizations, UN Organizations, Corporates, and other similar bodies to synergize efforts in delivering useful and sustainable technologies in their operations.
  - To work with other bodies in the global engineering community who have similar goals and help each other in delivering to the ideals and participate in joint activities like [Engineering for Change \(E4C\)](#)." [3]

The Philadelphia section approved a local SIGHT chapter in December 2014. SIGHT Philadelphia is one of 57 global SIGHT chapters. The chapter needs volunteers to serve on the executive committee of SIGHT and help it grow. Moreover, project proposals and funding opportunities are accepted regularly by the central SIGHT committee.

### ***Who can get involved?***

If you have a passion for humanitarian work, do-it-yourself projects or like to innovate and enjoy a challenge, then SIGHT is a perfect place for you! SIGHT is open to all IEEE members of any discipline or expertise. We also welcome senior engineers with their rich knowledge, experience and expertise to join, advice and mentor junior SIGHT members. If you have experience in areas such as energy, information and communications technologies (ICT), healthcare, education and infrastructure or any other expertise, please consider joining us! Funding opportunities are also available for projects that fall within SIGHT's objectives.

For further information, please contact SIGHT chair: Amanda DelCore (amanda.delcore@gmail.com) or SIGHT co-chair: Mahmoud Kabalan (mahmoud.kabalan@villanova.edu).

### **References**

1. United Nations Development Programme. "Sustaining Human Progress: Reducing Vulnerabilities and Building Resilience." Human Development Report, 2014. Web Accessed February 25, 2015.
2. C.K. Prahalad. "The Fortune at the Bottom of the Pyramid: Eradicating Poverty Through Profits." Wharton School Publishing; 1 edition (February 6, 2006)
3. [http://www.ieee.org/special\\_interest\\_group\\_on\\_humanitarian\\_technology.html](http://www.ieee.org/special_interest_group_on_humanitarian_technology.html)

### **SECTION ELECTION NOTICE**

These are the candidates vetted by the nominating committee and approved by Adcom. Petition candidates may be added before election time.

#### **Chair:**

**Philip Gonski, P.E., Burns Engineering**

#### **Vice Chair:**

**Peter Silverberg, P.E., Retired**

#### **Treasurer:**

**Robert L. Johnston, Lockheed Martin**

#### **Secretary:**

**Tal Singer, Centrak**

### **Candidate for Chair: Philip Gonski, P. E.**

#### **Biography**

Philip M Gonski, P.E, currently the 2015 Chair has been active in both the volunteer and professional community in the Philadelphia Area. Philip is very active in the professional engineering community. He served as the 2012 IEEE Philadelphia Secretary as well as the 2013 Section Treasurer. His volunteer efforts have ranged from volunteering at local science fairs, serving on local scholarship boards, as well as writing the technical content for a website to foster youth interest in engineering. He hopes to continue this tradition of service by running again for 2016 Section Chair, where he hopes to increase the sections' member outreach and volunteer efforts. *Philip M. Gonski is a licensed professional engineer in Pennsylvania, Illinois, Maryland, Michigan, North Carolina, New Jersey, Louisiana, and West Virginia.*

### **Candidate for Vice-Chair: Peter Silverberg, P. E.**

#### **Biography**

Peter M. Silverberg, Senior Life Member, is currently the Communications Chairman of the Philadelphia Section. For the last ten years he has edited the Almanack and administered the Section's website. He also is a member of the Board of Directors of the Engineers' Club of Philadelphia, as liaison for the IEEE since 2008. He also has membership in the Professional Communications Society and the Dielectrics and Insulation Society of the IEEE and is a Professional Engineer registered in Ohio. He will be the Publicity Chair of the 2016 IEEE Radar Conference.

Peter completed a 2010 project to install a Milestone plaque at the American Philosophical Society honoring Benjamin Franklin as the first true researcher into electrical physics. He was the Region 2 representative on the MGA Admissions and Advancement Committee 2012-2014.

Peter graduated from MIT in 1960 with a S.B. in Chemical Engineering and in 1961 with a S.M. in Chemical Engineering Practice also from MIT. He became a P.E. (Ohio) in 1977. Joined IEEE as Member 1975; Senior 1983; Life Senior Member 2008. He held seven interesting jobs before

formally retiring in 2008. The last two were in editing technical magazines. Nine articles were published before becoming an editor.

### **Candidate for Treasurer: Robert L. Johnston**

#### **Biography:**

Robert Johnston, currently the sections Finance Chair, has been active in the Philadelphia IEEE section's executive committee since 2003. In 2003 he served as the Secretary and continued on to be the 2004 Treasurer the 2005 Vice Chair and the 2006 Chair. He has held his current position of Finance Chair since 2008. Bob is also the current Treasurer of the Women In Engineering (WIE) Affinity Group, Treasurer of the 2015 IEEE WIE Summit USA East and Treasurer of the 2016 Radar Conference.

### **Candidates for Secretary: Tal Singer**

#### **Biography**

Mr. Tal Singer is a 2015 Magna Cum Laude graduate of Temple University earning a Bachelor of Science in Electrical Engineering with Computer Engineering concentration. During his time in college, Mr. Singer volunteered as a research assistant and facilitated the development of a training system for use by individuals suffering from upper limb disabilities. In addition, throughout his tenure at Temple, Mr. Singer served as an instructor for multiple programs including a summer program teaching high school students robotics as well as a teacher's assistant in the college's introduction to engineering courses. Mr. Singer was dedicated to IEEE throughout college and attended the SAC conventions in 2014 and 2015, winning second place in the Autonomous Micro-Sumo Robot Competition and third place in the Project Showcase Competition in 2015, and was the recipient of the IEEE Design Award the same year. Additionally, Mr. Singer won second place in the NASA Hovercraft Competition in 2012. Born and raised in Israel, Mr. Singer served in the Israel Defense Forces prior to his move to the United States and matriculation at university. Mr. Singer is excited to continue his engineering career this August at Centrak, where he also completed a summer internship, as a development engineer. Mr. Singer currently resides in Center City with his wife, Tara, and their dog, Snoopy.



NEWSLETTER  
Philadelphia  
Section Chapters

Aerospace & Electronic Systems  
Broadcast Technology  
Consumer Electronics  
Signal Processing



## MEETING ANNOUNCEMENT

### IEEE Philadelphia Section

Organized by the Aerospace and Electronic Systems Society Chapter  
Co-Sponsored by the Signal Processing Society Chapter

**Mr. Michael A. Mayor, MSE, PE**

*will present*

### Systems Engineering Trades in Geolocation: Digital Receiver Design

**Thursday, October 29, 2015, Refreshments 5:30 PM – 6:00 PM - Lecture: 6:00 PM – 8:00 PM**

**Place: Villanova University, 800 Lancaster Ave. Villanova, PA 19085 - Tolentine Hall, Rm 215**

**Abstract:** The performance of Radio Location Systems (RLS) depends on many subsystems and components which must be assembled and deployed according to strict engineering rules. Furthermore, like in all engineering systems, any given subsystem or component cannot be “all things to all people”. To this extent, significant Systems Engineering tradeoffs must be conducted at the System, Subsystem and Component level to ensure achieving a desired location performance. After a brief historical overview, this presentation will focus on the design of a key RLS Subsystem which is a Digital Receiver. I will review basic theoretical radio location concepts and then emphasize practical engineering tradeoffs. Starting with the identification of Key Parameters and effective measures of performance, I will present a tradeoff between sensitivity and dynamic range and the impact that the Analog to Digital Converter (ADC) effective Noise Figure has on the receiver performance with respect to Emitter Geolocation Accuracy.

**Speaker’s Bio:** Mr. Mayor is currently a Consultant providing Systems Engineering services in the area of Secure Wireless Communication, Low Interference (Low Signature) Communications and Emitter Geolocation Systems. His consulting services include Radio Frequency (RF) propagation modeling and analysis, Spectrum Surveillance, Digital Receiver Design, Digital Instrumentation and Digital Signal Processing algorithms. Formerly, he was Vice President/Chief Scientist, Advanced Technology Research in the ITT Corporation, Defense Electronics Group. In this capacity he conducted Research and Development programs for secure Defense Communications, Communications Intelligence and Special Electronic Warfare Systems.

Mr. Mayor is a Licensed Professional Engineer and holds an MSE in Systems Engineering from the Moore School of Electrical Engineering, University of Pennsylvania

**Meeting is free, however, to attend you must register.**

**Registration:** <https://meetings.vtools.ieee.org/m/36183>

**Location:** [http://www1.villanova.edu/content/dam/villanova/admission/campus\\_map\\_and\\_key.pdf](http://www1.villanova.edu/content/dam/villanova/admission/campus_map_and_key.pdf)

**Parking:** Parking is free. Instructions will be emailed to registrants a week prior to the meeting.

**Fauzia Ahmad, PhD**  
Chair, Aerospace & Electronic Systems Chapter  
[fauzia.ahmad@villanova.edu](mailto:fauzia.ahmad@villanova.edu)

**Michael A. Mayor, PE**  
Co-Chair IEEE Signal Processing Chapter  
[michael.mayor.pe@ieee.org](mailto:michael.mayor.pe@ieee.org)