



Almanack



<http://sites.ieee.org/philadelphia/>

PHILADELPHIA SECTION of the IEEE

Counties of Membership: Pennsylvania: Bucks, Chester, Delaware, Montgomery and Philadelphia.
New Jersey: Burlington, Camden and Gloucester

ALMANACK

- **Published ten times a year**, January through June, a Summer issue covering (July, August) and September through December.

*Inputs for the November Issue are due by:
Friday, October 21st, 2016*

IEEE SECTION NIGHT

- **Meetings are conducted eight times per year on the 3rd Tuesday of the Month**, January through May and September through November.

ADMINISTRATIVE COMMITTEE

- **ADCOM meetings are conducted on the 2nd Tuesday of the month**: January through June and September through December. Members are welcome to attend the meeting only. Reserve a seat by calling the office the Friday before the meeting (*Phone: 484-270-5136*)

OCTOBER

INSIDE THE ALMANACK

CURRENT EVENTS

IEEE Section Night.....	2
Drexel U. DL Lecture.....	5
SMC DL Lecture-Villanova.....	7
Women in Engineering.....	8
WIE Save the Date.....	9
EMC Society Chapter Meeting	10
CSS Invited Seminar U of P....	12
Community Volunteering.....	13
STEM Education Conference...	14
ACE Mentor Program.....	16
IPRXIS Volunteer.....	19
Science Fair Planning.....	22
IEEE Philadelphia Section.....	23
SPMB16.....	24

ADVERTISEMENTS.....25

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3	4	5	6	7	8
				*AIChE - Oktoberfest		
9	10	11	12	13	14	15
		*ADCOM		*IES - Illuminate Philadelphia		
16	17	18	19	20	21	22
		*Section Night *Drexel U. DL Lecture	* EMC Society Chapter Meeting		♦ Nov. Issue Inputs Deadline	
23 / 30	24 / 31	25	26	27	28	29
		* Villanova Univ. SMC DL Lecture		* U Penn Invited Seminar		



IEEE SECTION NIGHT
Philadelphia Section
Meeting
Tuesday, Oct. 18, 2016

Sponsored by the Engineering in Medicine and Biology (EMB) and the Power Engineering / Industry Applications (PE/IA) Society Chapters.

Note: In the event of bad weather please call the Sheraton after 1:00 PM the day of the meeting: 215-387-8000. Ask the front desk if the meeting has been canceled.

Tuesday, October 18, 2016.

Dinner at 6:00 PM,

First Speaker at 7:00 PM.

**Sheraton University City,
3549 Chestnut St,
Philadelphia, PA 19104,
(215) 387-8000**

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

The meal cost is higher but it is subsidized by the IEEE Philadelphia Section.

You can attend the talks only (with no dinner) for free, however, we ask that you register.

[Registration Link](#)

Parking is paid by the IEEE Philadelphia Section, make sure you have your parking ticket stamped at the meeting.

First Talk

Nanomechanics of murine tissues: A novel, interdisciplinary approach to uncover joint function and osteoarthritis pathogenesis

Lin Han, Ph.D.

Drexel University

*School of Biomedical Engineering,
Science and Health Systems*

Abstract: Osteoarthritis (OA) affects more than 27 million people in the United States. In seeking the early diagnosis and effective treatment, murine models are widely used in the studies of OA pathogenesis and progression, owing to its low cost, short life-span and availability of genetic modification. Limited by its small size, conventional tools are not able to identify maturation- and disease-associated changes in the mechanical properties of cartilage, the direct indicator of cartilage joint function. Employing atomic force microscopy (AFM), we demonstrated the potential of using nanomechanical characteristics in evaluating the structural and mechanical integrity of cartilage tissue during maturation and osteoarthritis. First, through evaluating transgenic murine models, we detected that one small proteoglycan, decorin, has an indispensable role in regulating the formation and maintenance of cartilage. In decorin knockout mice, cartilage exhibits a number of structural defects at the nanoscale, leading to largely impaired load bearing and energy dissipation properties. Second, in a surgery-induced OA murine model, we detected that the weakening of cartilage nanomechanics occurs at a much earlier time frame than conventional histological signs, highlighting the potential of nanomechanical characteristics in early OA detection and prevention.



Biography: Lin Han obtained his B.E.



degree at Tsinghua University in China, and his Ph.D. degree at MIT. His Ph.D. thesis focused on the molecular, cellular and tissue nanomechanics of cartilage.

He later worked as a post-doctoral associate in the Department of Materials Science and Engineering and the Center for Biomedical Engineering at MIT, where he continued the exploration of nanostructure and nanomechanics of soft and hard biological tissues.

In 2012, he joined the School of Biomedical Engineering, Science and Health Systems at Drexel University as an assistant professor. His current research seeks inspiration from the nanoscale structure-mechanics of synovial tissues to their development and maturation, aging and OA progression, with the emphasis on quantitatively minor matrix collagens and proteoglycans. The ultimate goal is to provide a fundamental knowledge basis for the application of disease diagnostics, tissue regeneration and bio-inspired material design.

Second Talk

Programmable Logic Controller (PLC)

Application Case Studies

Joseph F. Maida, P.E., P.Eng., LEED

President

Maida Engineering, Inc.

Abstract: Beginning with an overview of PLC Systems, this course will discuss how the PLC systems are specified and designed by reviewing recent application case studies. It will also provide a cursory list of the Codes and Standards which provide requirements or guidelines for providing Redundant and/or Safety Rated PLC Systems in these applications.

Case studies of the following applications will be included:

- Wind Tunnels and Whirl Towers which use Non- Redundant and Non-Safety Rated PLC Systems.
- Wind Tunnels which will use Safety Rated PLC Systems
- Power Generation Load Management Systems which use Redundant and Non-Safety Rated PLC Systems.
- Combustion Safety Control Systems which use Non-Redundant and Safety Rated PLC Systems.
- Elevators which use which uses Non-Redundant and either Non-



Safety Rated PLC or Safety Rated PLC Systems.

- Amusement Attractions which uses Non-Redundant and either Non-Safety Rated or Safety Rated PLC Systems.

The attendees will gain an appreciation of the Project Engineer's roles and how important it is for him or her to:

- Have a working knowledge of mechanical, chemical and civil engineering in addition to his or her knowledge of electrical, controls and instrumentation.
- Read and understand the Codes and Regulations
- Define how the Control System will operate.
- Provide clear direction to the team of engineers, designers, vendors, system integrators and contractors who build the PLC System.

Biography: Joseph Maida provides engineering and design services for large and small projects in a number of disciplines. Since starting Maida Engineering, Inc. in 1978, Joseph has provided engineering and design and project management services for commercial, industrial, governmental design pro-



jects and many design/build projects for industrial power and control systems. Joseph has also performed numerous power system studies and arc flash analyses.

Large or small, simple or complex, Joseph approaches every project with the same attention to detail and strives to develop or oversee the development of the most feasible designs that meet building codes, that provide a high degree of safety, and that will function reliably, while meeting the client's budgets and schedules.

Joseph has dedicated his career to learning and developing his engineering and management talents enabling him to fill various roles on different types of projects. Joseph prepared the functional specifications describing both existing systems, when applicable, and new systems, and the specifications and related drawings for the removal of existing systems, when applicable, and for the installation of new state of the art systems for the St. Louis Arch Tram Motor and Drive Replacement Project, for NFPA 86 Gas Furnaces and Forehearth Upgrade Projects, for various Theme Park Attractions and for Wind Tunnels.

He holds an MSEE and BSEE from Drexel University. He is a member of the following societies: NSPE, PSPE – Philadelphia Chapter, Practicing Engineering Institute, IEEE and NFPA.



Drexel University College of Engineering and the IEEE Signal Processing Society Chapter Present

When Power Meets Multimedia

By

Dr. Min Wu

SPS Distinguished Lecturer

Where: Drexel University, Bossone Bldg. #302

When: Tuesday, October 18, at 3:00 PM

Abstract: Osama bin Laden's video propaganda prompted numerous information forensic questions: given a video under question, when and where was it shot? Was the sound track captured together at the same time/location as the visual, or superimposed later? Similar questions about the time, location, and integrity of multimedia and other sensor recordings are important to provide evidence and trust in journalism, crime solving, infrastructure monitoring, and other informational operations.

Although the R&D on power grid and multimedia signal processing did not seem to cross paths, an emerging line of research toward addressing the above questions exploits novel signatures induced by the power network. An exam-

ple is the small random-like fluctuations of the electricity frequency known as the Electric Network Frequency (ENF), owing to the dynamic control process to match the electricity supplies with the demands in the grid. These signatures reflect the attributes and conditions of the power grid and become naturally "embedded" into various types of sensing signals. They carry time and location information and may facilitate integrity verification of the primary sensing data.

This talk will provide an overview of recent information forensics research on ENF carried out by our Media and Security Team (MAST) at University of Maryland, and discuss some on-going and open research issues.



Biography: Dr. Min Wu is a Professor



of Electrical and Computer Engineering and a Distinguished Scholar-Teacher at the University of Maryland, College Park. She received her Ph.D. degree in electrical engineering from Princeton University in 2001. At UMD, she leads the Media and Security Team (MAST), with main research interests on information security and forensics and multimedia signal processing. Her research and education have been recognized by a NSF CAREER award, a TR100 Young Innovator Award from

the MIT Technology Review, an ONR Young Investigator Award, a Computer World "40 Under 40" IT Innovator Award, University of Maryland Invention of the Year Awards, an IEEE Mac Van Valkenburg Early Career Early Career Teaching Award, and several paper awards from IEEE SPS, ACM, and EURASIP. She was elected IEEE Fellow for contributions to multimedia security and forensics. Dr. Wu chaired the IEEE Technical Committee on Information Forensics and Security, and has served as Vice President - Finance of the IEEE Signal Processing Society and Founding Chief Editor of the IEEE SigPort initiative. Currently, she is serving as Editor-in-Chief of the IEEE Signal Processing Magazine and an IEEE Distinguished Lecturer.

the MIT Technology Review, an ONR Young Investigator Award, a Computer World "40 Under 40" IT Innovator Award, University of Maryland Invention of the Year Awards, an IEEE Mac Van Valkenburg Early Career Early Career Teaching Award, and several paper awards from IEEE SPS, ACM, and EURASIP. She was elected IEEE Fellow for contributions to multimedia security and forensics. Dr. Wu chaired the IEEE Technical Committee on Information Forensics and Security, and has served as Vice President - Finance of the IEEE Signal Processing Society and Founding Chief Editor of the IEEE SigPort initiative. Currently, she is serving as Editor-in-Chief of the IEEE Signal Processing Magazine and an IEEE Distinguished Lecturer.

Dr. Min URL: <http://www.ece.umd.edu/~minwu/>

Registration Link: [Registration Link](#)

Contact: Dr. Gail Rosen
Co-Chair Signal Processing Society Chapter
Associate Professor, Electrical and Computer Engineering
Drexel University
gail.l.rosen@gmail.com

Michael Mayor, P.E.
Co-Chair Signal Processing Society Chapter
Director, IEEE Philadelphia Section Communications
michael.mayor.pe@ieee.org



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

Information Based Control and Control Communication Complexity
by
Dr. John Baillieul

**DISTINGUISHED LECTURER, IEEE CONTROL SYSTEM SOCIETY
DISTINGUISHED PROFESSOR OF ENGINEERING
(MECHANICAL, ELECTRICAL, COMPUTER, SYSTEMS)
BOSTON UNIVERSITY**

[Registration Link](#)

Oct 25, 2016: 7-8 PM; Tolentine Hall, Rm. 215, 800 Lancaster Ave., Villanova University. In collaboration with Villanova Center for Analytics of Dynamic Systems (VCADS).

Abstract: The interaction of information and control has been a topic of interest to system theorists that can be traced back to the 1950's when the fields of communications, control, and information theory were new but developing rapidly. Recent advances in our understanding of this interplay have emerged from work on the dynamical effect of state quantization and a corresponding understanding of how communication channel data rates affect system stability. While a large body of research has now emerged dealing with communication constrained feedback channels and optimal design of infor-

mation flows in networks, less attention has been paid to ways in which control systems should be designed in order to optimally mediate computation and communication. Such optimization problems are of interest in the context of quantum computing, and similar problems have recently been discussed in connection with protocols for assembly of molecular components in synthetic biology.

Biography: John Baillieul's research deals with robotics, the control of mechanical systems, and mathematical system theory. His PhD dissertation,



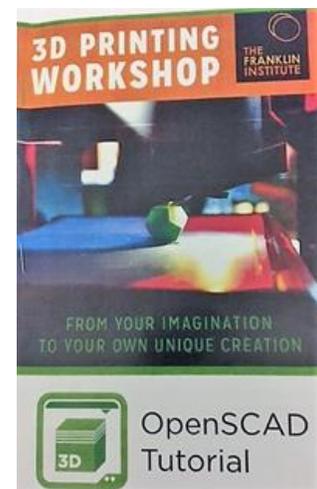
completed at Harvard University under the direction of R.W. Brockett in 1975, was an early work dealing with connections between optimal control theory and what came to be called “sub-Riemannian geometry.” After publishing a number of papers developing geometric methods for nonlinear optimal control problems, he turned his attention to problems in the control of nonlinear systems modeled by homogeneous polynomial differential equations. Such systems describe, for example, the controlled dynamics of a rigid

body. His main controllability theorem applied the concept of finiteness embodied in the Hilbert basis theorem to develop a controllability condition that could be verified by checking the rank of an explicit finite dimensional operator. Baillieul’s current research is aimed at understanding decision making and novel ways to communicate in mixed teams of humans and intelligent automata. John Baillieul is a Fellow of IFAC, a Fellow of the IEEE and a Fellow of SIAM.

Women in Engineering (WIE)

IEEE WIE attended The Franklin Institute’s innovative 3D printing workshop on Saturday, September 17th from 2PM to 5PM. We created a design manually and then learn to use a cad program. We then coded the next design with guidelines on how to create a 3D shape to be printed. We then imagined our

own designs through these programs into physical formations which will be printed by the staff and sent to each individual. Twenty people attended, five were WIE members. It was very interesting and all came away with new knowledge of 3D printing.





Women in Engineering Forum in Boston, MA. Dec 1st -3rd, 2016 Save the Date!

<http://sites.ieee.org/wie-forum-usa-east/>



WOMEN IN ENGINEERING

IEEE WIE FORUM ON
INSPIRING AND EMPOWERING WOMEN IN TECHNOLOGY

WIE FORUM USA EAST 2016

1 - 3 DECEMBER 2016
BOSTON, MA

Eng Women In Engineering
We

SITES.IEEE.ORG/WIE-FORUM-USA-EAST

 **IEEE** 



EMC SOCIETY PHILADELPHIA CHAPTER MEETING

OCTOBER 19, 2016

IMPORTANT TO RESPOND QUICKLY. SPACE IS LIMITED TO FIRST 35 ATTENDEES. FIRST COME, FIRST SERVED. REGISTER ASAP.

To Register send an email to: Eileen@Item.Media
Eileen Ambler, ITEM MEDIA Administrative Manager
610.382.5889

DETAILS:

- **Date:** WEDNESDAY, OCTOBER 19, 2016
- **Location:** R&B Laboratory, 20 Clipper Road, West Conshohocken PA 19428
- **Phone:** (610) 825-1960
- **Networking Time and Refreshments:** 5:30-6:00pm
- **Meeting / Presentations:** 6:00pm – 8:00pm
- A light dinner will be provided at no charge

1st PRESENTATION: A Simple Way to Filter out Unwanted EMI at the Connector; Presented by Scott Lindberg of Quell

Learn a simple way to turn connectors into EMI filtered connectors in seconds. EESeal® Silicone Rubber Inserts for connectors are an easy production solution compared to bulky adapters, filtered connectors, and other traditional EMI/ESD solutions. The EESeal® is made of resilient silicone rubber that is quick and easy to install in seconds by using just your finger tip and the mating connector. Presentation will include a brief video.

SPEAKER: Mr. Lindberg is the Director of Sales and Marketing at Quell Corporation, Albuquerque, NM. Scott has been in electronics industry for over 30 years and previously worked in the semiconductor industry as VP of Sales & Marketing Operations for Microsemi Corporation. Throughout his career he has served on many boards and committees and occupied most of the executive committee positions for the Electronics Representative Association (ERA). He became a Certified Professional Manufacturer's Representative (CPMR) early in the program and then became a member and officer for the Board of Governors that has oversight of the program. He also was a



member of the executive committee of the Manufacturer's Representative Educational Research Foundation (MRERF). Lindberg received a B.A. degree in Business Administration from the University of New Mexico.

2nd PRESENTATION: Practical Implementation of the new Mil Std461G Military EMC Testing Requirement; Presented by Rohit Vohra of R&B Laboratory and Finbarr O'Connor of Alion. This will be a brief (30 minute) overview of the new 461G requirements and practical issues when performing tests.

SPEAKERS: Rohit Vohra and Fin O'Connor

Since 2015, Rohit Vohra is the owner of R&B Laboratory, Inc. an EMC Test Lab that has been in operation for 40 years under various names, R&B Enterprises, IITRI, Alion and now R&B Laboratory. He earned a BS in Electrical Engineering from Drexel University. He has 27 years' experience in EMC testing and design as well as indirect and direct lightning testing. He has written numerous EMC test plans, control plans and test reports and is involved in all phases of design and test to ensure the customer's units are in compliance with the required standards. Fin O'Connor has provided consulting, engineering, training and testing support to the Alion laboratory and cus-

tomers for more than 37 years. He has performed EMC testing using specifications that include: MIL-STD-461A, B, C, D, E, F, 462, RTCA/DO-160B, C, and D, commercial aircraft, SAE J1113, EMP, SAMA, FCC, FDA, ESD, EN-61000-4 series, and RADHAZ. Fin has consulted for General Electric, Bell and Howell, Rohm, Texas Instruments, Leland, American Airlines, Honeywell, EDO, AT&T, Dowty, Loral, Lockheed-Martin, National Institutes of Health, Dupont, Ortho Diagnostics, Bendix, Ford New-Holland, Aydin Corp, Porsche of North America, the U.S. Navy, AEG, ACETEL, Biddle Corp. and Niagara Mohawk Nuclear Power Plant.

He is an active member of the Government/Industry MIL-STD-461 Working Group which produces the most recent version of MIL-STD-461. O'Connor has more than 22 years' experience in developing and presenting EMC training courses for both Government and the private industry. He has given courses for NATO on EMC in Italy, Greece and the Netherlands.

UPCOMING EVENTS:

October 4-5, 2016

[Thermal Live 2016!](#)

November 16, 2016

[EMC Live 2016 Test & Design Bootcamp!](#)



Invited Seminar

Controllability Spectrum of Random Networks

[Registration Link](#)

Speaker: Dr. Victor M. Preciado; Raj and Neera Singh Assistant Professor of Electrical and Systems Engineering (ESE) at the University of Pennsylvania.

Date: Thursday, October 27, 2016.

Time & Location: 6:00 - 7:00 PM; Skirkanich Hall, Room 114, University of Pennsylvania, 210 South 33rd Street.

Abstract: We propose a theoretical framework to study the eigenvalue spectra of the controllability Gramian of systems with random state transition matrices such as networked systems with a random graph structure. Using random matrix theory, we provide expressions for the moments of the eigenvalue distribution of the controllability Gramian. These moments can then be used to derive useful properties of the eigenvalue distribution of the Gramian (in some cases, even closed-form ex-

pressions for the distribution. We illustrate this framework by considering system matrices, derived from common random graph and matrix ensembles such as the Wigner ensemble, the Gaussian Orthogonal Ensemble (GOE) and random regular graphs. Subsequently, we illustrate how the eigenvalue distribution of the Gramian can be used to draw conclusions about the energy required to control random system.

Biography: Victor M. Preciado is the Raj and Neera Singh Assistant Professor of Electrical and Systems Engineering at the University of Pennsylvania, where he is affiliated with the Networked & Social Systems Engineering program and the Warren Center for Network & Data Sciences. He received his Ph.D. degree in Electrical

Engineering and Computer Science from MIT. He has been a visiting scientist at UC Berkeley and Santa Fe Institute. His main research interests lie in the modeling, analysis, control and optimization of large-scale complex dynamic networks, with applications in social networks



Community Volunteering

By Peter Silverberg, Vice Chair

The IEEE Philadelphia Section has a large population, about 4000 members. It is the largest technical organization in the entire Delaware Valley. We seem to have poor participation in STEM activity. It would be nice to grow this. That is why I am writing about volunteering at the start of the school year.

There are many programs in our region that could use help from our well-educated members. We keep receiving pleas for help that, as far as I know, go unanswered. Of course, there is the possibility that the volunteers show up and there is no communication to the Section officers. That would be acceptable. We know that engineers do not seek publicity. We would be glad to print the information in the Almanack. It might have a snowball effect. What really worries me is no one is volunteering. That is sad.

There is a second side to this equation. We do not have a big list of volunteer opportunities. Our attempt to improve things leads to questions.

If you have useful answers, get information to:

Michael A. Mayor, Communications Chair

michael.mayor.pe@ieee.org

or

Peter Silverberg, Section Vice Chair

psilverberg3@comcast.net.

1. You are a volunteer and are willing to let us know
2. You know of a program that needs volunteers and never contacted the Section. We can post the requests on the web site.

Right now, section support falls into two categories.

First, Mark Soffa, Ken Paist, and Ben Wolfgram have been running a program at Enon Baptist Church, introducing kids to Arduino microcomputers.

Second, we have sent a few judges and financial donations to Future City, Delaware Valley Science Fair, and MATE (Marine Advanced Technology Education).

Finally, calls for mentors are coming soon and could use you. Being a judge takes less time, but is also important. Just keep an eye on the web site.



The 7th IEEE Integrated STEM Education Conference (ISEC '17) Friend Center at Princeton University Princeton, NJ, March 11, 2017

ewh.ieee.org/conf/stem

We welcome submissions for the **7th IEEE Integrated STEM Education Conference (ISEC '17)**, which will be held **Saturday, March 11, 2017** at Friend Center, Princeton University, Princeton, NJ. ISEC is known for presenting cutting-edge research in and experiences with integrated approaches to the study of science, math, and technology through experiences and activities based in engineering and other design disciplines. 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 include assessment and evaluation of program outcomes via internal or external means. Other suggested categories include:

- Integration of Engineering (Design) into Traditional K-12 Curriculum

- Integrated Studies across the Curriculum: STEM * Humanities * Social Science
- Instructional Support for STE(a)M Concepts and Practices
- Integrated v. Disciplinary-focused Approaches
- Novel Implementations of Pre-College Initiatives and Outreach Programs
- Diversity-Aware Methods and Practices in STEM Education
- Implications of Integrated Education to Policies and Organizational Change
- Fundamental and Applied Educational Research in Integrated/Interdisciplinary Education

Important dates:

Submissions open: October 16, 2016

Submissions closed: 11:59 pm EST
December 18, 2016

Acceptances sent: January 15, 2017

Final revisions due: February 5, 2017

Early registration deadline: February 28, 2017



Submission instructions will be posted on the conference's web site by **September 30, 2016**; the author template is available there now. 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 (WIP) paper of 2 – 3 pages, a full paper of 4 – 8 pages, or an abstract for a poster by K-12 students. There is no preliminary abstract phase for WIP or full papers.

All accepted submissions will be scheduled for presentation at the conference and included in the local conference proceedings. All presented papers that follow the formatting instructions in the template will be submitted for archival in IEEE Xplore.

You will receive the following for the conference fee: admission to ISEC and its affiliated conference, the Trenton Computer Festival; conference proceedings; and breakfast and lunch. K-12 teachers can apply for CEU credits. The advance registration fee schedule is:

- \$140 IEEE member Attendee/Author
- \$160 non IEEE member Attendee/Author

- \$60 K-12 Teacher/Parent and Undergraduate Author
- \$50 Undergraduate Attendee
- \$40 K-12 Teacher/Parent Non-Author/Attendee and K-12 Student Author/Attendee

Information on the Trenton Computer Festival, which will be held on Saturday, March 18, 2017, is available at tcfnj.org, and on the Information Technology Professionals Conference, to be held Friday and Saturday, March 17 - 18, 2017 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 2017 is sponsored by the IEEE Princeton/Central Jersey Section with technical co-sponsorship by IEEE Region 1 and the IEEE Education Society.

Please visit us at:

ewh.ieee.org/conf/stem,

follow us on Twitter @IEEE_ISEC, and like us on Facebook.

Contact us at ieee.isec@gmail.com for more information.

We look forward to your participation in ISEC 2017!



ACE MENTOR PROGRAM
ARCHITECTURE • CONSTRUCTION • ENGINEERING
EASTERN PA



Click the image above to view our new marketing video courtesy of [Urban Video Productions!](#)

CALLING ALL VOLUNTEERS

Help us engage, excite and enlighten students about the design + construction industry!

WHAT WE DO.

The ACE (Architecture, Construction, 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 mentor-



ing 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.

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.

Psst - We are currently looking for new energy especially in the Montgomery County sites. This year we will be hosting teams in Spring-Ford, Pottsgrove, Souderton, East Norriton and Cheltenham!

STEPS TO BECOMING A MENTOR!

- Complete an online application: www.acementor.org
- Pass a background check | PA requires Criminal, Child Abuse & FBI
- Complete a training program
- Attend biweekly (or weekly) meetings through-out the school year (mentors are encouraged but not required to attend every meeting)

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



“ACE, to me, is real world experience, knowledge, networking, family, support, and most importantly, fun!”

DeShaye Carter,
Engineering Student
at Drexel University





TWO Summer Sessions!

This summer we were fortunate enough to work with [JKRP Architects](#), [Urban Roots](#), [Make the World Better](#) and all of their Project Partners on a special ACE workshop in Center City. We ALSO had the pleasure of working with [Philadelphia University CAFE](#) and [Schrader Group Architects](#) on a SECOND Summer session based on PhilaU's campus. We look forward to continuing ALL of these partnerships in the fall!



ENR's Annual
**ACE Mentor Program
Yearbook 2016**

2016 ACE|ENR Yearbook

The Yearbook will be a special supplement in the August 22-29 edition of Engineering News Record (ENR). For the past decade, ENR has produced this report highlighting the accomplishments of the National program as well as the local affiliates of the ACE Mentor Program. As you page through you may see a few familiar faces to our affiliate! [For an electronic copy, please click here.](#)



American Graduate Day!

ACE Eastern PA will once again be featured on the 5th Annual American Graduate Day broadcast - Saturday, September 17 @ 5:00PM! Hosted by Soledad O'Brien, the 4-hour national broadcast will celebrate the individuals and non-profit organizations dedicated to helping youth stay on track to high school graduation. Our segment of this year's program will feature an interview of a recent ACE student and an alumnus mentor. [Learn more.](#)

BECOME A MENTOR



IPRAXIS

We change the face of science



Dear Potential Volunteer:

For 11 years iPraxis has been bringing STEM education to more than 850 middle school students in 6 Philadelphia public and charter schools. Hundreds of iPraxis volunteers have helped students build confidence around STEM, learn about career opportunities and open their minds to discovery.

We need your help in order to keep reaching new students and getting them excited about STEM.

Become a volunteer

Be a mentor and help a student create a science fair project

- Volunteer each week for 1 or more hour-long sessions.
- Help students think through and create science fair projects from beginning to end.
- Not a teacher? We will be there to guide you through!

Be a science fair judge

- Judge a science fair held at the school

Be a presenter on a STEM topic

- Excite students with your expert knowledge on a STEM topic.

Be a workshop leader

- Give students a chance for some hands-on STEM learning



We are currently **recruiting mentors for Cook Wissahickon Elementary School**. The sessions begin **September 29th** and continue each Thursday through **December 15, 2016**.

Science Fair judges get to be a part of judging the students' projects at the school science fair on December 17th.

The following are the available time slots for each session:

8:45 am - 9:30 am

9:35 am - 10:15 am

11:05 am - 11:45 am

11:50 am - 12:30 pm

1:20 pm - 2:00 pm

2:05 pm - 2:45 pm

Presenters and workshop leaders have the chance to engage students in STEM learning throughout the year.

Whether you have one hour or more time you can devote, we welcome you to pass on your knowledge of science, technology, engineering and math to a young person. Students form bonds with you and really look forward to seeing you in science class. Imagine what a difference you can make!

Join us as a volunteer! **Call Lori Ward at 215-966-6253 or email us at lori@ipraxis.org** and check out our website at www.ipraxis.org.

Sincerely,

Jeremiah White, Jr.
President

Lori Ward
Program Director



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Our mailing address is:

iPraxis

3624 Market Street, 5 East

Philadelphia, PA 19104

[Add us to your address book](#)

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You can [update your preferences](#) or [unsubscribe from this list](#)

MailChimp



Science Fair at Mastery Charter Thomas Elementary

The communication below was received by the IEEE Philadelphia Section. If you want to volunteer for this event, please contact me at:

michael.mayor.pe@ieee.org.

The IEEE Philadelphia Section is certainly very willing to establish open lines of communication and support STEM events in the area.

From: Jessica Deahl – 4th and 5th Grade Science / Math Teacher Mastery Charter Thomas Elementary
To: IEEE Philadelphia Section

My name is Jessica Deahl and I'm the 4th/5th grade science teacher at Mastery Charter Thomas Elementary. I'm reaching out because I attended the IEEE Awards Banquet at the Union League a few months ago, and heard about all of the wonderful work your organization has been doing to help enrich science programs in Philadelphia schools. I am currently planning our second annual Science Fair here at Thomas, and I was wondering if you could offer any advice or guidance on how we could make our program as successful as possible. Thank you so much for your time and consideration; I would love to create open lines of communication between our school and a prominent STEM organization such as yours in our area!

Sincerely yours,
Jess Deahl



PHILADELPHIA SECTION NOTES

IEEE PHILADELPHIA SECTION OFFICERS

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

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Past Chair: Mark Soffa; msoffa@kns.com

ADMINISTRATIVE COMMITTEE (ADCOM)

ADCOM meets the second Tuesday of the month (Tuesday, May 10) at the Sheraton University City. Members are welcome to attend. Reserve a seat by calling the office by the Friday before the meeting.

ALMANACK STAFF

Publisher: Phil Gonski, P.E.: philip.m.gonski@ieee.org

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Almanack Advertisement: The Philadelphia Section of the IEEE encourages placement of technical, professional, promotional and commercial advertisements.

The Almanack is published ten times a year and is read by more than 4,000 members in over 150 key industries. For more information, contact michael.mayor.pe@ieee.org.

Rates

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IEEE Philadelphia Section Main Office:

11 Bala Avenue, Bala Cynwyd PA 19004, 484.270.5136

sec.philadelphia@ieee.org

Sixth Annual IEEE Signal Processing in Medicine and Biology Symposium (SPMB16)

Saturday, December 3, 2016
Temple University, Philadelphia, Pennsylvania

IEEE SPMB16 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 Nano sensors and wireless technologies
- Biomedical instrumentation and electrical stimulation
- Emerging medical devices, technologies and applications

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

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, 2016
Notification	Oct. 1, 2016
Early Registration	Nov. 1, 2016

Organizing Committee:

General Chairs:

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

Conference Co-Chair:

Charles Rubenstein (Pratt)

Program Chairs:

Iyad Obeid (Temple)
Nashwa Elaraby (Penn State)
Vira Oleksyuk (Temple)
Xiaomu Song (Widener)

Industrial Liaison:

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Georgios Lazarou (USA)

Local Arrangements:

Shawn Fagan (Temple) Tamika Butler (Temple) Gabriella Suarez (Temple)

Web: <http://www.ieeespmb.org/2016>

Contact: help@ieeespmb.org



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Philadelphia Section

and

**Enon Coulter Community
Development Corporation**

present

A Special Intensive Hands-On Workshop

Introduction to Java and Android Programming

Four Saturdays

Oct. 29th, Nov. 5th, 12th, & 19th, 2016

8:30AM – 4:30PM

Hosted at

IBS Group (Training Center)

1408 E. Mermaid Ln. Wyndmoor, PA 19038

**NOTE THE CHANGE IN VENUE FROM
PREVIOUS ADVERTISING**

Minimal prior knowledge necessary to learn how
to program an Android Cell Phone

Taught By: Karl Morris, Asst. Professor CIS
Dept. Temple University



```

1 package codepath.apps.demointroandroid;
2
3 import android.os.Bundle;
4 import android.app.Activity;
5 import android.util.Log;
6 import android.view.Menu;
7
8 public class BasicTextViewActivity extends Activity
9
10     @Override
11     protected void onCreate(Bundle savedInstanceState)
12     {
13         super.onCreate(savedInstanceState);
14         setContentView(R.layout.activity_b

```

This four day intensive workshop “Introduction to Java and Android Programming” will introduce IEEE members with minimal computer programming experience to the basics of the Java programming language and the Android operating system. The goal is to teach participants to be able to write “apps” for an Android phone. This course is also designed as an instructor course, so those that take it will be supported to teach others this material. This is conceived as part of a social justice project, where IEEE Philadelphia Section sets up course logistics and encourages people to train underserved high school students.

WHAT YOU’LL LEARN

- Programming semantics
- The relationship between hardware, software, compilers and programming languages
- Introduction to Object Oriented Programming
- Control flow
- Translating problem descriptions to computer programs
- Writing imperative computer programs
- GUI and event driven development
- Mobile computing and Android
- Application Code and Presentation - Activities and Layouts
- The Android Intent system

- External resources and services
- Accessing local (file) and remote (web) content

Participant requirements

- Ideal participants will have a background in engineering, information technology, computer science, mathematics, or other STEM related field
- Participants will need to bring a laptop to class - MacOS / Windows 7 or better with 4G RAM
- Participants must be present and on time for each session
- Participants must undertake readings and exercises assigned for completion between sessions

What to Expect

- Participants will be lent a low end Android based smart phone.
- Course is project oriented so that multiple short lectures are followed by in-class exercises.
- Material will be presented in such a way that participants can train others, if they so desire.
- Textbooks are free and on-line.

You cannot take a mobile programming course like this at any university without taking many prerequisites and registering as a full time student. This is not an on line course. You get to interact face to face with the professor.

Course syllabuses are available on request.

Why this course?

This workshop has the advantage of giving the student a background in Java, an object oriented language as a prerequisite for mobile programming instruction.

A Special IEEE Philadelphia Section and
**Enon Coulter Community
 Development Corporation's**
 Hands-On Workshop

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REGISTRATION FORM

REGISTRATION FORM - IEEE-Philadelphia Section: Introduction to Java and Android Programming
 (Questions? Call 484-270-5136).

REGISTER ON-LINE at [Register Here](#) or complete attached form:
 Registration includes notes. Lunch is not included, but they are available nearby.

	Payment received on or before Oct 14, 2016	Payment received after Oct 14, '2016
IEEE Member	<input type="checkbox"/> \$150	<input type="checkbox"/> \$175
IEEE Non-Member*	<input type="checkbox"/> \$175	<input type="checkbox"/> \$200

Participants who agree to instruct or help instruct a preapproved course for underserved high school students will receive a \$75 rebate after student instruction is completed. Instructor certification requires a background check and child abuse certification.
 Add \$20 for CEU certificate

Name(s) _____ Company _____

Address, City, State, Zip

Phone _____ Email _____

IEEE Member # _____

Enclosed is my check made payable to IEEE in the amount of \$ _____

OR

Charge \$ _____ to my
 Credit Card (Circle) MC Visa Exp. Date _____

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Signature for Card _____

Email to the Section at sec.philadelphia@ieee.org or mail to:IEEE Philadelphia Section
 11 Bala Avenue Bala Cywnwyd, PA 19004 Questions? Tel: 484-270-5136
www.ieeephiladelphia.org .

The IES Philadelphia Section proudly presents



light on the
HORIZON

IlluminatePHILADELPHIA

THE HUB AT THE CIRA CENTRE

2929 Arch St, 2nd Floor, Philadelphia, PA 19104

Thursday, October 13, 2016

9:30am - 6:00pm

- **MANUFACTURER TABLE TOPS** •
- **EDUCATIONAL SEMINARS** •
- **CEU/AIA CREDITS** •

The event includes table top viewing throughout the day, with free lunch and happy hour for registered attendees.

Be sure to pick up your entry form at the event for your chance to win one of three prize giveaways (total value of \$1,000)

REGISTER TODAY

at

www.illuminatephiladelphia.org



The Illuminating Engineering Society
Philadelphia Section
www.iesphl.org

CALL FOR PAPERS

<http://sensorapps.org>

March 13-15, 2017
Glassboro, New Jersey, USA

Sensors Applications Symposium provides a unique opportunity for researchers and developers to share progress in sensor technologies, methods, applications, standardization, and commercialization. General and Special Sessions offer forums where participants can exchange ideas and gain information on the sensor state of the art. A mix of plenary, poster, demonstration, plug-fests, a sensor development workshop, and other networking activities ensure that your work will be seen.

Full paper submissions are encouraged - a full review process will be followed to ensure the high quality of those papers finally accepted and presented at the conference.



**2017 IEEE
SENSORS APPLICATIONS
SYMPOSIUM**

Important Dates

Special Session Proposal Deadline:	Sept 15, 2016
Full Paper Submission Deadline:	Oct 31, 2016
Acceptance/Rejection/Revision Notification:	Dec 20, 2016
Final Paper Submission Deadline:	Jan 20, 2017
Final Decision Notification:	Feb 1, 2017

TOPICS

Sensor Applications

- Assisted Living for the Aging Population
- Biomedical Sensors for Medical, Biomedical
- Commercial Development
- Energy and the Smart Grid
- Energy Harvesting for Sensors
- Industrial Applications: Manufacturing, Process Monitoring
- Internet of Things
- Sensors for Aerospace: PicoSats, CubeSats
- Non-Destructive Evaluation and Remote Sensing
- Robotics and Automation
- Smart Agriculture
- Smart Buildings
- Smart Cities and Communities
- Transportation

Sensor Technologies and Methods

- MEMS and Nano-Sensors
- Novel Sensing Technologies
- Flexible and Wearable Sensors
- Memristive Sensors
- Big Data
- Visualization
- Sensor Data Fusion
- Sensor Networks

Sensor Standards

- ISO/IEC/IEEE Standards (P21451-1, P21451-1-4, P21451-4, P21451-2, and others)

Technical Program Co-Chairs

Bruno Andò, Catania University
Sangho Shin, Rowan University

Special Session Chair

Eric Matson, Purdue University

Parallel Events Chair

Justin Cappos, NYU

Special Sessions

Special Session proposals are invited; these should include title, synopsis, at least one confirmed attendee (who will have to cover their conference registration and travel costs). Special Sessions typically have an extended introduction or overview presentation. Proposals should be sent to the attention of the Special Session Chair.

Plug-Fest, Demonstrations

Plug-Fests are returning to SAS! The proliferation of Internet of Things (IoT) has added new urgency to many of the standards sponsored by the I&M Society. Attendees are invited to bring their current implementations of: P21451-1, P21451-1-4, P21451-4, P21451-2, and related standards. Demonstrations of other "show and describe" experiments and prototypes are encouraged. Contact the event organizers for any special power or other requirements.

Best Student Paper Grant & Student Travel Grants

A tradition for SAS is to provide a certain number of Travel and Best Student Paper Grants. These competitive grants are announced after acceptance of the paper (Travel), and after presentation at the conference (Paper).

Publication

Papers presented at SAS 2017 will be eligible for consideration for publication in a Special Issue of the IEEE Transactions on Instrumentation and Measurement.

Sensor Application Development Workshop

Another year of Sensor Application Development Workshop! We will teach you how to build and deploy smartphone sensing applications under a day of effort! You will learn how to use a collaborative sensing platform. Winning team participants will get an Android device as prize.

Additional topics for workshops and sessions are solicited and welcome. Please contact the conference organizers.

General Chairs: John Schmalzel, Rowan University • Salvo Baglio, University of Catania

ASSISTANT PROFESSOR, ELECTRICAL AND COMPUTER ENGINEERING (ECE) – TENURE TRACK POSITIONS

With dramatic increase in undergraduate and graduate enrollment, a new PhD program, and a new building coming online in December 2016, the [Electrical and Computer Engineering Department \(www.rowan.edu/ece\)](http://www.rowan.edu/ece) at Rowan University is growing. To support this robust growth, we seek energetic and innovative teacher-scholars, committed to excellence in both teaching and research to join our dedicated family of faculty members. Over the next few years, we are planning to add several faculty members to our department, with particular emphasis in computer architecture, embedded systems, control systems, energy and power systems, analog & digital design, high performance & distributed computing, cybersecurity, machine learning & data sciences.

Candidates must have a PhD degree in Electrical or Computer Engineering (or a closely related area), have excellent communication skills and strong commitment to excellence in teaching, research and student mentoring. Current Ph.D. students who have already established a significant body of work are also encouraged to apply, if they have completed all coursework and proposal exam (all but dissertation defense), and are within one year of graduation. While we are primarily focusing on applicants for the Assistant Professor positions, applicants with exceptional credentials in areas of critical needs may be considered for higher ranks.

Successful candidate will

- teach core ECE courses at the undergraduate and graduate level,
- develop (and teach) new courses and innovative curriculum components for our program,
- seek and obtain external research funding and enhance department's research infrastructure,
- conduct high quality research and publish research work in highly regarded conferences and journals,
- mentor and advise undergraduate and graduate students, as well as student groups and clubs, and
- supervise student research and entrepreneurial efforts in the Rowan's hallmark Engineering Clinic sequence.

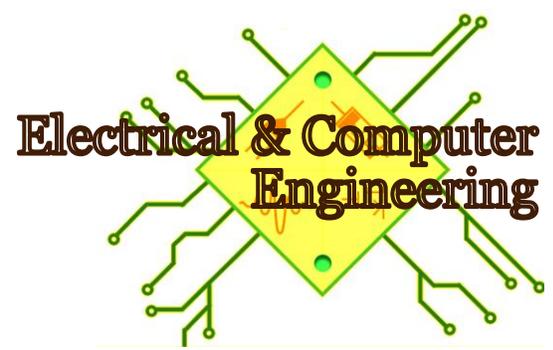
Rowan University in general, the College of Engineering and ECE Department in particular, are experiencing tremendous growth. At the institutional level, Rowan is now designated by the State of New Jersey as a Comprehensive Research University, Rowan's new [Cooper Medical School](#) has recently opened its doors, and the highly-regarded [School of Osteopathic Medicine](#) is now integrated into Rowan as the University's second medical school. At the college and departmental level, we are experiencing significant increase of interest and enrollment in our programs for which we are currently constructing our second state-of-the-art building. Furthermore, with the new "Comprehensive Research University" status, we are enhancing our research infrastructure and capabilities (with our new High Performance Computing System, and the [Rowan Virtual Reality Center](#)), further developing our [South Jersey Technology Park](#) for expanded industry collaboration and entrepreneurship activities, provide more funding for graduate research assistants, all supporting our long standing Master's program as well as our newly established innovative PhD program.

These developments have now set the framework for initiating new multidisciplinary research areas and for complementing existing R&D in smart sensors, embedded systems, smart grid, signal/speech processing, computational intelligence, bioinformatics, imaging & virtual reality, communications and cybersecurity, nanotechnology and sustainable design, and bio-engineering/technology.

Located in suburban New Jersey, in the greater Philadelphia metro area, Rowan is a comprehensive public institution with over 16,000 undergraduate and graduate students enrolled in fourteen schools and colleges, including the new Cooper Medical School and the School of Osteopathic Medicine. The College of Engineering, created with a \$100M gift by Henry and Betty Rowan in 1992, enrolls almost 1400 students in six departments. U.S. News & World Report consistently ranks the College among the nation's best for undergraduate engineering. The College recently received an additional \$15 million endowment from the Rowan family, and has been renamed as Henry M. Rowan College of Engineering. Additional information is available at www.rowan.edu/colleges/engineering.

Review of applications will begin immediately and continue until the positions are filled, with applications received by December 1, 2016 given full and priority consideration, for a start date of September 2017.

For full consideration, applications should include the below listed items, assembled in the following order in a single PDF file: 1) a cover letter summarizing qualifications and the applicant's interest in the position, 2) current detailed CV, 3) statement of teaching interests (including the list of courses the applicant feels most passionate – not just most qualified – to teach, as well as teaching philosophy), 4) a statement of research interests (including applicant's future research goals, and plans for obtaining external funding for achieving those goals), and 5) names and contact information for three to five references. Please name the file as **<Last-Name>_Application.pdf**. Optionally, additional relevant documentation (such as student evaluations, copies of up to two key publications) may be submitted in an Appendix as a separate file, named **<LastName>_Appendix.pdf**.



Applications are only accepted on line at this link: [Assistant Professor in Electrical & Computer Engineering](#)

Questions can be directed to polikar@rowan.edu, Dr. Robi Polikar, Department Head, Electrical & Computer Engineering. Additional departmental information can be found at <http://www.rowan.edu/ece>

Rowan University values diversity and is committed to equal opportunity in employment.
All positions are contingent upon budget appropriations.