

PHILADELPHIA SECTION of the IEEE

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

Almanack

Vol. 61, No. 1 www.ieeephiladelphia.org

January 2016

SECTION MEETING

January 19, 2016

Dinner: 6 pm

Speaker: 7 pm

Sheraton University City

Philadelphia

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

Parking cost paid by section

Bob Frankston

Consumer Electronics

Dr. Donald L. McEachron

We All Got Rhythms but Can We All Stay in Synch?

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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.

January 2016

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1 New Year's	2 Young Innovators Fair
3 Young innovators Fair	4	5	6	7	8	9
10	11	12 COM/IT	13	14 Life Member tour	15	16
17	18 MLK Day	19 IEEE Night	20 PES/IAS	21	22	23 Future City
24 31	25	26	27	28	29	30 CSS/CAS/SMC

IEEE NIGHT

Philadelphia Section Meeting

Joint with: Engineering in Medicine and Biology (EMB), Magnetic (MAG), and Reliability(R)

Date: Tuesday, January 19, 2016

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.

Consumer Electronics

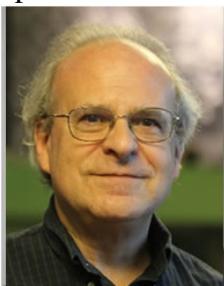
Bob Frankston, IEEE Fellow, ACM Fellow

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.



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>.

We All Got Rhythms but Can We All Stay in Synch?

Dr. Donald L. McEachron, Drexel University

Neural oscillations are common throughout the brain, not just because the transmission of ionic-based signals requires an oscillatory mechanism but also due to a broad distribution of **autorhythmic neurons**. Due to the complexity involved in developing specific molecular mechanisms to generate autorhythmicity, it can be hypothesized that there must be **powerful selection pressures** supporting the evolution of such oscillators. In this presentation, I explore some of the hypotheses which have been suggested, models that have been developed and experimental results that have been obtained to uncover these selection pressures and determine the role(s) being played by neural oscillations in brain. In so doing, we will discover that **neural rhythms appear to be involved in almost every important brain activity**, from sensory recognition to selective attention, from feature binding and stimulus recognition to emotional processing, from learning and memory to locomotion and behavior. No aspect of brain function appears to be untouched by the neural rhythms supporting a primary selection pressure for the development of biological rhythms: That **complex, goal-directed devices –such as the brain - must maintain an internal temporal order to function efficiently and effectively**. The evidence strongly supports the concept that **neural oscillations are the primary mechanism** for maintaining this internal temporal order. Time permitting, I will discuss some possible applications of these discoveries.

Dr. Donald L. McEachron is a Teaching Professor and currently serves as the Coordinator for Academic Assessment and Quality Improvement for the School of Biomedical Engineering, Science and Health Systems at Drexel University. Dr. McEachron holds a B.A in Behavioral Genetics from the University of California at Berkeley and a Ph.D. in Neuroscience from the University of California at San Diego. In December 2006, he completed a M.S. in Information Science at Drexel. Dr. McEachron has worked extensively in the areas of imaging, editing three monographs on imaging applications in biomedicine, as well as numerous papers and presentations. However, his primary biomedical research has focused on chronobiology, biological rhythms and human performance engineering. Dr. McEachron's most recent book is ***Chronobioengineering: An Introduction to Biological Rhythms with Applications, Volume 1***, published as part of the Synthesis Lectures series on biomedical engineering by Morgan-Claypool. In association with architects, civil engineers and other engineers and social scientists, he is working in the field of Indoor Ecology, examining how built environments influence human physiology and behavior. However, Dr. McEachron has published in a variety of other disciplines, including hominid evolution and education. His 1982 paper on teaching evolution and the evolution-creationism controversy, written with Dr. Robert Root-Bernstein, is considered a classic in the field. Dr. McEachron has served as PI or Co-PI on a variety of grants from both NIH and NSF involving autoradiographic image processing, neuroendocrinology and education. He is currently involved in the design and implementation of computer-assisted knowledge management systems to augment instruction and assist in the development of personalized educational approaches, originally funded by the National Science Foundation as well as assisting in the development of specialized lighting systems for various applications with Dr. Eugenia Ellis as part of the **dLUX Lighting Laboratory** at Drexel University. In addition to his work at Drexel, Dr. McEachron



has served as Chair of the Engineering in Biology and Medicine Society, Philadelphia Chapter, IEEE Philadelphia section. In 2005 and again in 2012, Dr. McEachron was trained as an IDEAL Scholar in assessment practices by ABET, Inc. and currently serves as a faculty member for the WACE Assessment Institute.

**Life Members
to Tour
Inductotherm**

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

Arial photo of Inductotherm
complex



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.

Induction furnaces



Pouring molten metal

Section notes

IEEE PHILA. SECTION OFFICERS

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

Vice Chair: Peter Silverberg; psilverberg3@comcast.net

Treasurer: Robert Johnston; rlj1620@gmail.com

Secretary: Tal Singer; tsinger@centrak.com

Past Chair: Mark Soffa; msoffa@kns.com

Adcom meets second Tuesday of the month (Feb. 9) at the Sheraton University City. Members are welcome to attend. Reserve a seat by calling the office by the Friday before. No Adcom in January.

Almanack Staff

Publisher: Phil Gonski, P.E.

Editor: **Peter Silverberg**

Asst. Editor: **Janet English-Cartwright**; jenglish@fi.edu

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

Deadline for the February issue is January 15, 2016

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.

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.

IEEE PHILADELPHIA SECTION CONGRATULATES OUR NEW SENIOR MEMBERS!

The last 2015 A&A Review Panel meeting was held on November 21 in New Brunswick, NJ. Two Members advanced to Senior Member. We congratulate:

Robert Brooks, also in Education Society

John Walsh, also in Communication Society; Information Theory Society; and Signal Processing Society



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need help
sometimes.

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Engineering Dept.

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.

Future City Competition

Edited from a letter from Ken Golkin

We will be recognizing Institute of Electrical and Electronic Engineers, Philadelphia Section is 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.

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!

From: **Stanley Muzykowski** SMuzykowski@burns-group.com  
Subject: Philadelphia IEEE PES/IAS January Meeting Notice
Date: December 7, 2015 at 4:28 PM
To: Jonathan A. Schimpf JSchimpf@burns-group.com

SM



Meeting of the Philadelphia Joint Chapter



IEEE Power & Energy and Industry Applications Societies

Topic: Circuit Breaker Control & Automatic Transfer

Speaker: Timothy McBride, Application Engineer, Eaton/Cutler-Hammer

Date and Time: **Wednesday, January 20th, 2015**
Lunch @ 11:45 a.m.; Presentation: 12:10 – 1:30 p.m.

Cost: No Charge for Presentation
\$13 for lunch (\$10 for Full-Time Students)

Location: **Burns Engineering, Inc.**
Two Commerce Square
2001 Market St., Suite 600
Philadelphia, PA 19103

Public Transportation: SEPTA (Rail to 30th Street or Suburban Station and/or Trolley to 19th & Market Street)

Reservations: Please register here: <https://meetings.vtools.ieee.org/m/37358#13> or by visiting www.ieeephiladelphia.org and finding this meeting notice. If you have problems or cannot register online, e-mail or call Stas Muzykowski at smuzykowski@burns-group.com or 215-979-7700, ext 7790, by 5:00 p.m., Monday, January 18th, 2015.

Abstract: This presentation will be an overview of basic operation of Automatic Transfer Schemes for Main-Tie-Main switchgear installations. We will review breaker control schematics, including Close and Trip circuits as well as an Under Voltage scheme. The presentation will discuss the various means of controlling the transfer logic and control power considerations.

The Speaker: Tim has thirty years of experience as an engineer in the power industry. Tim began his career with Atlantic City Electric followed by positions at Amtrak and consulting firms in the Transit Power industry. Tim is currently the Philadelphia District Application Engineer for Eaton Electrical. Tim has a BSEE & MSEE, is an active member of IEEE, and is a registered professional engineer in the state of New Jersey.

Please note that this is the presentation that was originally scheduled for November 2015 at Burns Engineering. **Please note the new date and location.** If you paid for lunch in November and wish to

attend this meeting, please select the "Register Only (skip optional fee)" when you register. Your payment will be applied appropriately.

1.0 PDH certificate is available upon completion of course evaluation form

Chapter Chair: Jonathan Schimpf, Burns Engineering - jschimpf@burns-group.com
(215-979-7700, ext. 7709)

Vice Chair: Rich Delp, Schiller and Hersh Associates - rdelp@schillerhersh.com
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Check out our website: <https://sites.google.com/site/ieeepesiasphiladelphiachapter/>

IEEE Philadelphia Section website: www.ieeephiladelphia.org

In response to the industry we serve exploding with work, Maida Engineering, Inc. is expanding its highly respected and well-established engineering firm. We are looking for intelligent, motivated and talented degreed Electrical Engineers with 0 to 10 years of experience who want to design and commission electrical power, control and instrumentation systems for industries that include but are not limited to the following;

- Aerospace Facilities, Whirl Towers and Wind Tunnels
- Fiberglass and Glass Manufacturing
- Theme and National Park Attractions and Rides
- Pharmaceutical Facilities and Processes
- Health Care Facilities
- Chemical Facilities and Processes
- Commercial Buildings and Infrastructure
- Cement Manufacturing

Past projects have included engineering and design of power conversion and distribution system for medium voltage AC Motors up to 22,000 HP. Current projects include the design and construction oversight for the replacement of the motors and drives for the St. Louis Arc Trams, numerous Power System and Arc Flash Studies, the design, engineering and commissioning of a new 3,000 HP Wind Tunnel and its PLC Control System and engineering, design and commissioning for other electrical projects.

Future potential national and international projects, for which we are seeking new engineers, include: designs for new wind tunnel power conversion and motors, ranging in size from 600 HP to over 50,000 HP; 6,000 HP Whirl Towers; and Power System Studies and Arc Flash Analysis for a large New York City hospital and for Pharmaceutical Plants.

The employee will work be based in our office, which is located in heart of center city Philadelphia. The positions offer opportunities to enhance professional skills, technical knowledge, design capabilities, to prepare PLC programming and HMI configuration, to perform power studies, and to commissioning and startup the system that one engineers and designs under the direction and supervision of senior electrical engineers.

Experience with AutoCAD® and with SKM® PTW® power system analysis software is desired.

Applicants must have or be in the process of obtaining an Engineer in Training Certificate or be a Licensed Professional Engineer in PA or its neighboring states.

Maida Engineering, Inc. is in a position to offer excellent salaries and benefits to qualified engineers who enjoy engineering and want to be involved with unique, challenging and successful projects.

If interested in this opportunity or just curious and would like to find out more about Maida Engineering, Inc, send your resume in confidence to:

*Maida Engineering, Inc,
Joseph F. Maida,
PEjmaida@maidaeng.com.*

WORKSHOP ON SHIFT REGISTER SEQUENCES

honoring Dr. Solomon Golomb, recipient of the
2016 Benjamin Franklin Medal in Electrical Engineering



APRIL 20, 2016
8:30 AM – 12:30 PM
The Cinema Theatre
Connelly Center
Villanova University
800 E. Lancaster Ave.
Villanova, PA 19085

Agenda

- | | |
|----------|--|
| 8:00 AM | <i>Breakfast</i> |
| 8:45 AM | <i>Welcome and Opening Remarks</i> |
| 9:00 AM | DR. ANDREW VITERBI
<i>Viterbi Group, LLC, San Diego, CA</i>
<i>Converting Pseudorandom Sequences into Pseudonoise for Multiple Access Communication</i> |
| 9:40 AM | DR. GUANG GONG
<i>University of Waterloo, Ontario, Canada</i>
<i>Sequences and Cryptography</i> |
| 10:20 AM | DR. TOR HELLESETH
<i>University of Bergen, Bergen, Norway</i>
<i>Sequences with Low Correlation</i> |
| 11:00 AM | <i>Coffee Break</i> |
| 11:15 AM | DR. ALFRED W. HALES
<i>IDA Center for Communications Research, San Diego, CA</i>
<i>Coefficient Patterns for M-sequences</i> |
| 11:55 AM | DR. SOLOMON W. GOLOMB
<i>University of Southern California, Los Angeles, CA</i>
<i>My Involvement with Shift Register Sequences</i> |
| 12:35 AM | <i>Adjourn</i> |

Free Registration and
Complementary Breakfast

Register at www.xxxxxxxx
by April 11, 2016



For more than 190 years, The Franklin Institute has honored the greatest minds in science, engineering, technology, and business. The Franklin Institute Awards are amongst the oldest and most prestigious comprehensive science awards in the world. Recognizing these brilliant men and women from around the world is one important way that the Institute preserves Benjamin Franklin's legacy. They are the Franklins of today; they will inspire the Franklins of tomorrow.



**IEEE PHILADELPHIA CHAPTER OF CONTROL SYSTEMS SOCIETY
PRESENTS**

**An ALTERA® University Program Training Workshop
INSTRUCTOR: BLAIR FORT**

- **January 30TH, 2016: 10:00 AM - 3:30 PM DeVry University (Rooms 127 and 128)**

Workshop Description:

This Workshop is a derivative of class room training provided by The Altera® University Program Training courses. This program is meant to provide introduction to the many state-of-the-art educational materials Altera has developed to enrich your digital logic and computer optimization skills. This course will include development hardware to be used along with hands on training.

Details:

- **Fee: \$15 for IEEE Members and Students \$25 for Non- IEEE members**
- Lunch will be provided.

Agenda:

10:00-10:30	30 min.	Introductory slides
10:30-12:00	90 min.	Hands-on Tutorial for Digital Logic (<i>Quartus Prime Lite 15.1 tools will be used</i>)
12:00-12:30		Lunch
12:30-2:10	100 min.	Introduction to ARM with Hands-on exercises: <ul style="list-style-type: none"> • Exercise 1: Greatest Common Divisor (Basic assembly program) • Exercise 2: Dot product (Assembly program with memory access)
2:10-2:15		Break
2:15-3:30	105 min.	Introduction to Cyclone V HPS with Hands-on exercises: <ul style="list-style-type: none"> • Exercise 3: HPS Peripherals • Exercise 4: FPGA peripherals • Exercise 5: Making a Custom System (Time Permitting)

Instructor Biography: Blair Fort received the B.A.Sc. degree in engineering science (computer option) and M.A.Sc degree in electrical and computer engineering from the University of Toronto, Toronto, Canada, in 2004 and 2006, respectively. He is currently pursuing the Ph.D.

degree in electrical and computer engineering at the University of Toronto. He has been a member of the technical staff at Altera Corporation's Toronto Technology Centre since 2006.

**Joint meeting: IEEE (Com/IT)/SMPTE/CBS3
Broadcast TV Standards
January 12, 2016**

Location: CBS3 News, 1555 Hamilton St., Philadelphia, Pennsylvania 19130

The meeting will start at 7 pm on 1/12/16. “Refreshments” at 6:30pm.

Parking will be free on CBS’s outdoor lot – enter through the Hamilton Street gate off 16th street just north of Callowhill.

Cost: \$10 IEEE members/ \$30 Non members. All the details in vtools.

Overview and status of ATSC 3.0

Development of ATSC 3.0, the next generation terrestrial television broadcast standard is progressing rapidly. ATSC 3.0 will add value to broadcasting’s services, extending their reach while providing opportunities for new business models.

ATSC 3.0 incorporates a highly flexible physical layer for robust transmission of services for reception on fixed and mobile devices. The system is highly efficient (more bits per channel) and provides broadcasters with the ability to trade-off capacity for robustness.

ATSC 3.0 is the first terrestrial broadcast standard to use Internet Protocol transport for delivery of both streaming and file content. The use of IP transport provides commonality with other delivery mechanisms and the new standard is being designed to allow the seamless use of broadcast combined with broadband to deliver services.

ATSC 3.0 enables delivery of new services including UHD TV, immersive and personalized audio services; In addition, ATSC 3.0 will specify carriage of video enhancements such as high dynamic range, wide color gamut and high frame rate.

Mark S. Richer is the President of the Advanced Television Systems Committee, Inc. (ATSC). The ATSC is an international, non-profit organization developing voluntary standards for digital television. Mark first joined the ATSC after 16 years with the Public Broadcasting Service (PBS) where, as Vice President of Engineering & Computer Services, he was responsible for development of new technologies. Mark was the 2010 recipient of the National Association of Broadcasters Engineering Achievement Award for Television. He is a SMPTE Fellow and a Senior Member of IEEE.

Note: Adcom meeting scheduled for this date is cancelled.



Ernest's Page **Cars in my life**

By 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, and 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 driven after 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

On behalf of the IEEE Philadelphia Section, I wish you a Happy Holidays and New Year!

I'd also like to invite everyone to attend our upcoming joint meeting with the Society of Motion Picture & Television Engineers on January 12th. More details are provided in the Almanack, as well as our Section website. The event will feature the latest on the development of a new broadcast TV standard, as well as network with members of a like-minded society. To bring this standard into perspective, the meeting will be held at CBS3 in downtown Philadelphia

Have a safe New Year and I hope to see you at the next IEEE event

Phil Gonski, Chair

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.

2016 | DELAWARE VALLEY ENGINEERS WEEK HOLD THESE DATES!

Awards Luncheon

Friday, February 19
DoubleTree Hotel Philadelphia
Broad & Locust Streets
Philadelphia

Young Engineers Social

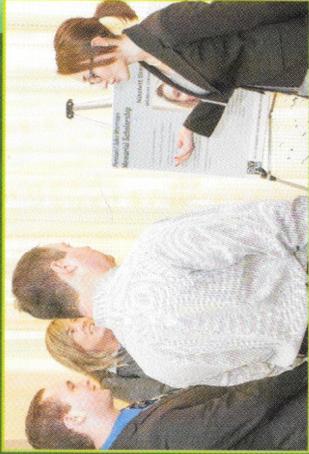
Tuesday, February 23
Buffalo Billiards
118 Chestnut Street
Philadelphia

Celebration of Engineering Reception

Thursday, February 25
Drexel University
Philadelphia

Please join us at these
events as we honor our

**DELAWARE VALLEY ENGINEER OF THE
YEAR, YOUNG ENGINEER OF THE YEAR
& OUR OTHER AWARD RECIPIENTS**



Student Award Night.

Your editor took some photos November 10, 2105. I did not take good notes of who was in these pictures, so they remain a bit of a mystery. Enjoy them anyhow.



