

PHILADELPHIA SECTION of the IEEE

Membership in these counties: Bucks, Chester, Delaware, Montgomery, Philadelphia, (PA), Burlington, Camden, Gloucester (NJ)

Almanack



Vol. 60, No. 10 www.ieeephiladelphia.org

December 2015

SECTION MEETING

Jan. 19, 2016

Dinner: 6 pm

Speaker: 7 pm

Sheraton University City

Philadelphia

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

Parking cost paid by section

Jan 19 meeting

Section will meet jointly with EIA (Electrical Industry Association).

Bob Frankston

Consumer Electronics

Abstract on p. 14

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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.

December 2015

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5
6	7 Hanukah MSM	8 Adcom	9	10	11	12 SPMB15
13	14	15	16	17	18	19
20	21	22	23	24	25 Christmas	26
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Life Members to Tour Inductotherm

By M. Robert Paglee, IEEE Life Member/Tourmesier, P.E. (Ret.)

The Life Member Group, headed by Merrill Buckley, is sponsoring a tour of the Inductotherm facility in Rancocas, NJ on 14 January, 2016 starting at 2:30 PM. Inductotherm Corp. builds induction heating, melting and pouring systems for virtually all kinds of metals, and is reputed to be the world's largest manufacturer of such induction equipment. Its international facilities are located in many countries around the globe.

When heating or melting any metal by induction, the heat is generated in the surface of the product by the flow of current. The heat from the surface is then transferred through the product with thermal conduction. The depth to which heat is generated directly using the induced current depends on something called the *electrical reference depth*.

The *electrical reference depth* depends greatly on the frequency of the alternating current flowing through the work piece. Higher frequency current will result in a shallower *electrical reference depth* and a lower frequency current will result in a deeper *electrical reference depth*. This depth also depends on the electrical and magnetic properties of the material. By changing the geometry of the induction coil, induction melting furnaces can hold charges that range in size from the volume of a coffee mug to hundreds of tons of molten metal.

The tour will be directed by Emad Tabatabaei, Vice President, Technology, Inductotherm Corp. It will begin with a short introduction followed by a tour of the show room and then the manufacturing facility. The entire visit may run from one to two hours, depending on the apparent interest and questions posed by participants.

It is open to IEEE members and others, but it is necessary to make a reservation by phoning the IEEE office at 484.270.5136. Space may be limited to 25 visitors, so it's best to call early. Each visitor's name and his/her employer's name or affiliation must be stated (except for retired persons, students, etc.); a telephone number and e-mail address are also required.

The Inductotherm facility is easily accessible from I-295 at Exit 45 A or B and County Route 626. Using GPS, the address is 10 Indel Ave., Westampton, NJ 08060.



Arial view of Inductotherm Corp.



Controls for the induction furnaces



Pouring molten metal

Section notes

IEEE PHILA. SECTION OFFICERS

Chair: Philip Gonski, P.E.; pgnski@gmail.com

Vice Chair: Adam Fontecchio. Ph.D.; sec.philadelphia@ieee.org

Treasurer: Richard Primerano; sec.philadelphia@ieee.org

Secretary: Tal Singer; tsinger@centrak.com

Past Chair: Mark Soffa; msoffa@kns.com

Adcom meets second Tuesday of the month (Dec. 8) at the Sheraton University City. Members are welcome to attend. Reserve a seat by calling the office by the Friday before.

Almanack Staff

Publisher: Phil Gonski, P.E.

Editor: Peter Silverberg

Asst. Editor: Janet English-Cartwright, Ph.D.; jenglish@fi.edu

News and notices contact psilverberg3@comcast.net or 856.461.6615 or fax 509.461.6617

Deadline for the January issue is December 15, 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.

Election Results

Announcing the officer line up for 2016. Election closed November 16.

Chair: Philip Gonski, P.E, Philip.m.gonski@ieee.org

Vice Chair: Peter Silverberg; psilverberg3@comcast.net

Treasurer: Robert Johnston; Robert.i.johnston@lmco.com

Secretary: Tal Singer; tsinger@centrak.com

Past Chair: Mark Soffa; msoffa@kns.com

IEEE PHILADELPHIA SECTION CONGRATULATES OUR NEW SENIOR MEMBER!

The last spring A&A Review Panel meeting was held on 24 October in Portland, Oregon. We congratulate our newest Senior Member Ko Nishino, who is also in Computer Society

YM Social Event

By Phil Gonski

Over 45 IEEE and Electrical Association younger members gathered at Next Fab Studios on November 19th for a Social Event.

Evan Malone, CEO and founder of NextFab, delivered an inspiring message on the future of 3D printing technology. Members were also able to have a 'behind the scenes' tour of the maker space.



Special thanks to Nextfab Studios, and the Electrical Association, for making this event a success.



Even engineers need help sometimes.

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ext. 11
Engineering Dept.

Advertisement

IEEE Philadelphia Runs Arduino Camp at Enon Tabernacle Baptist Church

By Mark Soffa

This past July and August, twenty five 10-13 year olds learned the basics of electricity and computer programming at Enon Tabernacle Baptist Church's *Camp Adonai*. Organized by the IEEE Philadelphia Section's Past Chair, Mark Soffa, and taught by IEEE Philadelphia members Ken Paist, Ben Wolfgram, and Mark Soffa, kids learned the basics of electricity and Ohms Law, soldered their own Arduino "Nano" microcomputers, wired their own circuits and programmed in Arduino language.

It was wonderful to see the faces of those kids, when they wired their first LED circuits and got the software to blink the LEDs exactly as programmed. Kids then learned how to make computer-controlled multicolored lanterns, all programmed by them.

The teachers and counselors then heard the magic words: "We want to be Electrical Engineers!" from a handful of boys and girls.

Kids even got a chance to dissect laptops, iPhones, desktops, DVDs and an occasional "Roomba" (robot room cleaners) to find out what was inside. After dissection, each kid told the group on what they learned.

Ben Wolfgram made each kid a personalized keychain using a 3D printer and spoke of the significance of this machine to modern manufacturing. A special treat was having a conversation with a humanoid robot, brought from Temple University by EE Dept. Chair Dr. Li Bai and his grad students.

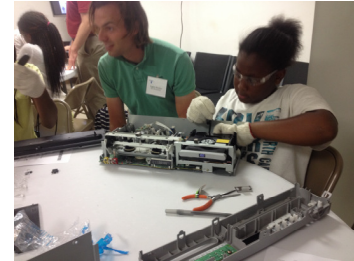
Camp concluded with a tour of a local chip-making equipment company, Kulicke and Soffa, where kids saw computer chips being packaged.



Camper disassembling a Roomba



Camper learning what is a DVD/VCR combo
Camper proud of her Arduino LED lantern



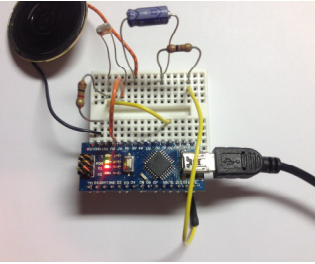
Temple EE grad students demo humanoid robot



Camp helpers and students learn to make their lanterns light up



instructor Ben Wolfram talks about the lantern project



Arduino Nano microcomputer with Theremin circuit



Camper marveling at wires being laid on a microchip



Campers getting personal with a Humanoid robot



One of two robotics classes

YOUNG INNOVATORS FAIR

A massive, one-of-a-kind K-12 STEM family event to be held January 2-3, 2016, at the Greater Philadelphia Expo Center, Oaks, Pa. Experience mind-blowing exhibits, hands-on attractions, and live entertainment across 120,000 sq. ft. in ten innovation worlds.

The diverse group of partners includes leading toy companies (FIRST LEGO League, K'nex, ROBOTIS), up-and-coming startups (Starfall Studios, Everblock), non-profits (Girls Scouts, Center for Aquatic Sciences), educator mavens (ISTE, National Math Festival), leading schools (Pennsylvania Leadership Charter School, Penn State University), world-renowned museums (The Franklin Institute, Johnsville Science Museum), STEM programs (Engineering for Kids, WOW Science Camps), and performing arts leaders (The Kimmel Center). Purchase tickets in advance. You are also encouraged to give back to the community by donating tickets to youth from disadvantaged communities and providing a monetary contribution to Ronald McDonald House Charities.

The section has a group code for a discount. Get your tickets now at younginnovatorsfair.com and use our group code **IEEEFIVE** to receive \$5 off each ticket.

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 electrotechnology. 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


Can You Volunteer for Career Day at Springfield Twp. High School

Springfield Township High School, in Montgomery County, is having its first career day in many years. This is being developed by a student organization called "Voices of Excellence" that is focused on helping students of color connect with school and be successful. One thing that these students asked for is a career day with working professionals to talk with about careers. Engineering was voted up by the entire student population and is one the top 10. We are looking for an engineer to come to our school on **December 17th** from 8 am to noon.

Thanks.

Tammy Pirmann

tammy_pirmann@sdst.org

From: Delaware Valley Science Fairs, Inc. dvstcomm@drexel.edu 
Subject: Save the date DVSF 2016
Date: November 5, 2015 at 8:32 PM
To: psilverberg3@comcast.net



Judging Day for DVSF 2016 is March 30th



Dear DVSF Judge,

Apologies for the change in format and the potential repeat email. Drexel has recently changed the way we are permitted to send our mailings so we are using our newsletter service as an interim solution. If you have already received this email we apologize for the inconvenience.

Judging day for the 2016 Delaware Valley Science Fairs (DVSF) will be, Wednesday, March 30th, 2016 at the Greater Philadelphia Expo Center in Oaks, PA ([Download ics file](#))
I hope your schedule will allow you to participate. Registration is open through our website at www.dvsf.org. All correspondence will be done through e-mail so it is crucial that we have your correct e-mail address. Please 'spread the word' to all your colleagues about this exciting and worthwhile program. Additional information is posted on our website.

DVSF is a donor option for the United Way Campaign. Please consider us when you make your company pledge. In Philadelphia the number is: **10412**; In Bucks County the number is **10501**. All other areas just use our name: **Delaware Valley Science Fairs, Inc.**

We are always looking for mentors to work with the students. If you are interested in being a mentor; go to our website (see above) and click on "[Mentorship Program](#)" for more information.

Find us on [Social Media](#).

Do not hesitate to contact us if you have any questions or concerns. Thank you for your support!

John Disston, Director of Judging



Multi-Society Dinner Meeting Monday, December 7, 2015

Join the Engineers' Club and our partner societies at the annual **Multi-Society Dinner Meeting**. This is a good opportunity to kick off the holiday season by networking with engineers and other professionals that you might not normally see at your society meetings.

PHL Improvements and Master Plan

Chief Executive Officer Mark Gale will provide an update on new developments and improvements at Philadelphia International Airport (PHL).

Mr. Gale was appointed as CEO since 2009. In this capacity, he is responsible for directing the planning, development, and administration of all the activities of the City's Department of Commerce, Division of Aviation, which includes the Northeast Philadelphia Airport in addition to PHL and manages nearly 800 personnel. He additionally serves as the City's chief representative in local, state, national and international affairs in the marketing of PHL and improving air service. Prior to being named CEO, he served in several positions over a career at PHL that has spanned nearly 25 years. His next immediate challenge will be the implementation of PHL's Master Plan, which will provide significant expansion and improvements for Airport customers in the next ten to fifteen years.

Mr. Gale received his Bachelor's degree in Aeronautical Studies from Embry-Riddle Aeronautical University. He is an accredited member in the American Association of Airport Executives and serves on the group's Board of Directors. He also serves on the Board of Directors for the Aviation Council of Pennsylvania, as well as the Philadelphia Convention and Visitors Bureau's Board of Directors Executive Committee.

TIME

5:30 Networking / Cash Bar
6:00 Dinner
7:15 Program

COST

\$50 / \$20 – Advanced / Student on or before **November 30**
\$70 / \$40 - Late / Student after **November 30**
Payment will be expected for all reservations regardless of attendance.

RSVP

Online at: www.engrclub.org
Email: reservations@engrclub.org

Call: 267-639-1234
Mail to: Engineers' Club of Philadelphia

325 Chestnut Street, Suite 800
Philadelphia, PA 19106

LOCATION

**DoubleTree by Hilton Philadelphia
237 South Broad Street (at Locust St.) Philadelphia**

Make checks payable to **Engineers' Club of Philadelphia**
Reservations after December 1 and after will be on a space-available basis.

Thank you to our partner societies

(There's still time to sign up – contact Leah M. Reynolds, Executive Director, lreynolds@engrclub.org)

American Institute of Chemical Engineers (AIChE),
Delaware Valley Section

American Society of Civil Engineers (ASCE),
Philadelphia Section

American Society of Highway Engineers (ASHE),
Delaware Valley Section

**Association for the Advancement of Cost
Engineering (AACE)**, Delaware Valley Section

**Construction Management Association of America
(CMAA)**, Mid-Atlantic Chapter

Illuminating Engineering Society (IES), Philadelphia
Section

**Institute of Electrical and Electronic Engineers,
(IEEE) Power & Energy/Industry Applications
Societies**, Philadelphia Joint Chapter

Institute of Industrial Engineers (IIE), South Jersey
Delaware Valley Chapter

**Intelligent Transportation Society of Pennsylvania
(ITSPA)**

**National Contract Management Association,
(NCMA)**, Greater Philadelphia Chapter

**Pennsylvania Society of Professional Engineers
(PSPE-DCC)**, Delaware County Chapter

**Pennsylvania Society of Professional Engineers
(PSPE-PC)**, Philadelphia Chapter

Project Management Institute (PMI), Delaware
Valley Chapter

Society of American Military Engineers (SAME),
Philadelphia Post

**Society of Naval Architects and Marine Engineers
(SNAME)**, Philadelphia Section

Society of Women Engineers (SWE), Philadelphia
Section



Once again, CMAA will be coordinating a Toys for Tots collection with the Marine Toys for Tots Foundation. Bring an UNWRAPPED toy to brighten a child's holiday.

**Fifth Annual
IEEE Signal Processing in Medicine and Biology Symposium (SPMB15)
Saturday, December 12, 2015
Temple University, Philadelphia, Pennsylvania**

IEEE SPMB15 is a regional symposium intended to provide a highly interactive forum where bioengineering and signal processing researchers can collaborate on emerging trends in signal processing. We expect approximately 125 researchers to attend. We specifically encourage graduate students to attend and present their thesis or dissertation research. Awards for best student paper and presentation will be given. This is an excellent opportunity to network with leading professionals in your field and to form new collaborations.

Signal processing plays a vital role in applications ranging from medical electronics to data mining of electronic medical records. The enormous amounts of data that can be acquired from devices are enabling a new generation of technology based on big data. This symposium is intended to bring together a wide range of professionals interested in applications of signal processing medicine and biology. The symposium is sponsored by IEEE-USA, IEEE Region 2, IEEE Region 2 Philadelphia Section, Temple University, the Neural Engineering Data Consortium and NYU Polytechnic School of Engineering.

The symposium will consist of two plenary talks, two oral sessions and two poster sessions. Exhibits and demonstrations are encouraged as well. Interested parties should contact the conference organizers at help@ieeespmb.org for further details.

Symposium Topics:

Traditional signal processing topics include:

- Signal analysis (e.g., EEG, ECG, EMG)
- Medical imaging (e.g., MRI, fMRI)
- Machine learning, data mining and classification
- Big data resources and applications
- Signal processing methods in bioinformatics
- Linear, nonlinear, and adaptive filtering and prediction
- Time-frequency and non-stationary signal analysis

Applications of particular interest this year include:

- Wearable healthcare devices
- Data mining and analytics in healthcare
- Security and reliability in wireless medical technologies
- Biomedical nanosensors and wireless technologies
- Biomedical instrumentation and electrical stimulation
- Emerging medical devices, technologies and applications

Paper/Abstract Submission:

Presenters may choose to submit to one of two peer-reviewed tracks:

- (1) Paper: An original four to six-page paper for oral presentation.
- (2) Poster: A one-page abstract that will be presented as a poster.

All papers and abstracts are indexed in IEEE Xplore (search for "IEEE SPMB").

Papers/abstracts can be submitted via email to submit@ieeespmb.org. Papers must be prepared using the standard IEEE conference paper template (see [IEEE Templates](#) for more information.)

Important Dates:

Submission	Sept. 1, 2015
Notification	Oct. 15, 2015
Early Registration	Nov. 15, 2015

Organizing Committee: General Chairs:

Joseph Picone (Temple)
Ivan Selesnick (NYU-Poly)

Conference Co-Chair:

Charles Rubenstein (Pratt)

Program Chairs:

Iyad Obeid (Temple) Zhanpeng Jin (Binghamton)
Richard Kyung (Choice) Xiaomu Song (Widener)

Industry Liaison:

Michael Mayor (IEEE SPS)

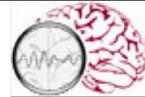
Publications Chair: Georgios Lazarou (USA)

Local Arrangements: Shawn Fagan (Temple) Emilie Doyle (Temple) Claire Durand (Temple)

Web: <http://www.ieeespmb.org/2015>

Contact: help@ieeespmb.org

If you have questions about the relevance of a planned submission, feel free to contact the technical committee at help@ieeespmb.org for guidance.



TCF 16 CALL FOR SPEAKERS

18 & 19 March 2016

The College of New Jersey, Ewing, NJ

The TCF team is now working on the 4th TCF and its associated ITPC (11th year). TCF will be on Saturday March 19, 2016. The IEEE/ACM IT Professional Conference (ITPC) at TCF will be on Friday March 18, 2016 and continue on Saturday as part of TCF. The IEEE Integrated STEM Education Conference (ISEC'16) will be in Princeton and on a Saturday, but two weeks earlier (March 5th). TCF was formerly known as the Trenton Computer Festival.

We hope to make this year's TCF as enjoyable as the last and will be using pretty much the same TCNJ (The College of New Jersey) facilities and format in Ewing, NJ.

One difference is that we will be holding a **Start Your Own Business/Entrepreneurship Forum** in conjunction with the Princeton Central Jersey Section (PCJS) of the IEEE. **Entrepreneurship** will be the theme of TCF and ITPC. ITPC will have sessions on Starting an IT Business and Entrepreneurship. We are still working on the details, but we plan to feature both presentations and exhibits that could impact and change your future.

As in the past, we need your help with talks (50 minutes) and tutorials/workshops (100 minutes) on our theme and all forms of computer/digital electronics, information, communications technology, robotics, home/environmental control, gaming, digital home entertainment, digital video/photography/music and art, wireless technology, networking, amateur radio related topics, education, etc.

If you have an idea for a talk or workshop/tutorial, please email me directly at [<alkatz@tcnj.edu>](mailto:alkatz@tcnj.edu) with Title, Abstract, Bio and length (50 or 100 min). Alternately you can fill out a Speaker's form at: <http://tcf.pages.tcnj.edu/event-information/call-for-speakers/>

For more information on: The IT Professional Conference, contact David Soll at [<dsoll@Omicron.com>](mailto:dsoll@Omicron.com) or see [<princetonacm.acm.org/tcfpro/>](http://princetonacm.acm.org/tcfpro/).

The IEEE Integrated STEM Education Conference see [<ewh.ieee.org/conf/stem/>](http://ewh.ieee.org/conf/stem/).

This year TCF has joined forces and is a member of the NJ Makers Day Partnership.

Speaking at TCF or TCF in general see [<http://tcf-nj.org>](http://tcf-nj.org) or contact Allen Katz, TCF2016 Program Chairperson, alkatz@tcnj.edu, telephone: 609.771.2666, US Mail: Dr. Allen Katz, Electrical/Computer Engineering Department, The College of New Jersey, PO Box 7718, Ewing, NJ 08628-0718.



NEWSLETTER

Philadelphia
Section Chapters

Aerospace & Electronic Systems
Broadcast Technology
Consumer Electronics
Signal Processing



Bob Frankston, *IEEE Fellow, ACM Fellow*
Fellow of the Computer History Museum
Distinguished Lecturer of the Consumer Electronics Society
will present

Consumer Electronics

Presentation will be at the IEEE Section Night

Date/Time: Tuesday, January 19, 2016 – 5:30 PM – 7:00 PM

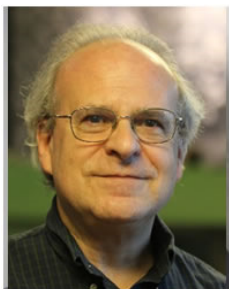
Place: Sheraton University City, 3549 Chestnut St, Philadelphia, PA 19104

Abstract: Consumer electronics is in transition. We are shifting from creating value and defining products using electronics to creating solutions using software. Consider the smartphone: is it a telephone, or is it a gaming unit, a calendar a camera or a television? With other form factors we can mix or match parts to create a desktop computer, a television, a home control system or whatever we can imagine. Many single-use devices and classic limitations no longer exist.

The Internet is central to this revolution. It is a byproduct of creating connectivity solutions using any available means. The Internet represents a fundamental change in how we build systems and in what it means to communicate.

You simply click on a URL and you're "there". You don't worry about wires or reserved frequency. You can just assume that the packets will appear at the destination most of the time. Using software defined relationships as building blocks is very different from traditional hardware-based engineering. Welcome to the new world of software and the Internet. There's no dependence on providers or networks.

For the IEEE these changes present an opportunity and challenge. Devices are becoming connected, opening up new frontiers as we create and share our own solutions and become less dependent on service providers. We're at the very earliest stages of an exciting new world.



Bio: Bob Frankston is a Fellow of the IEEE, the ACM and the Computer History Museum. He is on the Board of Governors and is a Distinguished Lecturer for the IEEE Consumer Electronics Society. He writes the Bits Vs. Electrons column in the IEEE/CE Magazine.

He has been online since 1966 and was co-developer of the first electronic spreadsheet and has been honored by the IEEE for his contributions to home networking while at Microsoft. He received BS degrees in both

Computer Science and Mathematics and Master's and Engineer's degrees in Computer Science and Electrical Engineering all from MIT.

Since leaving Microsoft he has been doing angel investing and advising. He is currently working with entrepreneurs and established companies on the issues we face as we transition to a software-defined connected world.

Further Reading: <http://rmf.vc/FurtherReadings>.

Michael A. Mayor, PE

Co-Chair IEEE Consumer Electronics / Broadcast Technology / Signal Processing Chapters
michael.mayor.pe@ieee.org

CALL FOR PAPERS

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

Saturday, March 5, 2016

Friend Center and E-Quad at Princeton University

Princeton, NJ

Submissions for the 6th IEEE Integrated STEM Education Conference (Promoting a Community of STE(a)M Learning) are being accepted through 11:59 EST Sunday, December 13, 2015. The direct link for submission is <<http://edas.info/N21015>>. If you are a first time user of EDAS, you will need to register before you can submit your paper.

While all papers on methods of and experience with integrating education (or interdisciplinary education) in science, math, engineering, and technology (STEM) are welcome, we are very interested in papers on STEaM (STEM+art) initiatives that have resulted in the development of a community that encourages, mentors, uplifts, and retains its members in STEM studies, especially students from underrepresented populations in the disciplines. Topics of interest include, but are not limited to:

- * Diversity-aware methods and practices in STEM education
- * Fundamental and applied educational research in integrated education programs
- * Integration of engineering (design) into the traditional K-12 curriculum
- * Novel implementations of K-12 initiatives and outreach programs

Your work must not have been published or submitted for publication elsewhere. Your submission will be one of the following: a work-in-progress paper (2 - 3 pages), a full paper (5 - 8 pages) or an abstract for a poster by K-12 students. There is no preliminary abstract phase for WIP or full papers.

We are very pleased to announce that Barbara Oakley, PhD, PE, a Senior member of the IEEE and a VP of the IEEE's Engineering in Medicine and Biology Society, will be our keynote speaker. She is a Professor of Engineering at Oakland University in Rochester, Michigan; a best-selling author; and award winning engineering educator. We will also feature our second Unconference on Integrative and Inclusive Learning - an "all hands" town hall style session where YOU drive the content - and new this year, an Industry/Academic workshop track.

Conference fees cover admission to ISEC and its affiliated conference, the Trenton

Computer Festival; conference proceedings; and breakfast and lunch. The advance fee schedule, good through 11:59 pm EST Monday, February 29, 2016, is:

\$130 (IEEE members) / \$150 (non-IEEE members),

\$55 K-12 Parent/Teacher Author, and

\$35 for K-12 non-author parents/teachers and K-16 students.

Information on the 41st Trenton Computer Festival, which will be held on Saturday, March 19, 2016, is available at <<http://tcf-nj.org>>, and on the Information Technology Professional Conference, which will be held Friday and Saturday, March 18-19, 2016, is available at <<http://princetonacm.acm.org/tcfpro>>.

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

Please follow us on Twitter (@IEEE_ISEC), like us on Facebook (search for ISEC), email us at isec2016@gmail.com, and visit us at <<http://ewh.ieee.org/conf/stem>>. We look forward to your participation in ISEC 2016!

Ernest's Page Cars in my life

Ernest B. Cohen

Enough people responded positively to a previous column on bicycles that I decided to write about cars in my life. This topic will take two columns.

The first thing I did when I got my driving license was to take my girlfriend, Elaine, (now my wife) for a drive. So I borrowed a 2½ ton truck from the Hilton Tool and Machine Company (my father's business) and we rode around the Bronx for a few miles. My father, William Weiss, loved cars. When the business was doing well, he bought expensive cars, which his three sons, jokingly called “garbage trucks.” I remember, I was seven when the family moved from Brooklyn, to Parkchester in the Bronx, we all took the subway.

My father bought a Studebaker for my mother in 1949, because it had an automatic transmission, but she never learned to drive. She stopped trying after running into a house.

While Elaine and I were both at Cornell, in 1950, my brother, Martin, bought a 1932 Chevrolet. The generator was shot, but the car could be started by charging the battery overnight. At that time, I was the assistant cook at the Cornell Kosher eating cooperative. Since there were no kosher butchers in Ithaca, NY, the meat came down by bus from Rochester. One of my duties was to pick up the meat at the bus terminal. One evening, I borrowed that Chevrolet to pick up the meat. On the way back, it started to get dark, so I turned on the lights, and the engine stopped. The battery had enough power to handle either the ignition or the lights, but not both.

After graduating, in 1955, my first job was with New York State, in Albany, and we were given the Studebaker. The next job was in Delaware County, Pennsylvania, as a computer programmer. So we passed the Studebaker on to my brother, Bob, and bought our own car. Like all the cars we purchased new, the 1956 English Ford Consul, had a manual transmission. It was compact, but had enough room for us and the two children. Driving home from work, one Friday, passing the airport, an inexperienced driver jumped the center strip, and hit me head on. I wasn't seriously hurt, but the car was totaled.

We replaced it with another English Ford, the upscale Zephyr model, which had a six cylinder engine instead of the four. Elaine had a tendency to stall the engine when shifting gears, and we thought this might help. We were assured by the dealer that this was a Ford product, fully supported by the company. As we found out later, to our dismay, they had overstated the support. Seat belts were not mandatory at this time, but having survived a head on collision, we insisted

on them, both for the front and back seats.

We used that car for a trip to Nova Scotia. We drove to Bar Harbor in Maine, and took an overnight ferry. On the way back, we came by land through New Brunswick and also passed through Maine. Both ways, we had trouble finding motel accommodations. Afterwards, we remembered being waved into the wrong line at both border crossings. We realized that without a front license plate, people thought we were Canadians from New Brunswick. English Fords were quite common in Canada, but rare in America.

A few years later, there was a problem with the gear box, so we took the Zephyr to the dealer to have it repaired. First, there was delay in getting a mechanic who would take apart an English Ford. Then several months passed before the parts arrived from England, and by then the mechanic had quit. So the Zephyr remained on the dealer's lot until it rusted away. So much for company support. □

Women in Engineering Summit, Philadelphia, Nov. 6-8

For members able to attend the Summit, thank you for being part of the first-ever IEEE WIE Summit on the East Coast. For members not able to attend, our next Summit will be held in the fall of 2016 in Boston, MA.



The Summit was held at the Sheraton University City. There was an immense amount of support from academic, industry, and non-profit organizations.

General admission for the first-ever event was SOLD OUT. Over 180 Women and Men from undergraduate students to full-career professionals engaged to empower and inspire females as leaders in technology.

The Summit was organized into 3 main tracks: Inspirational and Empowering Presentations, Perspectives (papers & panels), and STEM Workshops. Lively and engaging speeches were given from IEEE leadership, Rockwell Automation, Johnson & Johnson, Tech Girlz, and Comcast.



Workshops were held on wearable technology, Additive manufacturing (3D Printing) and negotiation.



Karen Panetta, Associate Dean at Tufts University and founder of Nerd Girls, gave a riveting luncheon presentation.

For more information, pictures, and future updates please visit:
<http://sites.ieee.org/wie-summit-usa-east/>

For more information, contact IEEE WIE members Vicky Drury or Ben Wolfgram.
vickydrury.ieee@gmail.com | Ben.Wolfgram@weautomation.com

IEEE Sponsored UNconference: "How to Become a Great Preneur"

An *Unconference* presented by the Innovation Leadership Forum

Saturday, November 14th, several IEEE members attended an Unconference focused on becoming a great Preneur. This event was hosted on the Philadelphia University grounds and was sponsored by the IEEE – Philadelphia section.

Unconferences are a unique way to present data – attendees of the unconference suggest and then vote upon topics to discuss. These topics become the talking points for the unconference.

The event started with an exceptional keynote speech from Stephen Spinelli, PhD, President of Philadelphia University and a member of the founding team of Jiffy Lube. Dr. Spinelli provided many insightful perspectives including background into the hyper-growth years of Jiffy Lube.

After the keynote speech, the Unconference leader, Natalie Nixon PhD presented a window into her Strategic Design MBA program.

Attendees wrote down Preneurial topics of interest and voted on the topics of greatest interest. The top 12 topics facilitated engaging discussions and in-depth collaboration among all attendees. The freely structured event allowed for attendees to walk between rooms and engage in any topics they found interesting.

A few of the popular ideas were:

- Virtual companies: Benefits, downsides, & tools
- How to fund a great idea: Where to start, who to target, how to position
- Responsive Structure: how to promote rapid change and responsiveness
- Cannabis Business opportunities: growing, dispensing, and economic influence
- How to Build Great Teams

To see pictures and topics of discussion: #ILFUNCON

For future events, stay connected with: www.gpseg.org. IEEE member George Szekely was an organizer of this event.

For more information, contact:

George Szekely: george.szekely@ieee.org or

Ben Wolfgram ben.wolfgram@weautomation.com

Chair's Message



By Philip Gonski

On behalf of the IEEE Philadelphia Section and my fellow Board of Directors, I wish you all a bountiful and beautiful holiday season.

The year 2015 has certainly been full of exciting developments in the world of electrical engineering. Perhaps the issue with which I have directly been involved with as of late has been the *New York Reforming the Energy Vision* (NY REV). This new policy, which intends to explore possibilities for effective localized power solutions, has the potential to shake the status quo in the electric power sector

Over the past few months, I've had the chance to visit several locations on Long Island and I've learned firsthand about the lasting economic and financial implications of a devastating Superstorm. In addition to the countless businesses and residents that were without power for weeks, entire hospitals had to be evacuated and fire stations were unequipped to respond due to lack of power. While many of these facilities did have their own backup generators, most of these generators were located at the basement level and thus, flooded or they prematurely ran out of fuel. Perhaps most significantly, the environmental ramifications associated with local waste water plant releasing raw sewage, due to lack of power, will undeniably continue to have ramifications in the years to come.

Sandy's wrath was non-discriminant and severe. New York got the message. The crippling of their aging infrastructure and the need for real power supply reform had never been more apparent.

Into this fray, comes the regulatory and engineering experiment under REV called the 'New York Prize.' Under this program, over eighty cities in the state of New York have received funding to explore supplementing their power reliability by utilizing local microgrids. These decentralized power stations will interconnect critical locations such as hospitals, city halls, police stations, water treatment facilities, and other buildings that are vital to maintain during a crisis.

The options being explored range from diesel generators in flood-proof enclosures to fuel cells, energy storage, and other novel concepts. Each study is seen as 'prime mover neutral.' Additionally, the firms assisting each city are tasked with reaching out to private entities and investors to gauge the potential for different types of financial models. Power utilities, who once had all but quashed distributed generation under costly 'standby charges' are now realizing the potential to offset their own needs to increase power capacity with being more supportive of microgrids and distributed generation.

The Philadelphia area can certainly learn from the pro-active changes occurring in New York. There's no guarantee we'll be spared next time Sandy or one of her friends comes to town. Except for the work occurring at the Philadelphia Navy Yard, our state can use a similar avant-garde comprehensive energy policy, one that spurs growth of distributed generation, fosters public-private partnerships and protects our communities.

Future City Competition

Edited from a letter from Ken Golkin

We will be recognizing Institute of Electrical and Electronic Engineers, Philadelphia Section as a Philadelphia Future City Sponsor in our program, on our web site and will be awarding the IEEE Philadelphia Section Special Award in your name.

The competition will be held on Saturday, January 23, 2016 at Archbishop Carroll High School, 211 Matsonford Road, Radnor, PA 19087. The Special Awards evaluation takes place from 9:00 AM to noon so please have your judges there by 8:00 for a short orientation.

Our Section needs to provide some volunteer judges – please sign up at the web site www.futurecity.org. Do not be shy – there is enough opportunity for ten.