Almanack

IEEE Philadelphia Section
Membership in the Following Counties
Pennsylvania: Bucks, Chester, Delaware, Montgomery and Philadelphia.
New Jersey: Burlington, Camden and Gloucester

IEEE SECTION NIGHT
September 17 at the
University City Sheraton.
University City
3549 Chestnut street,
Philadelphia PA 19104

See inside for details.
Check for weather delays at
215-387-2000
Other activities also on the inside pages.
Please read all.

September 2019

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Dear fellow IEEE Philadelphia Section members,

I hope everyone had a great summer. I regret to report that Harold Ammond's wife, Alene, passed away on June 4, 2019. She was featured on June 14, 2019 in the Philadelphia Inquirer. Alene was a New Jersey State Senator representing Cherry Hill during the 1970s, who famously challenged her Democratic Party colleagues in Federal Court when they ostracized her for speaking publicly about closed-door dealings. Alene also served as featured speaker in one of our most important annual awards events. Our thoughts and prayers go with the Ammond family.

On a happier note, Summer is almost over, I am glad to communicate that it was a busy period even though the ADCOM was on the summer break.

I would like to mention a few of the success stories. One is the successful closure of the contact with our office. After much negotiation this new contract was finally approved and will be very beneficial to our Section. Kudos to all the ADCOM members that
spent countless hours and weeks making this happen.

Another success story is that our Section was well represented at the EVO19 conference. EVO is a one-of-a-kind conference featuring insightful and inspiring keynotes, dynamic panel discussions and immersive sessions to help members advance their career while effecting change in your organization. Changing times demand this type of conference, where the dynamics of Leadership are shifting constantly. Innovation is key for the success of companies and individuals, while Insanity is defined as doing the same exact things over and over and expecting different results.

Dr. Li Bai reported during the summer months good progress towards the development of the new Awards Committee more inclusive to all members.

Peter Silverberg has taken over some of the responsibilities that Michael Mayor left. Thank you, Peter, you are an asset to our section.

We are planning on the next Senior Member Elevation night. Just a few days ago I received an invitation to participate in this event as a sponsor for senior member candidates. I accepted this invitation gladly and want to thank Kate McDevitt for her efforts organizing this event. This event will be held on September 24, 2019. If you are a member and meet the Senior Member requirements, I encourage you to attend. This is an important milestone in everyone’s career path.

I am very interested in hearing from our members. I am available thru email: emsalgueiro@ieee.org, or you can email the IEEE Section office.

VIJAY KUMAR RECEIVES FIELD AWARD

IEEE ROBOTICS AND AUTOMATION AWARD—recognizes outstanding contributions in the field of robotics and automation—sponsored by the IEEE Robotics and Automation Society—

Recipient
VIJAY KUMAR (FIEEE)—Professor and Nemirovsky Family Dean, School of Engineering and Applied Science, University of Pennsylvania, Philadelphia, Pennsylvania, USA

Citation
“For contributions to cooperative robotics; networked mobile manipulation systems, particularly unmanned aerial vehicles; and leadership in robotics research, policy, and education.”

New Senior Members
Since last Almanack there have been a few elevations. We congratulate these persons:
Saroj Biswas
Jeffrey Eker
Mark Jarvis
Saravanan Manikandan
Joanna F. DeFranco
Michael Hutchinson
Alan Johnson
Lori Pollock
Victor Preciado
Rajeshkumar Raghupathi
Philip Shilane
Jeffrey Watkins
A Representation of Numbers in a New Natural Non-Orthogonal Geometry

By John J. Sudano

Math is incredibly important in our lives. Without it we would not have cars, comfortable houses, phones, air conditioning, nor would we have been able to send a man to the moon. The operations of addition, subtraction, multiplication, and division are the crucial properties. These critical properties can only occur with numbers of dimensions 1, 2, 4 and 8. All four sets are used to bring insights and understanding to the physical world. Presently these critical properties have been implemented only in an orthonormal geometry.

This lecture introduces a natural alternative geometrical space with non-orthogonal basis rays. Any number in an n dimensional space can be represented by n positive numbers and a zero. Within this space a unique representation of numbers is introduced with properties of addition, subtraction, multiplication, and division in dimensions 1, 2, 4 and 8. Rotation degrees of freedom are included, greatly enriching the multiplication tables and possibly opening the doors to a new world of useful applications.

Throughout history the evolution and the complex development of a society have advanced hand in hand with the development of language and mathematics, which are the tools that allow for the understanding of complex processes and for solving them. Hopefully the mathematics introduced in this lecture can be used to a better understanding of new complex processes.

Dr. John Sudano is presently CEO of Reliant Scientific LLC, where he is doing research in pure mathematics, in Bayesian and Belief processes for the automated integration of dissimilar sensor information for identification, error estimation, and information discrimination in hostile environments. He developed the Generalized Belief Fusion Algorithm. As a pioneer in tracking design with many implementations presently deployed, he is presently continuing his interest to include novel tracking techniques addressing complex applications. He received a Ph.D. from New York University, an M.S. from Michigan State University, and a B.S. from Fairleigh Dickinson University, all in Physics. He served as Chairman of the Executive Committee of the IEEE Philadelphia section in 2004. In 2005, he served as the General Chairman of the 8th International Conference on Information Fusion in Philadelphia, and in 2007 as the Chairman of the 2nd Annual Sensor Fusion Europe Conference held in Brussels.
Overload
by Donald McEachron

“It occurred to her that mercy was the ability to stop, if only for a moment. There was no mercy where there could be no stopping.”

From Dune by Frank Herbert

As a teaching faculty at a major university, I have recently become aware of several disturbing trends in higher education. One of these trends is the tendency of students to practice what one referred to as 'final and flush' - the retention of materials only to the end of a given course, and the application of learning primarily and, in some cases, solely to performance on the final examination. I have also observed that many students do not read beyond the first few words of any document - examination questions are often answered incorrectly because students fail to read any question with more than one sentence past that initial sentence.

Finally, the number of students experiencing what has been termed 'melt-down' seems to be increasing - many students - intelligent and capable - simply disappear during the course of a class only to try and make up materials at a later date. In partial explanation of these trends and others, I hypothesize that our societies are culturally evolving to serve our complex devices in the place of the humans that use them - in other words, our strategies and expectations are based more on the performance and capabilities of computers and less on the actual abilities, desires and needs of human beings. The mismatch between designed devices and evolved biological systems can lead to unexpected and unintended consequences which should be considered in engineering strategies.

This idea will be explored using a well-known mismatch between our 24/7 society and the circadian rhythms inherent in all human beings as well as investigating possible solutions to the overload problems in higher education.

Donald McEachron, Ph.D.
Teaching Professor
Coordinator, Academic Assessment and Quality Improvement
School of Biomedical Engineering, Science and Health Systems
Drexel University
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Boasone 719
Philadelphia,
PA 19104
Tel: 215.895.1382 | Fax: 215.895.4983
mceachdl@drexel.edu

I currently hold the position of Teaching Professor and currently serve as the Coordinator for Academic Assessment and Quality Improvement for the School of Biomedical Engineering, Science and Health Systems at Drexel University. I hold 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, I completed a M.S. in Information Science at Drexel. I have worked extensively in the areas of imaging, editing three monographs on imaging applications in biomedicine, as well as numerous papers and
presentations. However, my primary biomedical research has focused on chronobiology, biological rhythms and human performance engineering.

My 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. Along with collaborators, Dr. Eugenia Ellis from Civil and Architectural Engineering and Dr. Elizabeth Gonzalez from the College of Nursing and Health Professions, I am working as part of the dLUX Lighting Laboratory at Drexel University to develop new lighting systems which provide the correct intensities and wavelengths with the appropriate timing to re-establish and maintain human internal temporal order within artificial structures.

Current research involves the use of such lighting in a in a low-cost apartment residence for individuals 62 years of age and older. In addition to my work at Drexel, I have served as Chair of the Engineering in Biology and Medicine Society, Philadelphia Chapter, IEEE Philadelphia Section and am a Fellow and Founding Member of the International Behavioral Neuroscience Society. My work in chronobiology led to my being selected as the January Man-of-the-Month, 2015 by Disruptive Women in Health Care.

This year's theme is 'Leveraging Technology'.

The theme lends itself well toward integrating across industry, non-profits, government, and of course our IEEE community esteemed members, leaders, and supporters.

I am reaching out personally ask for your assistance in driving awareness about IEEE Day and engaging as fully is possible on that day.

Region 2 would also like an abundance of IEEE DAY Ambassadors to register in support of a fantastic show of IEEE Pride on 01 OCT 2019! If you would be willing to be a peer catalyst and design an event at your college, university, within your sections, and within your communities please register as an Ambassador and let me know so that I can register you on our IEEE Slack Channel for communications purposes.

The form is located at: https://ieeeday.org/ambassadors-form/

If you are not familiar with IEEE Day and would like more information, please see the following: https://ieeeday.org/

There are FAQs, event suggestions from prior years, and the Ambassador form for you all to use!

If your Section or the Student Branches and Clubs are hosting or would like to host an IEEE Day event, please send me details so we can get an event posted to the global site.

Resources and great event ideas are at: https://ieeeday.org/toolkit/

The IEEE Milestone Videos posting date as been pushed to 23 JULY 2019, please create and upload one by that date (if you have availability and interest to do so): https://ieeeday.org/milestone-contest/
Dear IEEE Members:

We are excited to bring you updates on the 2019 IEEE Women In Engineering (WIE) Forum USA East on November 21-23, 2019 in Arlington, VA (DC area), which will focus on developing and improving leadership skills and driving innovation for individuals at all stages of their careers. Attendees will have the opportunity to be educated, inspired, and empowered by presentations given by successful leaders from the IEEE-USA North-East region. Attendees will also experience the sights and sounds of Washington DC by participating in our tours and activities.

We would like to sponsor at least 10 students to attend the IEEE WIE Forum USA East 2019 in Arlington, VA from November 21-23. If your OU would be interested in sponsoring a student to attend, please let me know at your earliest convenience.

Sincerely,

Neeta Basantkumar & Felicia Harlow, General Co-Chairs
2019 IEEE WIE Forum USA East

Dr. Charlotte Blair & Maryam Rahmani, CISSP, Program Co-Chairs
2019 IEEE WIE Forum USA East

Contact Us
R1R2WIEForum@gmail.com
Please visit our website for more info: http://attend.ieee.org/wie-forum-usa-east-2019

Electric Expo 2019
Oct. 22; 1-7 pm
Oct. 23: 10 am – 5 pm
Valley Forge Casino Resort,
King of Prussia PA.

Hosted by the Electrical Association of Philadelphia, Electric Expo is a trade show comprised of over 250 exhibitors consisting of manufacturers and manufacturers’ representatives who make or sell products used in the electrical industry.

Our 2017 Expo attracted approximately 3,000 attendees from the following industry segments:

- Architects
- Electrical Contractors
- Electrical Inspectors
- Engineers (electrical, consulting, project, design, applications)
- Estimators
- Facilities Managers
- Heating & Air Conditioning
- Industry Trade Associations and Partners
- Manufacturers
- Manufacturers’ Representatives
- Training Programs/Academic
- Utilities and Third-party Providers
- Wholesale Distributors
The Engineers Club of Philadelphia, 
Pennsylvania Society of Professional Engineers 
Philadelphia Chapter & 
Philadelphia Section of IEEE 

Rail Park - Evening Tour

Thursday, September 5, 2019

Registration & a Hoagie in a Bag: 6:00 PM to 6:30 PM
Guided Tour 6:00 PM to 7:00 PM
Non-Guided Tour – After 7:00 PM

Presented by
Angelo J. Waters, PE, Leed AP
Vice President - Environmental Services
Urban Engineers, Inc.

*The Pennsylvania Society of Professional Engineers, through PIE, will evaluate and may approve the “activity” for the continuing education license requirements for 1.0 Professional Development Hour in New York State. PSPE believes the “courses” will be accepted for credit in PA, NJ and other National Model states where courses do not require pre-approval.*

Tour Starts at:
Corner of Broad and Noble Streets
Price using PayPal - $15.00

FOR RESERVATIONS GO TO:
http://www.pspe-philly.org
Complex Adaptive Systems Conference
November 13 – 15, 2019 | Malvern, PA

Conference Theme:
Leveraging AI and Machine Learning for Societal Challenges

Complex adaptive systems evolve to address uncertainty and changes in operational environment, social values, and technological advances. Growing human populations and growing demand for limited natural resources necessitate sustainable cities that require efficient and effective energy generation, water management, and transportation infrastructures. Autonomous vehicles within a networked infrastructure, Smart Grid, Smart city, and many other Cyber physical system applications are evolving to address these societal challenges. Healthcare systems are changing as well. Smart medical devices, wearable sensors, connected home monitoring systems are all part of the modern healthcare systems. Artificial Intelligence (AI), machine learning algorithms, pervasive sensing and actuating capabilities, real time control, cloud computing, and data science and analytics are some of the key enablers for these systems.

Complex Adaptive Systems Conference 2019 will bring together researchers from academia, industry and government to discuss recent work in these areas with a special focus on leveraging AI and machine learning for solving societal challenges.

Papers are invited on theories, methodologies, and applications of Complex Adaptive Systems with special emphasis on applications to the following areas:

- Artificial Intelligence and Machine Learning
- Explainable AI
- Trusted AI: Robustness, Security, and Testability of AI systems
- Ethics in AI
- Collective Social Intelligence
- Mobile Cloud Computing
- Data Analytics
- Cyber Security
- Safety, Reliability and Building Resilient Systems
- Modeling and Analysis of Socio-Technical Systems
- Cyber Physical Systems: IoT, Smart Cities, Smart Grids
- Blockchain

Proceedings of the Complex Adaptive Systems Conference 2019 will be published in Procedia Computer Science Elsevier (ISSN:1877-0509)

Conference Tracks & Topics

Track: Artificial Intelligence and Machine Learning
Topics include, but are not limited to applications and theoretical models of supervised learning, unsupervised learning, pattern recognition, computer vision, statistical learning, clustering algorithms, time series prediction, and optimization methods

Track: Explainable AI
Topics include, but are not limited to studies on algorithmic transparency, fairness in machine learning, and bias in AI systems
Track: Trusted AI
Topics include, but are not limited to robustness, security, and testability of AI systems

Track: Ethics in AI
Topics include, but are not limited to use cases and practical applications of ethics in AI systems from a multidisciplinary perspective

Track: Collective Social Intelligence
Topics include, but are not limited to social media analytics, semantic perception, semantic social web, citizen-sensor network, people-content network analysis, real-time social media analysis

Track: Mobile Cloud Computing
Topics include, but are not limited to mobile computing, ubiquitous and pervasive software, cloud computing, security of mobile applications, MCC architecture, context-aware mobile applications

Track: Data Analytics
Topics include, but are not limited to data classification and regression, data warehouse, big data, datasets and evaluation, data visualization, natural language processing, bioinformatics, high performance computing and scalable computing, knowledge discovery integration and transformation, statistical methods, sentiment and emotion classification

Track: Cyber Security
Topics include, but are not limited to information security, computer network security, application security, web services security, mobile security, software security, sensor network security, security management, security operations, digital trust and reputation

Track: Safety, Reliability and Building Resilient Systems
Topics include, but are not limited to resilience and systemic risk, models of safety and reliability in engineering systems

Track: Modeling and Analysis of Socio-Technical Systems
Topics include, but are not limited to models and methods for designing socio-technical systems including architecture, policy and governance of socio-technical systems

Track: Cyber Physical Systems
Topics include, but are not limited to applications of IoT, Smart Cities, and Smart Grids

Track: Blockchain
Topics include, but are not limited to applications of blockchain, blockchain architecture, smart contracts, blockchain security, open consensus protocols, and scalable consensus protocols

For general conference information, contact:

Lee Dougherty
Conference Planning Services at Penn State Great Valley
30 E. Swedesford Rd.
Malvern PA, 19355
Email: complexsystems@psu.edu
4th ANNUAL MULFORD CLASSIC
(Engineers’ Club of Philadelphia Event)

When:
Monday, October 14, 2019, 11:30 AM until 7:30 PM

What: Golf

Where:
Bala Golf Club
https://www.balagolfclub.com/
2200 Belmont Avenue
Philadelphia, PA 19131

Contact(s):
Vincent DeFlavia PE
215 473 8504
Vince.DeFlavia@bently.com

Calling on our Engineering Community! We are now accepting registrations for all sponsor and participant levels for the 4th Annual Mulford Classic and 19th Engineers’ Club of Philadelphia Scholarship Golf Outing. What a great way to gather, network, enjoy a great course, and commit to our current Engineering Students. All proceeds are earmarked to students who are enrolled in an engineering program. We are seeking to top $10,000 in scholarship awards this year but we need your continued support and participation. In addition to the Mulford Prism for the top scoring foursome we are introducing the 1st Annual Affiliates Cup, a new challenge to increase our partnership with those Engineering Societies that are affiliates to the Engineers’ Club of Philadelphia. Don’t procrastinate, seek approval and sign up today, with Vince.

Entrance fees can be found at <engrclub.org>.

IEEE Region 2 Newsletter - Final Call For Input
¥ All of our affinity groups, student branches, and clubs are able to send in items for the Region 2 Newsletter. These can be photos from an event (please offer date, location, photo personnel data), scheduled happenings, a future strategy you are pursuing, awards and recognition, etc. The call for additional Region 2 Newsletter will stay open until COB 26 July 2019
¥ If your affiliated Section is listed for a later version of the Region 2 Newsletter and you would like to send information in early, we will gladly accept it, just let us know if there is a 'timeliness' aspect to the content, so it can be queued for the right volume.

R2 Newsletter Development and Review Cycle:
¥ Vol 2: Central Penn, Susquehanna, Delaware Bay, Baltimore, Akron
¥ Vol 3: Erie, Lehigh Valley, NOVA, Cincinnati, Dayton
¥ Vol 4: Johnstown, West VA, Philadelphia, Cleveland, Lima
¥ Vol 5: Pittsburgh, Southern NJ, Columbus, DC, Youngstown

PHILADELPHIA CHAPTER CONTINUING EDUCATION BOOT CAMP
As a service to the Professional Engineers of the Philadelphia Region, the Philadelphia Chapter of PSPE is conducting a two day Continuing Education Boot Camp providing up to 16 Credit Hours towards the 24 hours required by September 30th. Membership in PSPE is not required.
Cost is $100 for one day (8 hours) or $160 for two days (16 hours.)

Conducted THU SEP 26 and FRI SEP 27 at Drexel University Hill Conference Room, 31st and Market, Philadelphia.
PHILADELPHIA SECTION

NOTES

IEEE PHILADELPHIA SECTION OFFICERS
Chair: Emilio M. Salgueiro: emiliosalgueiro@ieee.org
Vice Chair: Mark Soffa: msoffa@kns.com
Treasurer: Robert Johnston: rlj1620@gmail.com
Secretary: J.J. Gingerich, Jr: jjingingerich@gmail.com
Past Chair: Peter Silverberg: psilverberg3@comcast.net

ADMINISTRATIVE COMMITTEE (ADCOM)
ADCOM meets the second Tuesday of the month at the Sheraton University City, 3549 Chestnut St, Philadelphia, PA 19104. Members are welcome to attend. If you want to attend, reserve a seat by calling the IEEE Section Office by the Friday before the meeting.

DIRECTORIES
ADCOM Members SECTION Chapters Chapter Chairs Responsibilities

ALMANACK STAFF
Publisher: Emilio M. Salgueiro: emiliosalgueiro@ieee.org
Editor: Peter Silverberg: psilverberg3@comcast.net
News and notices contact: psilverberg3@comcast.net

IEEE Philadelphia Section Main Office:
Bala Pointe Centre, c/o Greater Philadelphia Association Management Group
111 Presidential Blvd., Suite 231, Bala Cynwyd, PA 1004, Phone: 484.270.5136
sec.philadelphia@ieee.org

ADVERTISEMENTS – Contact: psilverberg3@comcast.net.
The IEEE Philadelphia Section encourages placement of technical, professional, promotional and commercial advertisements. The Almanack is published ten times a year and is read by approximately 4,000 members in over 150 key industries.

The following rates are designed for the occasional advertisers. A more comprehensive set of benefits is offered in the Sponsorship Program (next page).

Almanack, Website, Email Blasts
One Month Full Page: $200.-
Three Months Full Page: $400.-
Nominate a Colleague

Remember how great it felt to be recognized for an achievement or to witness someone you admire receive recognition for their effort?

Now is the time to nominate deserving individuals for one of the prestigious IEEE-USA Awards.

Nominations Deadline: 15 September 2019

Nominations for:
- Professionalism Awards
- Technical Awards
- Literary Awards

For more information, visit:
https://ieeusa.org/volunteers/awards-recognition/

Contact: David Iams
d.iams@ieee.org
+1 202 530 8374

Scan to find out more about the awards and to see how easy it is to nominate someone.
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<td>Electric Expo 2019</td>
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<td><strong>November</strong></td>
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<td>Nov. 21-23</td>
<td>IEEE WIE Forum USA East (Arlington VA)</td>
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<td>Complex Adaptive Systems Conference</td>
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<td><strong>December</strong></td>
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<td>Dec 7</td>
<td>IEEE Signal Processing in Medicine and Biology (SPMB19)</td>
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**PHILADELPHIA SECTION PLANNING CALENDAR**

Current Month: September 2019
NOTES

1 The Awards Banquet is held annually at the prestigious Union League of Philadelphia. The Awards Banquet is a major social occasion, recognizing those honored by the Institute & the Section for their contributions & those honored by organizations with mutual interests of IEEE.

2 Advertisement(s) are prepared by the Sponsor and can contain links to the Sponsor’s website and/or specific events. Advertisement(s) can be different one for each month of benefit or the same for one or more months.

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**Awards Banquet**

- **Platinum**:
  - Full Table-10 tickets
  - Full page Award Brochure
  - 6-ft Exhibit Table
- **Gold**:
  - 6 tickets Half page Award Brochure
  - 6-ft Exhibit Table
- **Silver**:
  - 4 tickets Quarter page Award Brochure
  - 6-ft Exhibit Table
- **Bronze**:
  - 2 tickets Quarter page Award Brochure

**IEEE Almanac**

- **12 Months** Full Page
- **9 Months** Full Page
- **6 Months** Full Page
- **3 Months** Full Page

**IEEE Website**

- **12 Months** Full Page
- **9 Months** Full Page
- **6 Months** Full Page
- **3 Months** Full Page

**IEEE Email Blast**

- **12 Months**
  - 4 Times / month
- **9 Months**
  - 4 Times / month
- **6 Months**
  - 2 Times / month
- **3 Months**
  - 1 Time / month