

Wavelengths



Volume 58 – Issue 2

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Section Chair's Message

It's been a busy month and much has happened.

2017 Section Budget:

A budget process that started last October has been completed with the ExCom approval of the 2017 budget in our early January meeting. Officers and volunteers are expected to run their portions of our organization according to this approved budget.

Spring Conference:

Robert Adams is leading our Spring Conference Organizing Committee. Robert's committee is having monthly meetings. If you wish to volunteer, you can contact Robert at robert.t.adams5@gmail.com.

Volunteering:

The Spring Conference situation brings up an important point about volunteering. We, IEEE-SEM, function based on the work of our volunteers. If someone has important obligations that reduce their ability to volunteer, other volunteers need to step in and carry the load. The more volunteers we have, the easier the work load on everyone. Please volunteer, you will find the experience interesting and rewarding.

Policies and Procedures:

Most Policies and Procedures that we, IEEE SEM, follow are spelled out in the IEEE MGA manual. A few are unique to our Section. These unique to our section policies will be placed in a folder in the On-Line Community for referral by officers and members of our section. Right now they are the Expense Reporting Procedure (How the Treasurer wants expense reports submitted) and the Financial Request Procedure (How requests for funding non-budgeted events and projects are requested and handled). Additional information will be added as needed. A document with links to the MGA Manual will also be located in that folder.

I look forward to hearing from you and seeing you at our events. As always, your ideas and suggestions are encouraged and welcome.

Robert Neff
IEEE SEM Section Chair
RLNeff1@gmail.com

EIT2018 Call For Papers

ANNOUNCEMENT and CALL FOR PAPERS
2018 IEEE INTERNATIONAL CONFERENCE on
ELECTRO/INFORMATION TECHNOLOGY

May 3-5, 2018, Hosted by Oakland University
 Rochester, Michigan, USA

ORGANIZING COMMITTEE

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EIT Conferences Founding General Chair
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Awards Co-chairs
 Sat Basu, satbasu@ieee.org
 Hossein Mousavinezhad

EIT 2018 Conference Web site:
<http://www.eit-conference.org/eit2018/>

The 2018 International Electro/Information Technology Conference, sponsored by the IEEE Region 4 (R4), is focused on basic/applied research results in the fields of electrical and computer engineering as they relate to Electrical and Computer Engineering, Information Technology, and related applications. The purpose of the conference is to provide a **forum for researchers and industrial investigators** to exchange ideas and discuss developments in these growing fields. There will also be exhibits where the latest electro/information technology tools and products will be showcased. This is also an opportunity for professional activities development, workshops and tutorials.

Topics of interest include but are not limited to:

- Robotics and Mechatronics
- Intelligent Systems and Multi-agent Systems
- Control Systems and System Identification
- Reconfigurable and Embedded Systems
- Power Systems and Power Electronics
- Solid State, Consumer, Automotive Electronics
- ADAS-Advanced Driver Assist Systems
- Connected Vehicle – V2V, V2I, V2X
- Biomedical Applications, Telemedicine
- Biometrics and Bioinformatics
- Nanotech, Micro Electromechanical Systems
- Wireless communications and Networking
- Ad Hoc and Sensor Networks, Cyber Security
- GPU Computing
- Computer Vision, Signal/Image Processing
- Distributed Data Fusion and Mining
- Cloud, Mobile, and Distributed Computing
- Software Engineering, Middleware Architecture
- Engineering Education, More topics on website

Important dates:

- **Submission full papers: February 15, 2018**
- **Notification of acceptance: March 15, 2018**
- **Final manuscript (PDF) due: March 29, 2018**
- **Early registration: April 1, 2018**

For more information, ideas for organizing /chairing sessions, industry participation, tutorials, professional activities sessions, please contact:

Dr. Ganesan, Dr. Aloï or Dr. Mousavinezhad

2018 Draper Prize

Washington, DC, January 03, 2018 —The National Academy of Engineering announced today that the 2018 Charles Stark Draper Prize for Engineering (<http://www.nae.edu/Projects/Awards/DraperPrize.aspx>) will be awarded to Bjarne Stroustrup “for conceptualizing and developing the C++ programming language.” The \$500,000 annual award is given to engineers whose accomplishments have significantly benefited society.

The Draper Prize will be presented at a gala dinner event in Washington, D.C., on Tuesday, Feb. 20, 2018.

“Bjarne Stroustrup’s creation of the C++ programming language has had a monumental, singular influence on the field of computing,” said NAE President C. D. Mote, Jr. “I am honored to bestow upon Bjarne Stroustrup this year’s Charles Stark Draper Prize for Engineering for C++. His creation reminds our society of the extraordinary impact that an outstanding engineer can have on our world.”

Though invisible to the general public, billions of people indirectly use C++ every day. Pervasive in computerized systems everywhere, the Google search engine is written in C++ as is most of Google’s supporting infrastructure. The communications parts of smartphones are in C++ as well as much of the telecommunication systems that connect them. C++ is key to many of tools of the movie industry and the higher levels of the Mars Rover software. C++ libraries underlie the current efforts in artificial intelligence, machine learning, and autonomous vehicles.

Indeed, C++ is one of computing’s most influential programming languages. At Bell Labs, Stroustrup developed it in response to the dual challenges of achieving optimal performance and handling complexity for distributed systems. The C++ programming language is based on the C programming language, adding powerful abstraction mechanisms without compromising C’s ability to effectively use hardware resources. C++’s combination of expressiveness and efficiency surpasses that of other programming languages, making it a popular choice for complex tasks with resource constraints such as game engines, database implementations, control systems, financial services, graphics, networking, and web servers. C++ is now used by approximately 4.5 million programmers around the world and has revolutionized numerous applications — from web services like Google and Facebook to medical systems such as CAT scanners and blood analyses.



Stroustrup is a managing director in the technology division of Morgan Stanley in New York City, as well as a visiting professor in computer science at Columbia University. Stroustrup continues to commit himself to computer science research, including the further development of C++, distributed systems, design, programming techniques, and software development tools. He received his Ph.D. in Computer Science from Cambridge University, where he is an honorary fellow of Churchill College. Stroustrup was elected to the National Academy of Engineering in 2004.

**About the CS Draper Prize**

The Draper Prize was established in 1988 at the request of the Charles Stark Draper Laboratory Inc., Cambridge, Mass., to honor the memory of “Doc” Draper, the “father of inertial navigation,” and to increase public understanding of the contributions of engineering and technology. The prize is awarded annually.

About National Academy of Engineering

Founded in 1964, the U.S. National Academy of Engineering is a private, independent, nonprofit institution that provides engineering leadership in service to the nation. Its mission is to advance the well-being of the nation by promoting a vibrant engineering profession and by marshalling the expertise and insights of eminent engineers to provide independent advice to the federal government on matters involving engineering and technology.

***Curated & Formatted By Sharan Kalwani,
Associate Editor, Wavelengths,
January 2018***

More information and biography on Bjarne can be found here:

<https://www.nae.edu/Activities/Projects/Awards/DraperPrize/DraperWinners/2018Draper/177032.aspx>

Member News



Continuing a new feature, introduced last year, little snippets celebrating news about all our members in the Section.

We are happy to share that Amanda Mohan, a very active member and one of the enthusiasts of the Affinity Group – WIE (Women in Engineering) was also elevated to senior membership in 2017. Congratulations to Amanda.



We are happy to further share some really good news about a Life member and one of the most active members of our section – Professor Subra Ganesan, from Oakland University, who was recently recognized by the IEEE-USA Board of Directors. They have selected him to receive an **IEEE-USA Professional Achievement Award** for “*outstanding continuous support of the Embedded Systems Workshop organization, contributing to the development of the local talent pool which drives the economy of the region.*”



Subra will be honored at the upcoming Joint Region 4 and 6 meeting in San Francisco in February to receive his award.

Congratulations Subra!

In case we have missed anyone, do kindly let us know, so we may acknowledge them in the next issue.

--Sharan Kalwani

Member Bulletin Board

Request for Help

I am starting a book writing project, tentatively titled “Intro to Programming for Engineers using Numerical Methods”. It is aimed at modern day engineering undergraduate students as well as those majoring in the physical sciences.

If any of our Section members have *any* old textbooks which have a title similar to OR sounds like “Programming for Engineers (or Scientists)” (it can be any programming language), I would be happy to take it off your hands – maybe even create a little free shelf space for you in the process!

At the same time, I am also looking for any textbooks which deal with the topic of **computer based numerical methods**.

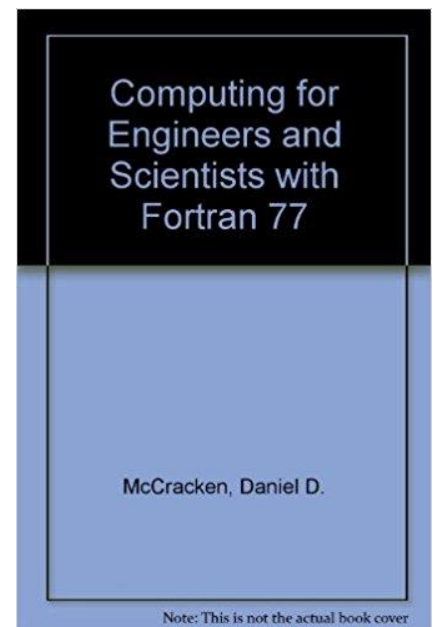
I can give you some examples of a few representative textbooks - maybe you have some old ones which you do not need right now, I can use them for my writing efforts...If you see any such - e.g. at

a garage sale, used book store, or at a neighborhood curb side pickup, book shelf, etc., I would appreciate being told about it.

Here are some classical examples. The texts are:

- McCracken, Daniel D. (1967). **FORTRAN with Engineering Applications** (1 ed.). Wiley.
- McCracken, Daniel D.; William I. Salmon (1988). **Computing for Engineers and Scientists with Fortran 77** (2 ed.). Wiley. ISBN 978-0-471-62552-0.

Some cover images maybe might be helpful in jogging the memory sometimes....



My grateful thanks in advance!
You may contact me at sharan.kalwani@ieee.org

News from around town

Continuing yet another new feature for your reading pleasure.

Reprints from various local news sources, original copyrights, credits and sources preserved and shown.

--Sharan Kalwani

Auto electronics supplier Hella to move headquarters to Northville

From Crain's Detroit Business, filed by Kurt Nagl
<http://www.craigslist.com/article/20180103/news/649176/auto-electronics-supplier-hella-to-move-headquarters-to-northville>

Automotive lighting and electronics supplier Hella KGaA Hueck & Co. will move into a new 115,000-square-foot headquarters in Northville Township early next year.

The new complex, set to open in early 2019 in the Northville Technology Park, will replace the German company's current North American headquarters three miles away in Plymouth Township and consolidate the operations from two nearby satellite offices, company spokesman Markus Richter said.

The facility is being built-to-suit and leased by Hella. It will accommodate Hella's expansion plans, as its employee count is expected to grow from 350 to 400 in the next couple of years. It employs about 800 people across four plants in the U.S.

The new facility will sit on about 11 acres of land — double that of the current one — and be at least 15,000 square feet larger. Detroit-based Redico Management Inc. is developing the project, Birmingham-based Biddison Architecture + Design is handling design and Birmingham-based Amson Development Services is the real estate consultant.

Hella appointed new senior management members for its U.S. operations in March.

The headquarters will support electronics and lighting solutions development, as well as sales, purchasing, information management and finances for the North American operations. Its layout will consist of open office space, project and meeting rooms, lounge and cafeteria sections, and a fitness area.

Groundbreaking for the new headquarters was in early November. Cost of the project was not disclosed.

\$90 million Consumers Energy wind turbine project starts operating

By Associated Press
<http://www.craigslist.com/print/649231>

- Construction started in July, finished on schedule
- Part of a total investment of \$345 million
- Phase III scheduled for completion in 2019

COLUMBIA TOWNSHIP — A new \$90 million Consumers Energy wind turbine project is operating in Tuscola County.

The unit of Jackson-based CMS Energy Corp. announced Thursday that Cross Winds Energy Park II in Columbia Township, about 90 miles northwest of Detroit, is producing power. The park is capable of producing 44 megawatts of renewable energy, enough to serve about 17,000 residents.

Construction work on the 19 turbines started six months ago and finished on schedule. The project employed 250 workers and resulted in zero safety incidents, according to a Consumers news release.

Phase II is part of a total investment of \$345 million investment that

includes a total of 81 wind turbines capable of producing 155 megawatts of renewable energy to serve about 60,000 residents.

The company earlier pushed up construction on Cross Winds Energy Park III to 2019 instead of 2022, with plans for commercial operation in 2020 in Columbia and Akron townships. Phase I of the Cross Winds Energy Park began operations in 2014.

- Crain's Detroit Business contributed to this report

Auto supplier Auria opens new headquarters in Southfield

<http://www.craigslist.com/article/20180103/news/649171/auto-supplier-auria-opens-new-headquarters-in-southfield>

- Joint venture between Shanghai Shenda and IAC formed in September
- Company has generated \$1 billion in revenue
- Plans to expand, double sales within next five years

Auria Solutions opened its first North American headquarters in Southfield this week.

The automotive acoustic and textile startup, spun out of a joint venture between Shanghai Shenda Co. and International Automotive Components, moved 120 employees into its 28,000-square-foot offices at 26999 Central Park Blvd., near the Southfield Town Center, said David Ladd, the company's senior director of marketing and communication.

Auria's new location will house global and regional management, regional corporate operations, and global and regional engineering, in addition to sales and product development personnel. Employees were relocated mainly from IAC's North American headquarters in Southfield.

Auria also has a tech center in Plymouth, which houses what it says is the industry's largest modern hemi anechoic test chamber, and a manufacturing facility in St. Clair. It employs a total of about 350 people in Southeast Michigan.

The company was formed under the joint venture in September and generated \$1 billion in revenue, Ladd said. It is projected to double sales within the next five years.

Auria has financial headquarters in Coleshill, England, and operates 27 manufacturing and nine commercial, engineering and testing and tooling

Is there an event you would like to see listed here? Email us wavelengths@ieee-sem.org

Introducing: New Chairs

Over the course of 2018 we will be featuring interviews with different Section officers. This month we introduce the incoming chairs of the Young Professionals Affinity Group and of Chapter 10 aka (Technology and Engineering Management) and the returning chair of WIE.

Farzad Asgarian



What is your educational background?

I have a B.Sc. and M.Sc. both in Electrical Engineering-Electronics from K. N. Toosi University of Technology, Tehran, Iran. Before joining University of Michigan, I worked as a research assistant for 5 years, including 3 years at Michigan State University (MSU).

What is your current position and specialty?

I'm a PhD candidate at University of Michigan, Ann Arbor, working on wireless sensor nodes for health and usage monitoring systems (HUMS).

How long have you been involved with the Young Professionals AG?

I've not been involved specifically in YP of SEM, but based on the YP definition I'm a member of this group. I've been an IEEE member for 11 years.

What is the aim of the Young Professionals AG?

IEEE defines Young Professionals as the group of IEEE members who have graduated from their first university degree within the last 15 years. Additionally, there is an opt-in/opt-out option available for members who have graduated more than 15 years ago or who do not wish to belong to the Young Professionals group. The Young Professionals program supports a global network of 183 Affinity Groups that organize activities and events for local constituencies.

IEEE's future depends on its young professionals—for one thing, they make up more than a third of the membership. That's why the IEEE Young Professionals group made a concerted effort to be heard by IEEE's leadership about the need to update offerings to attract and retain younger members [1]. To that end, the group developed a three-year business plan for 2017-2019 that can be accessed [here](#).

[1] This is from a special report on Young Professionals in the IEEE institute (<http://theinstitute.ieee.org/static/special-report-young-professionals>).

Are there any plans for 2018 that you are particularly excited about/interested in?

The main goal of the 3-year business plan is to make the program more relevant and attractive to young members, and one of the projects considered in this plan is seed funding to facilitate the increase of local events. We plan to work with different chapters and student branches to use these funding opportunists for creating new programs that address the needs of our section members.

David Werden

What is your educational background?

I completed my BS in Computer and Information Systems from University of Maryland University College a year after I left the Army, 2009. In 2012 I graduated from the University of Michigan with an MS in Software Engineering. This last Fall I began a PhD program at Oakland University through the School of Engineering and Computer Science.

What is your current position and specialty?

Currently I am a Computer Engineer for the US Army's Tank Automotive Research, Development, and Engineering Center (TARDEC). My specific areas of responsibility are cybersecurity focused as both the Information Systems Security Manager and Information Systems Security Engineer for the US Army's Active Protection System for vehicles.

What is the aim of Chapter 10?

In short, to provide a collaboration space for Engineering Managers to discuss challenges, share successes, and learn new approaches.

Is there anything that went particularly well with the group in 2017?

In 2017 we were able to hold more technical meetings on pertinent subjects.

Are there any plans for 2018 that you're particularly excited about/interested in?

At the moment we have more

technical meetings scheduled and are exploring options of partnering with our sister chapters for local events.

Tia Twigg

What is your educational background?

I have a BA in Drama (Design/Tech aka stagecraft) from the University of Montana and a BSEE in Electrical Engineering from Michigan State University. I also did a one semester study abroad in Volgograd, Russia.

What is your current position and specialty?

I am currently a controls engineer at Dart Container specializing in R&D and Obsolescence Management.

How long have you been involved with WIE?

In an effort to become more active with WIE, I took the chair position last summer in July, but I have been a WIE member for a couple of years.

What is the aim of WIE?

Our goal is to facilitate the recruitment and retention of women in technical disciplines globally. We envision a vibrant community of IEEE women and men collectively using their diverse talents to innovate for the benefit of humanity.

(Official statement from the IEEE WIE website).

In the SEM WIE affinity group, we support this mission by focusing on Professional Development Events and Networking Events.

Is there anything that went particularly well with the group in 2017?

We were all new to our WIE positions, so while we experienced many challenges, we learned a great deal from each other and have formed a wonderful team.

Was there anything that didn't work that might be a good Lesson Learned for other AGs or Chapters?

The publicity and coordination for one of our events was a bit last-minute. I learned that good participation and turn-out requires carefully planned publicity.

Are there any plans for 2018 that you're particularly excited about/interested in?

Oh yes! We are currently planning an IEEE SEM Spring Conference with Irina Sullivan and Amanda Mohan co-chairing the event. Anyone who is interested in volunteering to help on the Planning Committee is welcome. Please contact myself (te_reen@yahoo.com) or Irina (isullivan@brookskushman.com) or Amanda (amanda.fairbairn@gmail.com) to join this team!

Chapter 5 Tech Meeting

On 25th January 2018, we held our first tech meeting and we had 25+ attend. The topic was Cyber Security. A video screening of the ransomware attack (WannaCry) on the UK's National Health Service (NHS) produced by the BBC was done for the benefit of the attendees – students, professionals and academics alike.

Then an up to the minute update on the two recent hardware flaws in modern day microprocessors (Meltdown & Spectre) was given by Sharan Kalwani.



Figure 1) Subra Ganesan, Chair - introduces the topic



Figure 2) Lively discussion on the topic of cyber security

ZF Employment Ad



WHAT'S NEXT?

JOIN ZF

WORK AT THE FOREFRONT OF
AUTOMOTIVE INNOVATION WITH ZF,
ONE OF THE WORLD'S LEADING
AUTOMOTIVE SUPPLIERS.

ZF.COM/CAREERS

2018 SEM Officers:

The IEEE SEM Organizational Roster is Located in the IEEE Southeastern Michigan website at:
<http://sites.ieee.org/sem/>

Under the TAB titled “About SEM” use the button: “Organization Roster” to download the PDF version of the current Roster.

(Note: It is also a good idea to download the Organization Org Chart as well in order to get the complete ‘big picture’ of the Section.)

Years ago we used to publish the complete Chart and Roster in the Newsletter. But, that was when we had only 5 committees and 9 chapters.

Today we have 16 committees and sub-committees, 17 technical Chapters, 4 Affinity Groups and 8 Student Branches. The total roster divides into 12 pages with 247 identified officer positions.

That seems like a large organization, and it is, but it also presents our members with many volunteer opportunities to grow their capabilities through the experience of working with leaders who can guide and nurture engineering talent and widen the scope of volunteering through ‘hands on’ training in those ‘soft skills’ that can only be mastered by ‘doing.’

I often refer to learning the non-technical side of an engineering career as similar to learning to play a musical

instrument, or a sport, or how to dance. You can read all the books you want but, you only really learn by doing.

Reading the Roster:

Once downloaded notice that the roster is divided into five major segments:

- Executive Committee
- Standing Committees
- Affinity Groups
- Technical Chapters
- Student Branches

Within each segment you should find, at a minimum, the e-mail account for each officer, and in many cases, a work phone and a cell phone for quicker contact.

You may note a number of identified officer roles that have a blank cell (highlighted in yellow) where we would expect an officer name. These are vacant officer positions.

If you notice a vacancy where you might be interested in contributing to fill that role, please contact the relevant ‘Chair’ in that organization and discuss the duties of the office, and consider helping out in that element.

As with all others, the road to this learning begins with the first step. That step is inquiring and finding out what skills go with each position. That information is maintained in the IEEE Center for Leadership Excellence at:
<https://ieee-elearning.org/CLE/>

Good luck!

Future Cities Judging:

On January 22nd six members of IEEE Southeastern Michigan Section assembled at the Suburban Collection Showplace in Novi, just off I-96 on Grand River between Novi Road and Beck Road to assist the Engineering Society of Detroit with the 'Special Awards' judging for this year's Future Cities competition.



The group is shown at the left with its leader and mentor Don Bramlett holding the sign.

This group has been consistent in many of the past years in supporting the Future Cities in encouraging young students to take an active interest in Science, Technology, Engineering and Mathematics.

This year 30 teams from all over Michigan brought the results of their efforts to design cities of the future with attention to all the factors that make up a complex city with its infrastructure required to support its population in safety and comfort with opportunities for activities of all

types for leisure and work.

Science Fair Judging:

IEEE-SEM Science Fair Awards

By Don C. Bramlett, PE, IEEE-SEM Section Advisor

The 61st Annual Science and Engineering Fair of Metropolitan Detroit judging will be held from March 13-17 in the Michigan Hall of the Cobo Conference Exhibition Center in downtown Detroit. Judging of student projects requires volunteers from IEEE to help encourage our youth to pursue STEM fields. This year the SEFMD will have over 130 schools participating from Wayne, Oakland, Macomb, and Washtenaw counties with approximately 2,000 students presenting over 1,500 projects. Exhibits are classified into 23 general categories for judging, including Embedded Systems, Energy, Physical, Robotics, and System Software.

For the 23rd straight year the IEEE Southeastern Michigan (IEEE-SEM) Section will provide a team of volunteer judges to evaluate student projects associated with IEEE fields of interest. To become part of that team, contact Don Bramlett:

If interested in more information concerning being a member of the team of judges contact

Don Bramlett at

(313) 608-6223, or

(734) 591-1452 or by email at

d.bramlett@ieee.org.

Spring Call for Speakers:

**IEEE**
Southeastern
Michigan**2018 SPRING
CONFERENCE****SATURDAY, MAY 5
CALL FOR SPEAKERS**

IEEE Southeastern Michigan is looking for speakers for the upcoming 2018 Spring Conference to be held in the Greater Detroit Metropolitan Area.

The Conference is titled: “GOVERNMENT RULES & REGULATIONS WITHIN ENGINEERING” and aims to explore cooperation between government and industry in developing, complying with, and enforcing regulations. The subtopics could include discussions of most recent or long-standing federal and state regulations, industry-driven best practices, and technological advancement in achieving development, compliance, and enforcement of governmental regulations.

While IEEE SEM is not able to offer compensation for the speaking engagement, we invite our speakers to attend the entire event at no charge, including any meals and refreshments on offer. Those interested should submit short bio and abstract by filling out this Google Form: <https://goo.gl/forms/DJeMKtkKg4secoss1>.

**Regulation &
Compliance****Traditional Industries****Telecom****Biotech****Power & Energy****Computing****Automotive****Non-Traditional****Social Media****Cyberspace****Telehealth****State & Federal
Regulations****IEEE Standards****Best Practices****Environment****Safety & Security****Location
To Be Announced
Greater Detroit
Metropolitan Area**

This Month in February

Or: Notable Events in History, which I Did Not Know! ☺

February 5th, 1840 – John Boyd Dunlop is born. Dunlop was a Scottish inventor and veterinary surgeon who spent most of his career in Ireland. Familiar with making rubber devices, he re-invented pneumatic tires for his child's tricycle and developed them for use in cycle racing. He sold his rights to the pneumatic tires to a company he formed with the president of the Irish Cyclists' Association, Harvey Du Cross, for a small cash sum and a small shareholding in their pneumatic tire business. Dunlop withdrew in 1896. The company that bore his name, Dunlop Pneumatic Tyre Company, was not incorporated until later using the name well known to the public, but it was Du Cros's creation

February 11th, 1847 – Thomas Edison is born. He was an American inventor and businessman, who has been described as America's greatest inventor. He developed many devices that greatly influenced life around the world, including the phonograph, the motion picture camera, and the long-lasting, practical electric light bulb. Dubbed "The Wizard of Menlo Park", Edison was a prolific inventor, holding 1,093 US patents in his name, as well as many patents in the United Kingdom, France, and Germany. More significant than the number of Edison's patents was the widespread impact of his inventions: electric light and power utilities, sound recording, and motion pictures all established major new industries worldwide. These included a stock ticker, a mechanical vote recorder, a battery for an electric car, electrical power, recorded music and motion pictures. Edison developed a system of electric-power generation and distribution to homes, businesses, and factories – a crucial development in the modern industrialized world. His first power station was on Pearl Street in Manhattan, New York

February 13th, 1910 – Birthday of William Shockley, an American physicist and inventor. Shockley was the manager of a research group at Bell Labs that included John Bardeen and Walter Brattain. The three scientists were jointly awarded the 1956 Nobel Prize in Physics for "their researches on semiconductors and their discovery of the transistor effect." Shockley's attempts to commercialize a new transistor design in the 1950s and 1960s led to California's "Silicon Valley" becoming a hotbed of electronics innovation. In his later life, Shockley was a professor of electrical engineering at Stanford University and became a proponent of eugenics.

February 15th, 1564 – Galileo is born. An Italian polymath, Galileo is a central figure in the transition from natural philosophy to modern science and in the transformation of the scientific Renaissance into a scientific revolution. Known for his work as astronomer, physicist, engineer, philosopher, and mathematician, Galileo has been called the "father of observational astronomy", the "father of modern physics", the "father of the scientific method", and even the "father of science!"

February 18th, 1836 – Ernst Mach is born. Mach was an Austrian physicist and philosopher, noted for his contributions to physics such as study of shock waves. The ratio of one's speed to that of sound is named the Mach number in his honor.

February 20th, 1844 – The day celebrated as the birthday of Ludwig Boltzmann. Ludwig Eduard Boltzmann was an Austrian physicist and philosopher whose greatest achievement was in the development of statistical mechanics, which explains and predicts how the properties of atoms (such as mass, charge, and structure) determine the physical properties of matter (such as viscosity, thermal conductivity, and diffusion).

February 22nd, 1857 – A day all engineers must be able to remember, for it is the birthday of Heinrich Hertz, a German physicist who first conclusively proved the existence of the electromagnetic waves theorized by James Clerk Maxwell's electromagnetic theory of light. The unit of frequency — cycle per second — was named the "hertz" in his honor

February 29th, 1860 – Herman Hollerith is born. An American inventor who developed an electromechanical punched card tabulator to assist in summarizing information and, later, accounting. He was the founder of the Tabulating Machine Company that was amalgamated (via stock acquisition) in 1911 later renamed IBM.

Readers are invited to share any **major engineering** event or milestones that they are aware of that occurred in January, next issue. Submissions can be made using direct email to the editors at: wavelengths@ieee-sem.org

Sharan Kalwani

Associate Editor, *Wavelengths*,

Vice-Chair, Chapter 5 (Computer Society), Chair, Chapter 12 (Education Society), PACE

Engineering History Buff/Aficionado

ORG UNITS cheat sheet

Section Unit Name or Affinity Group or Chapter Name (Organizational Unit is in parentheses)

Consultants Network Affinity Group: (CN40035)		
Life Members:		
Young Professionals:		
Women in Engineering:		
Chapter: 01	(SP01)	Signal Processing Society,
	(CAS04)	Circuits and Systems Society and
	(IT12)	Information Theory Society
Chapter: 02	(VT06)	Vehicular Technology Society
Chapter: 03	(AES10)	Aerospace and Electronic Systems Society and
	(COM19)	Communications Society
Chapter: 04 "Trident"	(AP03)	Antennas and Propagation Society,
	(ED15)	Electron Devices Society,
	(MTT17)	Microwave Theory and Techniques Society,
Chapter: 05	(C16)	Computer Society
Chapter: 06	(GRS29)	Geosciences and Remote Sensing Society
Chapter: 07	(PE31)	Power Engineering Society,
	(IA34)	Industrial Applications Society
Chapter: 08 "EMC"	(EMC27)	Electromagnetic Compatibility Society
Chapter: 09	(IE13)	Industrial Electronics Society,
	(PEL35)	Power Electronics Society
Chapter: 10	(TEM14)	Technology and Engineering Management Society
Chapter: 11	(EMB18)	Engineering in Medicine & Biology
Chapter: 12	(CS23)	Control Systems Society
Chapter: 13	(E25)	Education Society
Chapter: 14	(RA24)	Robotics And Automation Society
Chapter: 15	(NPS05)	Nuclear Plasma Sciences Society
Chapter: 16	(CIS11)	Computational Intelligence Society,
	(SMC28)	Systems, Man and Cybernetics Society
Chapter: 17	(NANO42)	Nanotechnology Council

Section Unit Name or Affinity Group or Chapter Name (Organizational Unit is in parentheses)

University Of Detroit-Mercy:	(STB00531)
Michigan State University:	(STB01111)
University Of Michigan-Ann Arbor:	(STB01121)
Wayne State University:	(STB02251)
Lawrence Technological University:	(STB03921)
Oakland University:	(STB06741)
Eastern Michigan University:	(STB11091)
University of Michigan-Dearborn:	(STB94911)

Curated & Formatted By Sharan Kalwani,
Associate Editor, Wavelengths,
January 2018

Non-IEEE Events:

We try to publish IEEE events in several places to ensure that everyone who may want to attend has all the available relevant information.

SEM e-Wavelengths:

www.e-wavelengths.org

This is our 'Active' event listing site where everyone should look first to see what events are scheduled for our Section in the near future.

SEM Web Calendar:

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

Select "SEM Calendar" button in the top row of the website.

SEM Web Meetings:

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

Select "SEM Meeting List" button in the left-hand column.

vTools Meetings:

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

Select "Schedule a Meeting" button in the left-hand column of buttons.

Other IEEE Local Meetings:

<http://www.e-wavelengths.org/>

Other Happenings

However, since IEEE members tend to have eclectic interests, we want to give everyone a heads up for some of the non-IEEE events that may be of interest.

Let us know if you have a special interest in a field that encourages technical study and learning, and wish to share opportunities for participation with members of the section.

Send the particulars to
wavelengths@ieee-sem.org

OR

anyone of the following....

k.williams@ieee.org

karen.burnham@ieee.org

sharan.kalwani@ieee.org

An announcement may be placed in the newsletter.

Links:**Michigan Institute for Plasma Science and Engineering:**

Seminars for the 2017-2018 academic year:

<http://mipse.umich.edu/about/seminars.htm>.

Below are links to local SEM Clubs engaged in technical hobbies as well as links to sites that may be useful for locating clubs in the area.

Amateur Radio Clubs in Southeastern Michigan

(This is a fairly comprehensive listing of all the 'Ham' clubs in SEM.)

<http://www.wa2hom.org/ham-radio-clubs-in-se-michigan/>

Model RC Aircraft

<http://www.skymasters.org/>

Model Rocketry

<http://team1.org/>

Astronomy

<http://www.go-astronomy.com/astro-clubs-state.php?State=MI>

Experimental Aircraft Association

<https://www.eaa.org/en/ea/ea-chapters/find-an-eaa-chapter>

Robots

<http://therobotgarage.com/about-us.aspx>

Science Fiction Conventions

<http://www.conclavesf.net/>

<https://2018.penguicon.org/>

<http://2018.confusionsf.org/>

Mad Science

<http://www.madscience.org/>

ESD PE Review Class

www.esd.org

Maker Faire:

<http://www.thehenryford.org/events/makerFaire.aspx>

Executive Committee

The **SEM Executive Committee** is the primary coordination unit for Southeastern Michigan (SEM) IEEE operations. The basic organization chart below shows the 2017 arrangement of communications links designed to provide inter-unit coordination and collaboration.

The SEM Executive Committee meets in a teleconference each month on either the first Wednesday or first Thursday at noon. The specific meeting days, times, phone or WebEx numbers and log in codes are published on the IEEE SEM Website calendar: <http://sites.ieee.org/sem/>. Click on the “Calendar” button in the top banner on the first page of the web site.

If you wish to attend, or just monitor the discussions, please contact Eric George, the section secretary at: eric.george.us@ieee.org and request to be placed on the distribution list for a monthly copy of the agenda and minutes.

More meeting details are available on the next page of this newsletter.

Other Meetings:

About half of our members maintain memberships in one or more of the IEEE technical societies, which automatically makes them members of the local chapter which is affiliated with that society. As a result, they should receive notices of the local chapter meetings each month.

However, members of the section may have multiple technical interests and would like to have meeting information of other

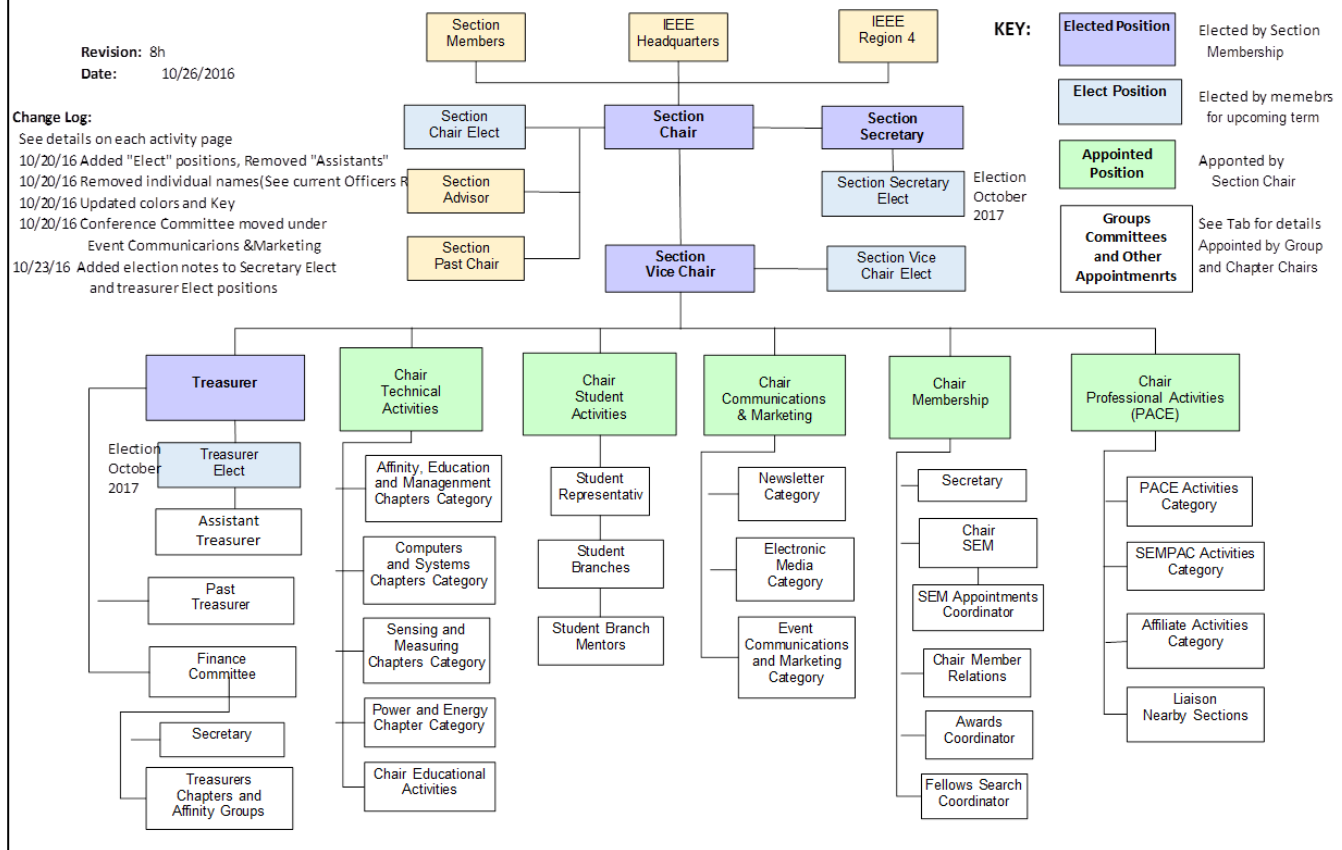
chapters. In order to communicate the meeting dates of all the chapters, affinity groups etc., to our members to facilitate their attendance, leaders of the groups are requested to send meeting information to our webmasters for posting on section’s calendar.

More detailed information on meetings may be found by using the IEEE meetings site. This may be found through the IEEE SEM Website: <http://sites.ieee.org/sem/> and clicking on the **SEM meetings list** button near the bottom of the left hand banner.

Automatic e-mail notification of web updates may be received using the “**Email Notifications**” button at the top of the **SEM Tools/Links** side banner.

Eric George - SEM Secretary

Current Organization - IEEE Southeastern Michigan Section (SEM)



Download the **complete SEM Organization Chart**, in PDF format, from the SEM Website at: www.ieee-sem.com. Then, click on “**About SEM**” Tab, followed by, click on “**Current Officers**” (NOTE: this is now password protected)

ExCom Meeting Schedule:

Below is the 2018 schedule for the Section ExCom meetings with links to add the events to your calendar. It is important that at least one person from each Chapter/Affinity Group attends the meetings. Information on each Face to Face Meeting will be sent out once the venue is confirmed.

Please mark your calendars for the 2018 meetings. Or, link your personal calendar to the SEM Web calendar.

Feb 1, Thursday, Teleconference (online only), 12:00 – 1:00 PM, <https://meetings.vtools.ieee.org/m/49029>

March 7, Wednesday, Teleconference (online only), 12:00 – 1:00 PM, <https://meetings.vtools.ieee.org/m/49030>

April 5, Thursday, F2F (In person meeting), 5:30 – 7:00 P.M., <https://meetings.vtools.ieee.org/m/49031>

May 2, Wednesday, Teleconference (online only), 12:00 – 1:00 PM, <https://meetings.vtools.ieee.org/m/49032>

June 7, Thursday, Teleconference (online only), 12:00 – 1:00 PM, <https://meetings.vtools.ieee.org/m/49033>

July 11, Wednesday, F2F (In person meeting), 5:30 – 7:00 P.M., <https://meetings.vtools.ieee.org/m/49034>

August 2, Thursday, Teleconference (online only), 12:00 – 1:00 PM, <https://meetings.vtools.ieee.org/m/49035>

September 5, Wednesday, Teleconference (online only), 12:00 – 1:00 PM, <https://meetings.vtools.ieee.org/m/49036>

October 4, Thursday, F2F (In person meeting), 5:30 – 7:00 P.M., <https://meetings.vtools.ieee.org/m/49037>

November 7, Wednesday, Teleconference (online only), 12:00 – 1:00 PM, <https://meetings.vtools.ieee.org/m/49038>

December 6, Thursday, Teleconference (online only), 12:00 – 1:00 PM, <https://meetings.vtools.ieee.org/m/49039>

Eric George
SEM Secretary

Note: All IEEE SEM Members are welcome at any IEEE meeting, at any time but, please register so we can be sure to accommodate you.

Eric George
SEM Secretary

Section Focus:

The IEEE SEM Section Officers have reaffirmed the Mission and Goals of the section with the guidance of the Region 4 leadership. The Mission and Goals conform to those of IEEE worldwide.

You have probably seen the Mission and Goals before. However, it is important to keep these clearly in mind and remind ourselves often that this is what we are about and what we are trying to accomplish.

Section Mission

Inspire – Enable – Empower and Engage Members of IEEE at the local level.

For the purpose of:

- Fulfilling the mission of IEEE (...**foster technological innovation and excellence for the benefit of humanity**.),
- Enhancing the members' growth and development throughout their life cycle, and
- Providing a professional home,

Section Goals

- Increase member engagement,
- Improve relationships with and among members,
- Increase operational efficiency and effectiveness, within the section and its interfaces,
- Enhance collaboration – serve as the local face of IEEE to the community,
- Increase membership, and
- Ensure the collection of appropriate information necessary to assist the IEEE to become a data driven organization.

It is now the task of the section leadership to guide and coach all section officers and elements to focus their activities on achieving those goals.

SEM Monthly Meetings**Scheduled Meetings:**

The regular meetings of the SEM Leadership (Executive Committee) are scheduled well in advance to allow everyone to place them in their personal planning calendars, and then defend those dates against encroachment. (*Not always possible.*)

Two types of Monthly meetings are normally scheduled:

Monthly Teleconference / WebEx as well as:

Quarterly Face-to-Face (F2F). See schedule on the page above:

Note: All IEEE meetings are 'Open' for all members to attend.

The only caveat is that you please register using the specific meeting form on the vTools site at:

<https://meetings.vtools.ieee.org/main>

Registering will ensure there is sufficient space, refreshments and support for attendees.

Teleconference Schedule
(Held from 12-1 p.m.):

F2F Meeting Schedule:

More information for F2F meetings will be emailed to all officers, (and any members requesting the schedule), in a timely manner before the meeting dates.

Contact **Eric George** the SEM Section Secretary at: eric.george.us@ieee.org for more information.

Additional information may be found at (<http://sites.ieee.org/sem/>).

The links to the SEM Facebook or LinkedIn pages on the SEM website may also be checked for updates.

All the normally scheduled meetings of each of the other section chapters, affinity groups etc. are listed each month in the vTools area of our SEM website at:

http://ewh.ieee.org/r4/se_michigan/calendar1.php

The information is for:

Standing Committee Meetings
Affinity Group Meetings
Technical Chapter Meetings
University Student Branch Meetings
University HKN Chapter Meetings

Calendar Schedule:

Meetings are also announced on the SEM Calendar web page

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

(Select the "SEM Calendar" button in the top row.)

Note: Often meetings of the Executive Committees of Chapters and Affinity Groups (and standing committees, of course) are listed only in the SEM Calendar page, since it is felt that most members would not wish to sit through administrative meetings.

However, if this type of meeting is just your 'cup of tea', then contact the officers of the unit that is conducting the meeting, and ask to be 'linked' into their teleconference, SKYPE, Google Hangout, or WebEx meeting. They will be happy to have you as a participant.

Many volunteers become interested in section activities when they get a chance to attend a monthly meeting and 'peek under the hood' to find out how the machinery of the section actually runs. It can be a rewarding experience.

Eric George
SEM Section Secretary.
eric.george.us@ieee.org

Editors Corner

Previous editions in this series may be found on the IEEE SEM website at: <http://sites.ieee.org/sem/>. Click on the "Wavelengths" button in the top row of selections.

Comments and suggestions may be sent to the editorial team at wavelengths@ieee-sem.org

OR

k.williams@ieee.org
sharan.kalwani@ieee.org
jrwoodyard@gmail.com
karen.burnham@ieee.org

We also recommend a cc to the chair of the Communications and Marketing Committee, Ravi Nigam at: ravi.nigam@ieee.org

We rely on our officers and members to provide the 'copy' that we finally present to readers of the newsletter. The **Wavelengths Focus Plan and Personal Profiles** plan shown in the

matrix below is presented to ensure coverage of section activities and events.

We try to complete the newsletter layout a week before the first of the month to allow time for review and corrections. If you have an article or notice, please submit it two weeks before the first of the month or earlier if possible.

The plan below relies on the contributions of our members and officers, so please do not be shy. If you have something that should be shared with the rest of the section, we want to give you that opportunity.

Editors:

We are always looking for members interested in helping to edit the newsletter. The process is always more fun with more members to share the duties, and help keep the

newsletter alive and lively by providing alternative points of view.

Heads Up

We are contemplating making the submissions of articles and events for the Wavelengths, a little easier and a little more inviting. Ideas are of course welcome and to this end, we are toying with setting up a little "newsletter portal". Stay tuned for some news on that end!

Join the Team:

If you feel you might like to join the team, or would like to train with us, please contact one of us at:

wavelengths@ieee-sem.org

OR

anyone of the following:

karen.burnham@ieee.org
sharan.kalwani@ieee.org
jrwoodyard@gmail.com
k.williams@ieee.org

Wavelengths Annual Publication Plan for Articles

Month	AG's	Ch's	Ch's	SB's	Special Notice	Reporting Events	Monthly Focus	Awards
Jan		1		OU	Future Cities Judges	Election Results	Resolutions	
Feb	Cons	2		MSU	Science Fair Judges	Officer's Welcome	Surviving Winter	Future Cities
Mar		3	13	EMU	Spring Conf. Flyer	Spring Conference	Spring Conference	Science Fair
Apr		4		U/M-D	National Engrs Wk.	Future Cities	Chapter Focus	ESD - GOLD
May	Life	5	14		Outstanding Eng Awd	Science Fair	Elections - Prep	New Fellows
Jun		6			IEEE-USA Apmts.	ESD Banquett	Leadership Skills	SEM Awards
Jul		7	15		Nominations Call	MD-Webcasts	Students Issues	Region 4
Aug	WIE	8			MGA - Apmts.	Tech-Webinars	Womens Issues	
Sep		9	16	LTU	Region 4 Apmts.	Engineers Day	Professional Skills	
Oct		10		U/M-AA	Fall Conf. Flyer		Fall Conference	
Nov	YP	11	17	WSU	ELECTIONS!		Humanitarian	
Dec		12		U/D-M	IEEE-Com Apmts.	Fall Conference	Happy Holidays	

Month	Profiles	Profiles	Committees
Jan	Chair	New Officers	
Feb	V-Chair	Secretary	Communications
Mar	Treasurer	Sect-Adviser	Conference
Apr	Stud-Rep		Education
May		Sr Officers	Executive
Jun			Finance
Jul			Membership
Aug			Nominations
Sep			PACE Activities
Oct			Student Activities
Nov			Technical Activities
Dec		Editor-WL	

← Wavelengths Annual Publication Plan for Personal Profiles



Web & Social Sites

SEM Website

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

Each of the sites below may be accessed through the SEM Website:

Section Website Event Calendar

(Select the “SEM Calendar” button - top row.)

SEM Facebook Page

(Select the “” button under the top row.)

SEM LinkedIn Page

(Select the “” button under the top row.)

SEM Officers:

For a complete listing of all - Section - Standing Committee - Affinity Group - Chapter and Student Branch Officers, see the SEM Officers Roster on the SEM web page under the “About SEM” button and select “Current OfficerSection Officers

Community Section Officers <http://sem.oc.ieee.org>

Section Officers

Section Chair

Robert Neff

Section Secretary

Eric George

Section Vice-Chair

Nevrus Kaja

Section Treasurer

Xinhua Xiao

Standing Committees:

Section Adviser

Don Bramlett

Chair Communications & Marketing

Ravi Nigam

Chair Educational Activities

Aaron Romain

Chair Finance

Nevrus Kaja

Chair Membership

Aisha Yousuf

Chair Nominations & Appointments

Kimball Williams

Chair Professional Activities (PACE)

Sharan Kalwani

Chair Student Activities

Student Representative

Chair Technical Activities

Kimball Williams



IEEE Southeastern Michigan

Visit Us on the Web at:
<http://sites.ieee.org/sem>

How Engineers drink
Tea when it's too hot!



Tag an Engineer! 😂

Leadership Meetings

All IEEE members are welcome to join us at any regularly scheduled meeting:

Advertising Rates

SEM Website & Newsletter
Advertising is coordinated through
our e-Wavelengths website at

http://www.ieee-sem.org/ewavelengths/?page_id=181.

Please see the information listed on
the site, and contact our web editor
of e-Wavelengths, Ben Doerr for
arrangements.

SEM Executive Committee Monthly Teleconferences:

- 1st Wednesday or Thursday of Each Month @ Noon
- Check the Section Web Calendar at:
<http://sites.ieee.org/sem/sem-calendar/>
 (Select the "SEM Calendar" button in the top row.)

SEM Executive Committee Face-to-Face Meetings:

- 1/Qtr. Find the location, and Registration at:
<https://meetings.vtools.ieee.org/main>

SEM Standing Committee Meetings:

SEM Affinity Group Meetings:

SEM Technical Society/Chapter Meetings:

SEM University Student Branch Meetings:

- Meeting schedules are announced on SEM Web Calendar
<http://sites.ieee.org/sem/>
 (Select the "SEM Calendar" button in the top row.)

- Registration for all at:

<https://meetings.vtools.ieee.org/main>