# Philadelphia Section ALMANACK

Vol. 62, No. 2  
February 2017

## 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

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**ALMANACK (Editor: Michael Mayor, P.E.)**

- Published ten times a year, January through June, a Summer issue covering (July, August) and September through December.  
*March Inputs Deadline: Friday, 02-24-2017*

**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)*

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IEEE SECTION NIGHT
Philadelphia Section
Meeting
Tuesday, Feb. 21, 2017

Sponsored by Aerospace and Electronic Systems (AES), Signal Processing, Broadcast Technology and Consumer Electronics (SP/BT/CE) Societies

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, February 21, 2017.
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 (students $15).
The meal cost is $40 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.

PDH - PROFESSIONAL DEVELOPMENT HOURS
In 2017 the IEEE USA instituted a fee of $9 for each PDH certificate. Exceptions are for the speaker, which will get one free certificate (2 PDH) and a second for the other lecture (1 PDH). You can pay the fee when registering or at the door by cash/check.

Only one Talk for February
Characterization of Rotating and Spinning Bodies with Quaternions
James K. Beard, Ph.D.

Abstract: Rotating bodies that engineers encounter often include
- Aircraft
  - Passenger and Transport
  - High Performance, Fighter, Crop Duster, Stunt, Training
- UAVs
  - Small UAVs, Drones, Quadcopters, Radio-Control Fixed-Wing
- Missiles
- Satellites

All of these bodies must have simple models of their motion and orientation internally in their guidance software. Sensors that maintain high-performance tracking of these objects must model their orientation.

Conventional modeling techniques use six degree-of freedom modeling of orientation, then use vehicle orientation in three-dimensional motion modeling. The six degrees of freedom traditionally are roll, pitch, yaw, and their time derivatives. But there is a conundrum called gimbal lock, after what happens in older inertial navigation system autopilots that use gyros mounted in gimbals.
A simple illustration is the old riddle:

*A dog sled reaches the South Pole along the Prime Meridian and turns left. Which way is he heading?*

The answer is, of course, North, because any direction away from the South pole is North. But if your software must provide vectors for dog sled position and velocity, it can have problems with undefined numbers like zero divided by zero.

The solution is to use quaternions to model orientation, not roll, pitch and yaw. Quaternions are an old answer to modeling orientation of rigid bodies, dating back to Euler’s theorem, proved by Euler in 1775, that showed that any orientation of a rigid body can be characterized as a rotation about a single axis, and Hamilton, who in 1848 developed a four-component Cayley algebra that can be characterized as the combination of a scalar and a vector. Any orientation of a rigid body in any convenient coordinate system can be characterized by

\[ q = \cos \left( \frac{\theta}{2} \right) + \sin \left( \frac{\theta}{2} \right) \hat{u} \]

where \( \theta \) is the angle of rotation about the axis given by the unit vector \( \hat{u} \) in our convenient coordinates. Rotation is positive clockwise looking out the axis of rotation.

The talk will show how we model target motion, including position, velocity, and orientation, and how the use of quaternions solves practical problems and makes software simpler and more reliable.

**Biography:** James K Beard, Ph.D., is a retired aerospace engineer who consults on various matters from iPhone apps to megawatt controlled power supplies. His background and experience includes areas from systems mission and requirements definition to sensor requirements flow-down to design and includes integration and test of large sensors. Many accomplishments are related to problem solving when a program risk management program has an unexpected pop-up problem, a schedule driver in integration and test, or a failed Plan B. Others arise from weekend projects, such as his work in Costas arrays. Some of the results of this work are available by browsing his web site:

[http://www.jameskbeard.com](http://www.jameskbeard.com)

Dr. Beard holds a Ph.D. in electrical engineering from the University of Texas at Austin and an M.S. in electrical engineering from the University of Pittsburgh. He is a Life Senior Member of the IEEE.
MESSAGE FROM THE Chair
Peter Silverberg, LSM, P.E.

Most of this message will be about Engineers’ Week. In the United States, National Engineers Week is always the week in February, which encompasses George Washington's actual birthday, February 22. It is observed by more than 70 engineering, education, and cultural societies, and more than 50 corporations and government agencies. The purpose of National Engineers Week is to call attention to the contributions to society that engineers make. It is also a time for engineers to emphasize the importance of learning math, science, and technical skills.

The celebration of National Engineers Week was started in 1951 by the National Society of Professional Engineers in conjunction with President George Washington's birthday. President Washington is considered as the nation's first engineer, notably for his survey work.

The Section will observe it in our meeting of Feb. 21. There is a larger venue for those of you who would like to do more. Our friends at the Engineers’ Club of Philadelphia have set up three activities with its Delaware Valley Engineers Week Committee. Here is the basic information:

- Kickoff Luncheon, Feb. 17, Loews Hotel, 1201 Market St., Philadelphia, 1130 am to 130 pm. Only $65 until Feb. 10.
- Young Engineers Social, Feb. 21, Second Story Brewing Company, 117 Chestnut St., Philadelphia. 6 pm to 9 pm. Only $35 until Feb. 10.
- Awards Reception/Student Showcase, Feb. 23, Dave & Busters, 401 N. Columbus Blvd., Philadelphia, 4 pm to 8 pm. Only $75 until Feb. 10.

I have attached the full brochure elsewhere the Almanack. Two local notables are being honored on Feb. 21. John A. Nawn will be installed as Delaware Valley Engineer of the Year. Kazi M. Hassan will be installed as Delaware Valley Young Engineer of the Year. I have been going to these events for years because they are great fun and have educational value.

I hope that a few of you will sign up and attend. By the way, at the Kickoff Luncheon, the list of 2016 Awards winners from the section rotates on a big screen. If you got an award, you can see your name in large format.
Other items

The organization of the chapters appears somewhere else in the Almanack and on the web site. We have a few openings in the chapters.

Call me, or the office if you would like to get active. The list is as follows:

- EMC Secretary
- ED/CPMY Chair and committee
- PACE Chair and committee
- Computers: Committee
- Student Representative

Technical Activities has a vice chair: Bryan Weaver;

bryan.waeaver@ieee.org

A new chapter is on its way to formal approval: Solid State Circuits. We will tell you more when all the processing is done.

The Section scholarship award has been increased from $5000 to $6000. We award up to three every year.

We just got an exciting request to sponsor a milestone. Grace Hopper invented the compiler in 1952 while at Eckert-Mauchly Company. That is the older name of Sperry Univac which later became Unisys.

The compiler is the early version of COBOL. The best part of the Section to move this along is the computer chapter.

To volunteer, the organizer is Jie Wu, can be contacted at:

jiewu13@gamil.com

WIE will be working on this also. We need you!

We voted to donate $100 prize money for the Montgomery County Science Research Competition. It will be held March 8 at Ursinus College. Now we need to also donate a few volunteer judges. Full forms are in the January Almanack.

Our meeting rooms at the Sheraton are under renovation until March. If you come, ask at the desk where the IEEE is located.

Future City competition was held Jan, 21. Three volunteers showed as judges: Phil Gonski, Jessica Tarica (Mrs. Gonski) and myself. Next year we could use more. It is fun. The results were tallied after we left for lunch. You can go to their website for details.
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 experiences 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 tcf-nj.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.**
THURSDAY MARCH 2, 2017
6:00PM REGISTRATION and NETWORKING

THE INNOVATION STUDIO AT DREXEL UNIVERSITY
3101 MARKET STREET
PHILADELPHIA, PA 19104
TOWER ABOVE THE COMPETITION!

Test your steady hand and sense of balance by playing Giant Jenga with your friends in the design and construction industry! Just like the tabletop game only super-sized. The tallest tower winner gets bragging rights.

The winner of the tournament will also have the opportunity to name the ACE Alumni Scholarship - which will be presented at the 16th Annual ACE Scholarship Breakfast on May 17, 2017.

Proceeds from our Giant Jenga Tournament will go to scholarships for our ACE Alumni currently enrolled in school and focusing on an A-C-E related career path.

Help us ENGAGE, EXCITE and ENLIGHTEN students about the design + construction industry!

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

FOR MORE INFORMATION, please contact our Affiliate Director Tiffany Millner at easternpa@acementor.org!
National Engineers Week

In the United States, National Engineers Week is always the week in February which encompasses George Washington's actual birthday, February 22. It is observed by more than 70 engineering, education, and cultural societies, and more than 50 corporations and government agencies.

The purpose of National Engineers Week is to call attention to the contributions to society that engineers make. It is also a time for engineers to emphasize the importance of learning math, science, and technical skills.

The celebration of National Engineers Week was started in 1951 by the National Society of Professional Engineers in conjunction with President George Washington’s birthday. President Washington is considered as the nation's first engineer, notably for his survey work.

Following are two articles, the first one a summary biography of Grace Hopper who was a foremost pioneer in a new engineering discipline, namely “Software Engineering”. The second is an interesting story from a frequent contributor to these pages who calls himself an “Accidental Engineer”.

RADM Grace Murray Hopper

Grace Brewster Murray Hopper (née Murray; December 9, 1906 – January 1, 1992) was an American computer scientist and United States Navy Rear Admiral. In 1944, she was one of the first programmers of the Harvard Mark I computer and invented the first compiler for a computer programming language.

She popularized the idea of machine-independent programming languages, which led to the development of COBOL, one of the first high-level programming languages. She also popularized use of the term bug (already established in other technical contexts) in reference to computer software or hardware design failures.

Owing to her accomplishments and her naval rank, she was sometimes referred to as "Amazing Grace" The U.S. Navy Arleigh Burke-class guided-missile destroyer USS Hopper was named for her, as was the Cray XE6 "Hopper" supercomputer at NERSC.
On November 22, 2016, she was posthumously awarded the Presidential Medal of Freedom by President Barack Obama.

Hopper was born in New York City. She was the eldest of three children. Her parents, Walter Fletcher Murray and Mary Campbell Van Horne, were of Dutch and Scottish descent, and attended West End Collegiate Church. Her great-grandfather, Alexander Wilson Russell, an admiral in the US Navy, fought in the Battle of Mobile Bay during the Civil War.

Grace was very curious as a child; this was a lifelong trait. At the age of seven, she decided to determine how an alarm clock worked, and dismantled seven alarm clocks before her mother realized what she was doing (she was then limited to one clock). For her preparatory school education, she attended the Hartridge School in Plainfield, New Jersey.

Hopper was initially rejected for early admission to Vassar College at age 16 (her test scores in Latin were too low), but she was admitted the following year. She graduated Phi Beta Kappa from Vassar in 1928 with a bachelor's degree in mathematics and physics and earned her master's degree at Yale University in 1930.

In 1934, she earned a Ph.D. in mathematics from Yale under the direction of Øystein Ore. Her dissertation, *New Types of Irreducibility Criteria*, was published that same year. Hopper began teaching mathematics at Vassar in 1931, and was promoted to associate professor in 1941.

She was married to New York University professor Vincent Foster Hopper (1906–76) from 1930 until their divorce in 1945. She did not marry again, but chose to retain his surname.

**Accidental Engineer**

**By Ernst B. Cohen, Ph.D.**

I sometimes call myself an "accidental engineer". I started college at CCNY in mechanical engineering, but when I transferred to Cornell after 1 semester I thought “Why waste my college years learning what I already knew". In my teens, I expected to go into my father's business, the Hilton Tool and Machine Company. My first memory of Hilton was from the 1930 decade, when it operated out of the second floor of a loft building on 17 Street on the east side of Manhattan. The machines were powered by a system of drive shafts and leather belts on pulleys, which was quite conventional at the time. While the whole system was driven by a large electric motor, I suspect that it might have once been powered by a steam engine.
Elaine and I were married as undergraduates while at Cornell. Because I had transfer credits from CCNY, I graduated a year before her, and signed up for a Master’s degree in Industrial Psychology. To help with our finances, I ran a bicycle business out of our apartment. Someday I will relate how I converted a 4-speed hub gear to 5 speeds.

I also took a summer position with the research arm of the Psychology department. One of the professors was doing research on the perception of motion. He had two machines built with 5-foot-wide rubber belts running over flanged pulleys. Unfortunately, the belts kept on moving sideways, and becoming damaged by the flanges. So I thought about the belt and pulley system from the 1930's. What kept the belts on the pulleys which had no flanges? The pulleys were slightly crowned. As a quick fix, I wrapped several turns of friction tape around the center of the pulleys on the Psychology department's motion machines. This worked fine. It stabilized the belts. My quiz question from this experience is "what keeps trains on the tracks?"

My undergraduate major at Cornell was Mathematics, with a minor in Physics. We came down to the Delaware Valley in 1956, for a job as a computer programmer at the Westinghouse Steam Division, where the steam turbines were built. Having grown up with a factory in the family, I liked the idea of working where things were actually built. I later got a job with the General Electric Space Division as a Systems Engineer, and GE put me though graduate school at the University of Pennsylvania, where I got a Master’s degree and a Doctorate in Electrical Engineering.

**Teaser**

This is now mid-Winter and Spring is just around the corner. The days are getting longer in this area. Does sunrise get earlier or does sunset get later?

This is a very deep question and it has to do with the lemma of time. Email your thoughts on this to me at the below address.

[ernest.cohen@ieee.org](mailto:ernest.cohen@ieee.org)
PHILADELPHIA SECTION NOTES

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ADCOM meets the second Tuesday of the month at the Sheraton University City, 3549 Chestnut St, Philadelphia, PA 19104. Members are welcome to attend. Reserve a seat by calling the IEEE Section Office by the Friday before the meeting.

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The Almanack is published ten times a year and is read by approximately 4,000 members in over 150 key industries.
For more information, contact:
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- Analog
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- Reliability Analysis
- Circuit Simulation
- Signal Integrity

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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.

**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

**General Chairs:** John Schmalzel, Rowan University • Salvo Baglio, University of Catania
Dear Friend of Science Education,

The Montgomery County Science Teachers’ Association and Ursinus College are cosponsors of the Montgomery County Science Research Competition. This year, the 60th Montgomery County Science Fair will be held March 7th through March 10th at Ursinus College (601 E. Main Street, Collegeville, PA 19426). Over 500 students will be presenting their projects in disciplines including math, ecology, computer science, biochemistry, physics and engineering, and microbiology. Students put a lot of time and energy into a scientific problem, carrying out an experiment, interpreting results, and then presenting the information both visually and verbally.

As the coordinator for Special Awards, I am again looking for individuals in the community to serve as Special Award judges. Your knowledge of the scientific process enables us to better assess students and distribute awards in a more impartial manner.

Judging takes place on Wednesday, March 8th with High School grades 9-12 (Div A, B, C, & D) judged from 9am – 12 noon and Middle School (Div E) judged from 2pm-5pm.

If you are interested in serving as a Special Awards judge, please return the enclosed form to me either by mail, fax, or email by February 1, 2017. Additional information regarding directions and judging information will be sent to you. In addition, please recruit any colleagues who might also enjoy the experience. If you have any contacts for a sponsoring a Special Award, I would appreciate any new way to honor our students' hard work (especially at the Middle School level).

On behalf of the Montgomery County Science Teachers’ Association, I want to thank you for considering judging at the Montgomery County Science Research Competition. The parents, teachers and most importantly, the students, will appreciate your donation of time and expertise. Your assistance may be just the encouragement one of our students needs to ignite a lifelong interest in science.

Sincerely,
Valerie AS Denny
Valerie AS Denny
Special Awards Chairperson
Montgomery County Science Teachers’ Association

449 Larchwood Road
Springfield, PA 19064
mrsdenny2002@yahoo.com
610-543-3944 (phone)
610-667-1286 (fax)
Judges Information Form – Montgomery County Science Research Competition
Wednesday, March 8, 2017 – Ursinus College, Collegeville, PA
(NOTE: Day has changed from previous years)

Name: ________________________________________________________________

Position/Title: __________________________________________________________

Company or Organization: ________________________________________________

Address: (Indicate: Home or work)__________________________________________

_____________________________________________________________________

Phone number: (_____) ___________________

Email: _________________________________________________________________

Students compete in two divisions: High School and Middle School
Most projects are individual projects, however there are some team projects.

Judging times are as follows:
High School: 9:00 to Noon (Continental breakfast available at 7:30 AM. Projects can be previewed without the students present at this time as well)
Lunch: 11:30-13:00 (Hot lunch provided for all judges)
Middle School: 1:30 to 5:00 PM. (Student projects can be previewed after 12:30 without the students present)

When are you available to judge?
_____ A.M. (High School) _____ P.M. (Middle School) _____ Both

All judges are invited to have lunch with us. Will you be staying for lunch? __________

Projects categories are as follows: Behavioral & Social Science, Biochemistry, Botany, Chemistry, Computer Science, Earth and Space, Engineering, Environmental Science, Mathematics, Medicine & Health, Microbiology, Physics, Zoology, and Consumer Science

What divisions do you feel most comfortable judging? (List in order of preference)

<table>
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<th>Level (High School or Middle School?)</th>
<th>Category</th>
<th>AM, PM or Both?</th>
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Do you have any relatives, close friends, neighbors, etc. competing in this fair? ____
If so, indicate age division and category if known. ___________________________

Please return this form via email to mrsdenny2002@yahoo.com
or by fax to attn: Valerie Denny  610 667-1286 by February 1, 2017
Dear Colleague in Science,

January 1, 2017

On behalf of the Montgomery County Science Teachers’ Association, I would like to take this opportunity to introduce you to the Montgomery County Science Research Competition. Throughout the year, students work on research projects under the direction of a sponsor or teacher. As a culmination of their work, the students representing the public, private and parochial schools of Montgomery County, display their research and share their discoveries with judges from industries and universities in the local area.

This year, the 60th Montgomery County Science Fair will be held on March 7- March 10 at Ursinus College. Over 500 students will be presenting their projects in disciplines including math, ecology, computer science, biochemistry, physics and engineering, behavioral sciences and botany with students competing at the High School and Middle School levels. While there is a recognition given to the best of these projects in each category, special awards further encourage the students. An award given by a respected company or organization adds prestige and value to the work these young scientists have completed.

The research done by Montgomery County students is impressive. Some students have patents pending, and several have spent the summer working at the labs of prominent scientists in the area and some have even been published. Montgomery County students continue on to other regional and international fairs where they do very well, coming home with medals, special awards and scholarships.

We are asking that you please consider supporting our students by sponsoring one or more Special Awards this year. You may decide the category and age division of your award, such as high school botany, horticultural or environmental science. We request that you would consider making the Special Award a monetary award and also consider sending a judge (or judges). Judging takes place on Wednesday, March 8 with the high school students presenting their projects in the morning and the middle school students presenting their projects after lunch. You are also welcome to present your award at the awards ceremony on March 10th at Ursinus College.

Attached you will find a form that should be returned to me either by mail, fax, or email if you are sponsoring an Award. An additional form regarding judging is also included.

Thank you again for your consideration. Your assistance may be just the encouragement one of county’s students needs to ignite a lifelong interest in science.

Sincerely,

Valerie AS Denny

Valerie Denny
Special Awards Chairperson
Montgomery County Science Teachers’ Association
449 Larchwood Road
Springfield, PA 19064
mrsdenny2002@yahoo.com
610-543-3944 (phone) 610-667-1286 (fax)
SPECIAL AWARDS Sponsorship Form
Ursinus College – March 8, 2017

Company or Organization: _______________________________________________________________

Contact Person: ______________________________________________________________________

Address: ____________________________________________________________________________

____________________________________________________________________________________

Phone number: (_____) __________________________________________________________________

Email: _______________________________________________________________________________

Number of Awards you would like to sponsor: _________________

Nature of the Award (i.e. monetary value, gift, etc) _________________

We can distribute the award(s) for you, if you wish. Please make checks out to:

MCSRC Special Awards Fund and send to:
Valerie Denny
449 Larchwood Road
Springfield, PA 19064

Students compete in two divisions: High School and Middle School
Most projects are individual projects however there are some team projects.

Projects categories are as follows: Behavioral Science, Biochemistry, Botany, Chemistry, Computer
Science, Earth and Space, Engineering, Environmental Science, Mathematics, Medicine, Microbiology,
Physics, Zoology, and Consumer Science
Name of Award(s) that you would like to sponsor: (please indicate the division as well as the category
if applicable)

____________________________________________________________________________________

Will you be sending judges? __________ How many? _________
Please include the judges’ names and addresses so that information may be sent to them.
Judging times are as follows:

High School: 9:00 AM- Noon (Continental breakfast available at 7:30. Projects can
previewed without the students present at this time as well)
Lunch: 11:45-1:00 (hot lunch provided at the college)
Middle School: 2:00 – 5:00 PM. (Student projects can be previewed after 12:30 without
the students present)

Do you wish to present the awards in person at the awards ceremony? __________
The awards ceremony will be held on Friday, March 10 (Time TBD) at Ursinus College.
The College of New Jersey Hosts The 42nd ANNUAL ORIGINAL PERSONAL COMPUTER FESTIVAL

TCF’17

TM

NJ Makers Day Partner

Saturday, March 18, 2017 at The College of New Jersey, Ewing NJ

Focus on Autonomous Vehicles

Keynote Speaker: Raj Rajkumar, Professor of Electrical & Computer Engineering and Robotics Institute, Carnegie Mellon University

Prof. Raj Rajkumar is the George Westinghouse Professor of Electrical & Computer Engineering and Robotics Institute at Carnegie Mellon University. He directs a number of labs at CMU, including the newly established University Transportation Center on Technologies for Safe and Efficient Transportation.

Featured Speaker: Greg Olsen, Private Citizen Astronaut & Entrepreneur “His Experiences Driving a Tesla with Autonomous Control”

Admission: $12.00 (advance) $15.00 at Door
Free Parking / Wi-Fi
www.tcf-nj.org

at The College of New Jersey, Ewing, NJ

Saturday, March 18, 2017

9:00 am – 5:00 pm
Registration/Flea Market open at 9 am, Talks start at 10:15 am.

David Soll on Windows 10 and Microsoft Office
Author Barry Burd Speaks on Functional Programming and Developing for Bluetooth Beacons

DAVID SOLL ON WINDOWS 10
Multimedia, Security, Wearable Technology, Games, Home Control and Historic Computers

Ham Cram Session & Exam: Get an Amateur Radio License in one day at TCF! Cram begins at 9 am.

Hands-on Arduino Workshop for Beginners Raspberry Pi Tutorial and Projects

IEE/ACM IT PROFESSIONAL CONFERENCE
Friday March 17, 2017, 8:30 am — 5:00pm** and continues as part of TCF’s Saturday Talks.
For Conference Info and Fees see http://princetonacm.acm.org/tcfpro/

IEEE Integrated STEM Education Conference (ISEC)**
Saturday, March 11 – 8:00 am — 5:00 pm at Friend Center, Princeton University, NJ
Theme: Connecting the Dots
Info: http://ewh.ieee.org/conf/stem/

For additional TCF’17 info, directions and advance tickets: www.tcf-nj.org

**The IT Pro (Friday) and ISEC Conferences require separate registrations.

The 2017 TCF™ is sponsored by The College of New Jersey, its School of Engineering and supported organizations.
2017 DELAWARE VALLEY ENGINEER OF THE YEAR
JOHN A. NAWN, PE

Throughout his career, John Nawn has been involved at high levels in various aspects of the transportation engineering industry. In his current position as a Forensic Civil Engineer at Fleisher Forensics in Ambler, he specializes in the areas of highway and street design, traffic engineering, utilities construction, storm drainage, pedestrian safety, walkway surface evaluations, and concrete and asphalt pavement evaluations. He has extensive experience in construction management, project-related claims, job site safety, codes and standards, and ADA compliance.

John has served as a principal, project manager, and/or task manager responsible for the design, engineering, and management of various traffic, transportation, highway, bridge, mass transit, railroad, environmental, municipal, and construction engineering projects in several assignments and firms during his 30-plus years in the engineering field. He earned both his Bachelors and Masters degrees in Civil Engineering from Drexel University. Currently, he also helps educate the next generation of engineers as an Adjunct Professor in the Department of Civil and Environmental Engineering at Temple University, where he is an instructor for two graduate-level courses in Transportation Engineering and Transportation Systems Management. He is a licensed professional engineer in nine states and holds several professional certifications.

This year, John was installed as President of the Pennsylvania Society of Professional Engineers (PSPE) and has held numerous positions both in the statewide organization as well as its Delaware County Chapter. He is a Fellow in the National Society of Professional Engineers (NSPE) where he served on the Legislative and Government Affairs Committee and the Critical Infrastructure Committee. Additionally, he is a member of the Philadelphia Section of the American Society of Civil Engineers (ASCE), the Mid-Atlantic Section of the Institute of Transportation Engineers (ITE), and the Engineers’ Club of Philadelphia. He has worked tirelessly in these organizations to help promote and highlight the role and importance of the engineer in today’s society.

In his community, John has had a similarly long and impressive resume of service in a number of organizations and capacities. He has been a Judge of Elections and a member of the Planning Commission, including Vice Chairman, in two of the Delaware County communities in which he has resided. He is presently in his second term as an elected Township Supervisor and Chairman of the Board of Supervisors for Newtown Township, Delaware County. He is also on the Board of Directors of the private Newtown Square Railroad Museum and Community Transit of Delaware County, a private, nonprofit transportation company which provides demand-responsive service to the general public.

His dedication and service to professional societies have earned John recognition as the Engineering Manager of the Year by the ASCE Philadelphia Section in 2008, the Engineer of the Year by the PSPE Delaware County Chapter in 2011, and the State Engineer of the Year by PSPE, also in 2011.

John and his wife Barbara reside in Newtown Square and have two adult children and one grandson.

2017 DELAWARE VALLEY YOUNG ENGINEER OF THE YEAR
KAZI M. HASSAN, PE

Kazi Hassan, PE, is a transportation project engineer at Pennoni Associates, Inc., specializing in roadway design. He was born in Bangladesh and came to America in 1994, when his father relocated the entire family to give him and his sister the gift of education. He received his Bachelor of Science degree in Civil Engineering from the Pennsylvania State University and was the first person in his family to complete an engineering degree.

Kazi has been at Pennoni since 2006. He always had the desire to be an engineer, and realized the enormous contribution he could make to society as a civil engineer. Being able to design infrastructure for future generations gave him the motivation to continue his civil engineering degree and pursue a career as a transportation engineer. He holds professional engineering licensure in three states.

Kazi’s managers realized his potential very early on. His passion, commitment, and professionalism spoke for itself and has left an impression on all those around him. In 2015, he was promoted to Highway Supervisor at Pennoni’s headquarters in Philadelphia. He has been an active member of the Younger Member Forum (YMF) of the Philadelphia Section of the American Society of Civil Engineers (ASCE) and has been an integral part of the Forum’s growth. He also serves as a Director on the Section’s Board. In 2012 he helped to start Pennsylvania’s first Civil Engineering Club at the Chester A. Arthur School in South Philadelphia, educating 6th to 8th grade students in engineering.

Kazi has been honored as the Young Civil Engineer of the Year by the ASCE Philadelphia Section in 2014, the Top 40 Under 40 Transportation Professionals by the Greater Valley Forge Transportation Management Association, also in 2014, and the Young Civil Engineer of the Year in the Private Sector by the Younger Member Council of ASCE in 2015. He serves as an Adjunct Professor at Drexel University.

Additionally, Kazi has found time to be very active in his community. He helps to fundraise and volunteer his time at his local religious chapel. He also helped his father plan the 2014 North America Bangladesh Convention in Philadelphia.

Kazi and his wife Ria live in West Philadelphia.
KICKOFF LUNCHEON
FRIDAY, FEBRUARY 17

Loews Hotel Philadelphia
1201 Market Street, Center City
11:30 AM Networking
12:00 Noon to 1:30 PM Lunch and Professional Awards

2017 Engineers Week in the Delaware Valley kicks off with the Luncheon at the beautiful Loews Hotel in the historic PSFS Building, listed in the Delaware Valley Engineering Hall of Fame.

Formal festivities will begin with networking, featuring a cash bar, at 11:30 AM.

The 2017 Engineer of the Year, John Nawn, will be formally introduced at the Luncheon. Mr. Nawn and the 2017 Young Engineer of the Year, Kazi Hassan, will make brief remarks and kick off the celebration of Engineers Week in the Delaware Valley.

We will recognize award recipients who have been honored in the past year by the various engineering and technical societies in the Delaware Valley in the event PowerPoint and program.

Newly-inducted Delaware Valley Engineering Hall of Fame honorees will be cited.

The Outstanding Engineering Achievement award winners, selected by the local Chapters of the Pennsylvania Society of Professional Engineers, will be honored.

Tables of 10 can be reserved.

Price - $65 for reservations received on or before February 10 ($45 for government agency employees).

YOUNG ENGINEERS SOCIAL
TUESDAY, FEBRUARY 21

2nd Story Brewing Company
117 Chestnut Street, Center City
6:00 PM to 9:00 PM

This event is geared specifically to young engineers (both in age and at heart) to socialize, catch up, network and enjoy finger foods and drinks in an informal setting.

As part of the evening’s festivities, Kazi Hassan, the 2017 Delaware Valley Young Engineer of the Year, will be recognized and make brief remarks.

Price - $35 for reservations received on or before February 10 ($20 for students).

AWARDS RECEPTION/STUDENT SHOWCASE
THURSDAY, FEBRUARY 23

Dave & Buster’s
401 N. Columbus Boulevard, Penns Landing (Bridgeside Room)
4:00 PM to 5:00 PM Student Showcase
5:00 PM to 8:00 PM Networking, Dinner, Awards

The concluding event of Delaware Valley Engineers Week will be the Awards Reception, consisting of an evening of socializing and honoring this year’s award recipients.

The evening will begin with a Student Showcase hour which will feature and highlight the recipients of our Student and Teacher awards and allow them to interact with guests. Awardees will be formally recognized following dinner.

The Future City Competition regional winners will be featured with their working model.

A networking and cocktail hour will begin at 5:00 PM, followed by a buffet dinner. Attendees will receive cards good for limited use of the Dave & Buster’s gaming facilities.

The Engineer of the Year and Young Engineer of the Year will provide brief remarks.

Recipients of Engineers Week Student Scholarships and awards for Student Paper Competition, Outstanding High School Students, Delaware Valley Science Fairs, and Outstanding High School Teachers will be featured and cited.

Price - $75 for reservations received on or before February 10.