Wavelengths

IEEE Southeastern Michigan
Electrical and Electronic Engineers Creating Our Future

Volume 58 – Issue 7

Contents

Section Chair's Message

Chairman's Letter

The following is the IEEE Code of Ethics from the IEEE website (www.ieee.org) found by clicking on the "About" tab.

"We, the members of the IEEE, in recognition of the importance of our technologies in affecting the quality of life throughout the world, and in accepting a personal obligation to our profession, its members, and the communities we serve, do hereby commit ourselves to the highest ethical and professional conduct and agree:

1. to hold paramount the safety, health, and welfare of the public, to strive to comply with ethical design and sustainable development practices, and to disclose promptly factors that might endanger the public or the environment;

2. to avoid real or perceived conflicts of interest whenever possible, and to disclose them to affected parties when they do exist;

3. to be honest and realistic in stating claims or estimates based on available data;

4. to reject bribery in all its forms;

5. to improve the understanding by individuals and society of the capabilities and societal implications of conventional and emerging technologies, including intelligent systems;

(Continued on page 2)

Chair's Message (Continued)

6. to maintain and improve our technical competence and to undertake technological tasks for others only if qualified by training or experience, or after full disclosure of pertinent limitations;

7. to seek, accept, and offer honest criticism of technical work, to acknowledge and correct errors, and to credit properly the contributions of others;

8. to treat fairly all persons and to not engage in acts of discrimination based on race, religion, gender, disability, age, national origin, sexual orientation, gender identity, or gender expression;

9. to avoid injuring others, their property, reputation, or employment by false or malicious action;

10. to assist colleagues and co-workers in their professional development and to support them in following this code of ethics."

I would like to add that we should avoid even the perception of inappropriate behavior.

When I was at Eaton Corporation we had a saying "How would your behavior be judged by an independent uninterested third party?"

We should remember these ethical commitments and practice them in all meetings, business transactions, mentoring and STEM activities.

It has come to my attention that on two different recent occasions, behavior of a member of our Section has at least been questionable under these guidelines.

This message is intended to serve as a reminder that all communications and interactions between individuals in the context of IEEE reflect directly on the organization and, therefore, must comply with the highest standards of ethics and professionalism.

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

This Month in July

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

***Alan Dower Blumlein; Died 6 Jun 1942 at age 38**, (born 29 Jun 1903).*
British electronics engineer whose 128 patents contributed greatly in a wide field of electronics, including mono and stereo sound reproduction and sound recording, as well as high-definition radar, telephony and electrical measurements. His profuse creativity was achieved within just 18 years, because he died at age only 38 (while flight-testing a radar project during WW II). He began working in 1924 for International Western Electric Co., and by 1929 was with Columbia Gramophone Co. which became EMI (1931) where he invented the stereophonic recording system. Although a few stereo recordings were made in the 1930's, EMI did not extensively develop the technology until the 1950's, when it built on Blumlein's work.

Rube Goldberg; Born 4 Jul 1883; died 7 Dec 1970 at age 87.
American cartoonist who satirized the American preoccupation with technology. His name became synonymous with any simple process made outlandishly complicated because of his series of "Invention" cartoons which use a string of outlandish tools, people, plants and steps to accomplish everyday simple tasks in the most complicated way. Goldberg applied his training as a graduate engineer and used his engineering, story-telling, and drawing skills to make sure that the "Inventions" could work, even though dozens of arms, wheels, gears, handles, cups, and rods were put in motion by balls, canary cages, pails, boots, bathtubs, paddles, and even live animals for simple tasks like squeezing an orange for juice or closing a window in case it should start to rain.

Edwin J. Houston; Born 9 Jul 1847; died 1 Mar 1914 at age 66.
Edwin James Houston was an American electric al engineer who, together with Elihu Thomson (another Philadelphia high school teacher) experimented with electricity. Houston invented, patented in 1881 and manufactured arc street-lighting. He presented the first paper, Notes on Phenomena in Incandescent Lamps, to The American Institute of Electrical Engineers when it began in 1884 (AIEE - the predecessor society of the present IEEE, The Institute of Electrical and Electronics Engineers, Inc.). The merger of Thomson-Houston and Edison General Electric companies (1892) formed General Electric. In 1894 he joined with Arthur Kennelly (who resigned from Edison's laboratory) to form a consulting company

Seat-belt patent; July 1962
In 1962, a U.S. patent was issued to Swedish engineer, Nils Bohlen, for the three-point seat-belt (No. 3,043,625). His lap and shoulder design is now familiar as the passenger-restraint safety device in cars that has saved countless lives. His design replaced the earlier style of a single safety belts strapped across the body, with the buckle placed over the abdomen, which often caused severe internal injuries in high-speed crashes. Bohlin assigned the patent to Volvo, the car manufacturer for whom he worked. From Aug 1959, Volvo incorporated Bohlin's seat belt into the vehicles they manufactured. The company also made the design freely available to other car manufacturers to save more lives.

Nikola Tesla; Born 10 Jul 1856; died 7 Jan 1943 at age 86.
Serbian-American inventor and researcher who designed and built the first alternating current induction motor in 1883. He immigrated to the United States in 1884. Having discovered the benefits of a rotating magnetic field, the basis of most alternating-current machinery, he expanded its use in dynamos, transformers, and motors. Because alternating current could be transmitted over much greater distances than direct current, George Westinghouse bought patents from Tesla the system when he built the power station at Niagara Falls to provide electricity power the city of Buffalo, NY. [Born in Croatia of Serbian parents. Some sources give birthdate as 9 Jul; he is said to have been born on the stroke of midnight. He celebrated his birthday as the 10th.]

Theodore Maiman, Born 11 Jul 1927; died 5 May 2007 at age 79.
Theodore Harold Maiman was an American physicist who built the first working laser. He began working with electronic devices in his teens, while earning college money by repairing electrical appliances and radios. In the 1960s, he developed, demonstrated, and patented a laser using a pink ruby medium. The laser is a device that produces monochromatic coherent light (light in which the rays are all of the same wavelength and phase). The laser has since been applied in a very wide range of uses, including eye surgery, dentistry, range-finding, manufacturing, even measuring the distance between the Earth and the Moon.

R. Buckminster Fuller; Born 12 Jul 1895; died 1 Jul 1983 at age 87.

Richard Buckminster Fuller was an American inventor, educator, author, philosopher, engineer and architect who developed the geodesic dome. This large dome can be set directly on the ground as a complete structure. There is no limit to the size to which it may be built and retain sufficient structural strength. Fuller also invented a wide range of other paradigm-shifting machines and structural systems. He was especially interested in high-strength-low weight designs, with a maximum of utility for minimum of material. His designs and engineering philosophy are part of the foundation of contemporary high-tech design aesthetics. He held over 2000 patents.

U.S. Electrical units

In 1894, eight units for the measurement of electrical magnitudes were adopted in U.S. law when President Grover Cleveland signed an Act of Congress "to define and establish the units of electrical measure" for the ohm, ampere, volt, coulomb, farad, joule, watt and henry. It was specified to be "the duty of the Academy of Sciences to prescribe ... such specifications of details as shall be necessary for the practical application of the definitions." The Act followed an International Congress held at Chicago in 1893, in connection with the World's Fair. There, a Chamber of Delegates from various nations deliberated on the definitions. The International Congress was largely due to the Institute of Electrical Engineers and to local societies in the city of Chicago.

Jay W. Forrester; Born 14 Jul 1918.

Jay Wright Forrester is an American electrical engineer and management expert. In 1944-51 he supervised the building of the Whirlwind computer at the Massachusetts Institute of Technology, for which he invented the random-access magnetic core memory, the information-storage device employed in most digital computers. He also studied the application of computers to management problems, developing methods for computer simulation.

July 14th 2013, Last telegram in India

In 2013, the world's last telegram was sent in India. It was the last major country to shut down telegram service. India's 163-year-old telegram service was no longer needed, as e-mail and texting had replaced bicycle telegram messengers. In Great Britain, telegram delivery ceased in 2008, while the U.S., Western Union's dwindling service was terminated 27 Jan 2006. The first formal telegram was sent by Samuel Morse in Washington to his business partner Alfred Vail in Baltimore, on 24 May 1844. Seeking funding, he demonstrated to Congress the power of telegraphy through wires connecting cities with the message, "What hath God wrought." In time, wires were strung across the U.S. and other countries, which eventually were connected by a Transatlantic cable under the ocean and more submarine cables.

Dan Bricklin; Born 16 Jul 1951.

American computer scientist who with Bob Frankston created VisiCalc, the first spreadsheet computer program (1979) which created a market beyond hobbyists for the emerging personal computers. Businesses found the program very useful because of the speed and accuracy of its calculations. Originally written in 6502 assembly language to run on a 32K-byte Apple II, it was soon ported to virtually all major 6502- and Z80-based personal computers then available. They did not reap huge financial profits from the spreadsheet program, despite eventually selling over a half-million copies by 1983, because at the time, copyright protection was not generally sought for software, and it was subsequently surpassed by Lotus 1-2-3, later Microsoft Excel. It is anticipated that soon open source offerings such as LibreOffice may overtake Excel due to the extremely low (or zero cost) of entry.

Readers are invited to share any ***major engineering*** event or milestones that they are aware of that occurred in April, 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 13 (Education Society) and PACE
Passionate Engineering History Buff/Aficionado

<<<< INSERT READER FEEDBACK SURVEY LINK HERE >>>>

Change of Pace:

With the onste of full summer, many (most?) of us set a slower pace to our lives, consistant with the warmer weather and the need to streach, relax and wind down with vacations, weekends in the park or beach, or riding bike on one of Michigan's nature trails. This is also a time to reflect on our recent accomplishments, and make plans for the future.

Taking the next career step is also a signigficant consideration for many of our IEEE Students members who are recent graduates, and are beginning to survey the curent landscape of available job opportunities for entry level engineers, mathematicians and scientests. Options abound in almost every field of engineering, and especially here in Southeastern Michigan where the diversity of industrial and manufacturing companies is one of the most numberous on this planet.

As you look at all those options and sit back, relax and conside each, also consider that your next step may be greatly helped by involvement with the local IEEE Society representing the technical field of your choice. Active participation in the operation of a local IEEE Chapter or Affinity Group will connect you with others working now in our area in the discipline for which you are trained and seeking as a career. Some will have direct hiring ability. Others will know someone who is looking to fill a position. In all cases, connection through the local Society Chapter will help you connect with the officers who run the Geo-unit, and lead to introductions to leaders at the Society level with world wide connections to other job opportunities.

However, completely aside from the potential employment assistance, becoming part of a local Geo-unit team begins a long process of learning how to work closly with others, in a non-threatening team environment. Task focus, team functions, progress reporting, cooperative engagements, team accomplishment presentations, public speaking, cost control and financial management, are just a few of the skills that active participation in a working Geo-unit provides opportunities to learn and for practice. Some of these are skills you may already determined you need to improve in order to enhance your career potential. Some you will only discover you need to learn when you encounter them in a Geo-unit assignment. (Note that is is far better to discover and learn these skills in an IEEE Chapter or Affinity Group than on a job where company success, and you job, may depend on how swiftly you can learn.)

Along with the opportunities discussed above comes the added benefit of meeting and getting to know some of the most talented and interesting people you could ever hope to come in contact. It also makes life-ling friendships that you will cherish for the rest of your life.

So where are these people and opportunities to be found? In the IEEE SEM Organizational Roster, on the SEM Website at: http://sites.ieee.org/sem/files/2018/07/Organization_Roster_IEEE_SEM_7.1.2018.pdf

The Roster lists the current offices, committees, Affinity Groups, Chapters and Student Branches in our Section along with the contact information for members currently working to make those Geo-units successful. Were you see an office listed but, with no name and a yellow highlighted block in the right hand column next to the office title, you know that is a current vacancy which may be your next opportunity. If you see an officer with the name highlighted in green, that indicates that they know they need to hand off their office to another volunteer, and are actively seeking those interested in following in their foot steps.

Contact the members listed in the Geo-unit and talk with them about the operation of the unit, and how you might fit into the team.

Good luck.

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Org Units Analytics:

A recently introduced upgrade to the IEEE Member DataBase, the Operating Unit (OU) Analytics expands and broadens the earlier 'Dashboard' approach to upper level views of the 'mix' of IEEE members which is able to be 'sliced and diced' in a number of different ways. The objectiv has been to provide a more 'user friendly' and informative access tool for IEEE officers and volunteers to understand both the global organization, as well as the fine grain details of their local Geo-units.

An example of the type of data and presentation format available through this new tool is shown below, in the overview of Southeastern Michigan Section with listings by member grade, and graphiclly by Technology Focus and gender. Many other views are possible, and most, if not all, can be downloadedd either as a CVS data file, PDF or Image for presentation and further data analysis.

For officers familiar with the earlier 'SAMIEEE' database, know that it has been phased out and is no longer accessable. Training on the new OU-Analytics system is on-going, with an introductory training recording at: https://ieee.webex.com/ieee/ldr.php?RCID=ecc5bbbd49b22fe87460c0a0b1df9b46, and a Power Point version of the training presentation available at:
https://mga.ieee.org/images/files/operations/SAMIEEE/ou_analytics_training.pptx
Access to the full OU-Analytics site is through the vTools website at: http://sites.ieee.org/vtools/

IEEE OU Analytics

Members and Affiliates - Dashboard

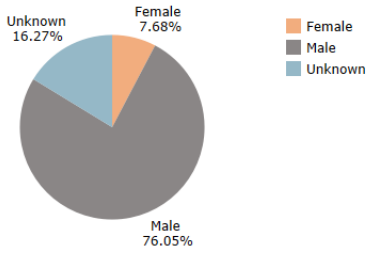
This dashboard provides interactive views for members, society affiliates, and participants by region, geographic council, section and subsection.
- Refine data through filters or click within a visualization to view results and details.
- Hover over a visualization to display a tooltip with statistical facts.

Region All | **Grade** All | **IEEE Status** Active

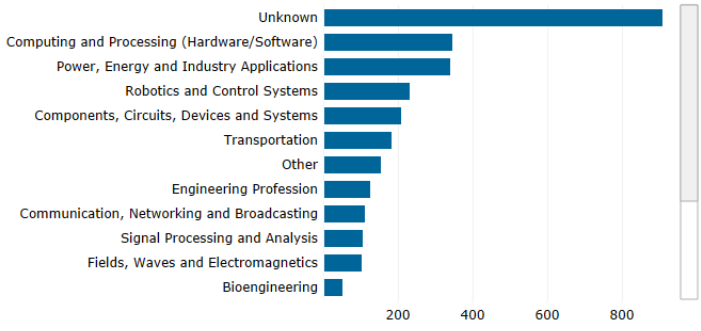
Count by Region and Grade

Region	Council	Section	Subsection	Grade Category	Grade	Total
R4	Region 4 - No Council	Southeastern Michigan Section		IEEE Grades	Member	1,600
					Graduate Student Member	367
					Senior Member	263
					Life Member	224
					Student Member	194
					Fellow	74
					Life Senior	65
					Life Fellow	49
					Associate Member	41
				Other Grades	Affiliate	67
					SA Member	4
				Total		2,948
			Total			2,948
		Total				2,948

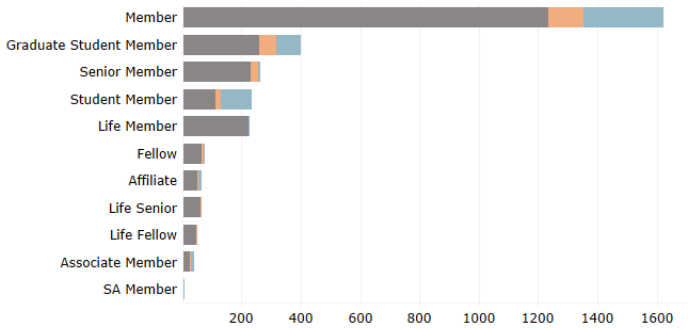
Count by Gender



Count by Technology Focus Area



Count by Grade and Gender



Note: Data displayed is based upon volunteer access privileges.
Data made available through this platform is IEEE Confidential Information. Please review the IEEE Guide to Classification of Documents policy for more information.

A short 'tutorial' will be offered at the July Executive Committee meeting. All members are welcome to attend. Please contact Eric George at: eric.george.us@ieee.org for details.

Spring Conference Report:

2018 SPRING SECTION CONFERENCE

The section held a very successful Spring Conference on Saturday, May 5, 2018 focused on "*Governmental Regulation & Engineering, Intersection of Policy & Advocacy*". The event was held at the Troy Community Center in Troy, Michigan with fifty people in attendance.

The event Keynote Speaker, Rodney Cole, Director of State Government Affairs at DTE Energy in Detroit, Michigan, offered several insights into state government energy policies from the industry viewpoint. Energetic speaker who readily engaged with the audience, Rodney encouraged dialog and spoke honestly about challenges in ensuring energy reliability and discussed DTE's investment in expanding renewable energy harvesting in Michigan.

Photo 1. *Rodney Cole, DTE Energy, speaks about Michigan energy policy*

The event also featured presentations by Erik Cipparone, ZF Group, who spoke about "Governmental Regulation and Cybersecurity," by Jennifer Dukarski, Butzel Long, who presented on "Regulations for Preserving Privacy in Biometrics," by Henrique Martins, Mahindra Automotive NA, who offered "An Overview of the Global Automotive Regulatory Framework and Certification Processes," and by Robert Neff, Sales and Marketing Insight, who addressed "Vehicle Communications to Facilitate Autonomous Vehicles."

Photo 2. *Jennifer Dukarski, Butzel Long, speaks about privacy policy in biometrics*

During the event, SEM presented end-of-the-year section awards, including honoring several members for teaching STEM classes at a community library and recognizing ZF Group for its continued support in advancing STEM among young people and providing community education. Irina Sullivan, Brooks Kushman, was honored for her leadership in organizing the event and her contributions to SEM Women in Engineering (WIE) Affinity Group. Irina co-organized the event with Amanda Mohan, ZF Group, whose project management skills were integral to the success of the conference.

Photo 3. *Henrique Martins, Mahindra, speaks about automotive certification*

Feedback from members and guests in attendance was overwhelmingly positive, including a survey statement from one of the attendees: "Awesome hosts, great job! Speakers were the BEST!" IEEE SEM leadership extends their sincere thanks to the entire planning committee for their tireless efforts in executing such a successful section conference.

Photo 4. *(left to right) Jonathan Schelberg, Kaitlin Bowen, and Anthony Doering receive recognition for providing community education*

Photo 5. *Erik Cipparone, ZF Group, presenting on regulations in cyberspace*

Photo 6. *ZF Group sponsored the event*

Photo 7. *ZF Group representatives receive company recognition award for their support of community outreach*

Photo 8. *Bob Neff presents an award to Irina Sullivan, Brooks Kushman, for her leadership in organizing the event*

Photo 9. *Left to right: Tia Twigg, Nevi Kaja, and Bob Neff mingle before the conference*

Photo 10. *Officers of Women in Engineering Affinity Group and co-organizers of the conference, Irina Sullivan (left) and Amanda Mohan, putting finishing touches on introductory remarks*

Photo 11. *Conference room view at the Troy Community Center*

Elections in 2018:

Following guidelines from the MGA (Member Geographic Association) of IEEE we let everyone know in our March newsletter that we plan to begin the nomination for officers in August, and hold this year's elections in October.
(The MGA Policy Manual requires a 6 Month lead time).

I want to remind us all of the schedule as planned by the Nominations & Appointments Committee:

- March: Notification of Timing
- **August:** Call for officer ballot names
- September: Build this year's Ballot
- October: Elections (Electronic)
- November: Compile Results
- December: Report Results

That last 'Report Results' is to the Section Executive Committee so that they may 'validate' the results.

Nominations for election to posts at the Section and each Geo-unit (Chapter and Affinity Group) will be opened in August. However, this is the time when we hope everyone devotes a small amount of time to consider how you might best 'fit' into the overall management structure of the Section and where you can contribute the most to helping the Section achieve its major goals.

If you are interested in exploring your options for participation as an Elected Officer in the Section, contact the current officer in that position and discuss the duties and functions of the office with them. They will be the people in the Section with the most up-to-date knowledge of the requirements.

Section Executive:
This year we will elect our Section Chair "Elect" and Section Vice-Chair "Elect" positions.

Geo-units:
As usual, all Geo-unit (Affinity-Group & Chapter) officers will stand for yearly elections.
These positions are:

Chair
Vice-Chair
Secretary
Treasurer.

All other positions in the Section are filled by appointment. This includes Committees and all non-elected positions in each of the Geo-units. In all cases, the elected 'Chair' of the organization is authorized to appoint any and all reporting positions to fill the needs and functions of that unit.

kw

WIE Ice Cream Social

Ice cream social WIE event, June 10, 2018

While more and more women are seen assuming leadership positions in the industry, the fact remains that women are under-represented in the fields of engineering; both in academia and in the profession. IEEE Women in Engineering (WIE) is one of the largest international professional organizations dedicated to promoting women engineers and scientists and inspiring girls around the world to follow their academic interests to a career in engineering.

This organization had organized an ice cream social today in the city of Ann Arbor, with the aim of connecting with fellow women who seek guidance in this professional journey. Today's event was full of energy and passion. We had a lively discussion about various issues faced by a woman in the industry such as workforce problems, stagnancy in professional career and many more. Ideas to help and improve the condition of women in professional career were also addressed. As a first step to tackle these problems, activities such as professional development talks, headshot opportunities, lunch-and-learn on various topics were proposed for this year. These events are often wonderful opportunities to meet and socialize with fellow engineers or inspire women in taking their own stand and developing themselves. In the world of maintaining professional connections, this platform also provides an opportunity to connect with professionals and keep one self-abreast with advances in this sector: both technical and otherwise.

More events are already planned for this summer. To join the IEEE WIE, register for the membership on https://www.ieee.org/membership/women/index.html. You can still attend the events and socialize even if you are not a WIE member. If you are interested in being a part of these events, you can see list of events on http://sites.ieee.org/sem/ or in SEM calendar and register for events.

EMC Training Classes

LEARN EMC

Become an EMC Expert!

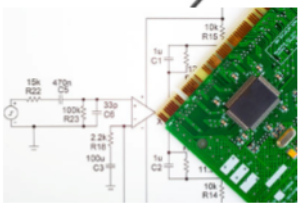
Professional EMC training in the Midwest

2018

Stoughton, Wisconsin
May 22-23 Electronic Systems Design for EMC Compliance
May 24 Advanced Printed Circuit Board Design for EMC

Detroit, Michigan
Sept 17-18 Design for Automotive EMC Compliance
Sept 19 Automotive Printed Circuit Board Layout
Sept 20 Power Electronics Design for Electromagnetic Compatibility

Stoughton, Wisconsin
Oct 15-16 Fundamentals of Electromagnetic Compatibility
Oct 17-18 Design for Guaranteed EMC Compliance



For Details & Registration, visit LearnEMC.com

10% discount for IEEE Members! Use Coupon IEEE-EMC at checkout.

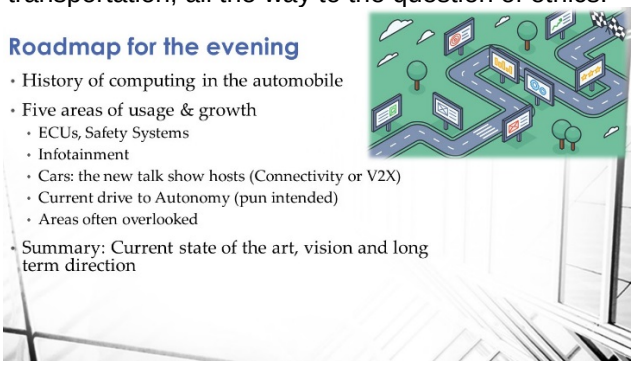
Register early, classes are expected to fill!

Prof. Todd Hubing, IEEE Fellow and past-president of the IEEE EMC Society, is the primary instructor for LearnEMC short courses. His unique approach to EMC education uses real applications to demonstrate important fundamental concepts.

Computer Society Update

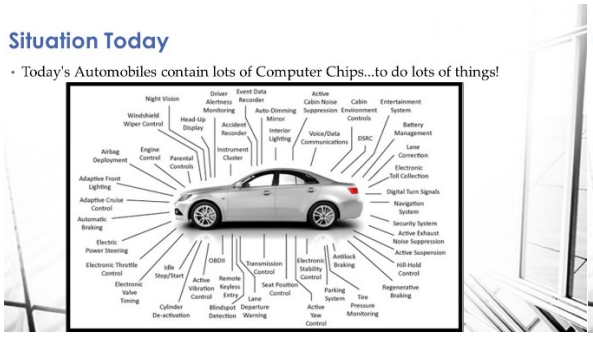
The Rise of Computing in Automotive DNA

On 5th of June, 2018, a joint event – Computer Society (Chapter 5) alongwith the Vehicular Tech Society (Chapter 2) was held on the topic of the increasing role & influence of computers in the modern day car. About 20+ people attended the event, which was hosted graciously by Butzel Long at their Bloomfield Hills office (many thanks to them!). An almost 75+ minute discourse which traced the beginning use of microprocessors in the early days of the ECU (Electronic/Engine Control Unit), now culminating in the use of very high powered computer devices for in-car Infotainment (Information or Internet + Enterntainment), use of multiple sensors for doing Automated Driving Assist Systems (ADAS) and the connected everything projects (V2X), all point to how the modern day car is fast becoming a "supercomputer" on wheels. Many of the questions from the audience reflected both fasciantion as well as growing concerns on the rapid application of technology to our favorite mode of transportation, all the way to the question of ethics.



What is clear is that many new to the scene technology companies are playing (or rather exerting) a role in this trasnformation, instead of the traditional car companies. This is both good and bad. Sometimes the tech companies may have to learn lessons already faced by the traditional companies, which may not be so good for the consumer or general public. However, progress is inevitable and facinating at the same time. A number of areas covered were the 5 areas of usage & growth (in the order listed):

- ✓ ECUs, Safety Systems
- ✓ Infotainment
- ✓ Cars: the new talk show hosts (Connectivity or V2X)
- ✓ Current drive to Autonomy (pun intended)
- ✓ Areas often overlooked



Finally in summary, the current state of the art was shared, as well as what would be an ideal vision and long term direction.

Sharan Kalwani
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Vice-Chair, Chapter 5 (Computer Society)

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Connected and Automated Vehicles: History, Development, M-City, and Future outlook

ABSTRACT

M-City is a research center established 3 years ago at the University of Michigan, which focuses on the research and early deployment of Connected and Automated Vehicles (CAVs). A unique feature of M-City is the development of living laboratories, and their use as tools for research and education. In this talk Dr Peng will discuss current status of CAVs, major activities at M-City, and their future challenges, including their societal impacts.

WHERE

Transportation Research Institute Library
University of Michigan M-City Campus
2901 Baxter Road, Ann Arbor, Michigan
www.umtri.umich.edu/who-we-are/visitors-umtri

WHEN

Thursday October 18, 2018
6:00 PM to 8:00PM

The event is sponsor by M-city of the University of Michigan at Ann Arbor. Admission is free, but ***registration is required*** for an accurate food head count. Pizza and drinks to be provided by M-city. This is a great opportunity to network and meet peers in the Robotics field! Register at https://events.vtools.ieee.org/m/174406

SPEAKER BIOGRAPHY

Dr Huei Peng is the Roger L. McCarthy Professor of Mechanical Engineering at the University of Michigan and currently serves as the Director of the University of Michigan M-City. Huei Peng received his Ph.D. in Mechanical Engineering from the University of California, Berkeley in 1992. His research interests include adaptive control and optimal control, with emphasis on their applications to vehicular and transportation systems. His current research focuses include design and control of electrified vehicles and connected/automated vehicles.

In the last 10 years, he has been involved in the design of several military and civilian concept vehicles, including FTTS, FMTV, Eaton/Fedex, and Super-HUMMWV—for both electric and hydraulic hybrid concepts. He served as the US Director of the DOE sponsored Clean Energy Research Center—Clean Vehicle Consortium, which supports more than 30 research projects related to the development of clean vehicles in the US and in China.

Ham Radio Classes

The first announcement of Amateur Radio Classes for the fall came to us from Motor City Radio Club, and we expect more to be announced as we near the fall. If you always wanted to become a "Ham", these free classes are both fun and educational. Enjoy!

Makers Faire 2018

Hundreds of makers from across the globe are bringing their wares, ideas, inventions and solutions to Henry Ford Museum of American Innovation this weekend for the eighth annual Maker Faire Detroit.

The Maker Faire, taking place July 28-29, is a family-friendly showcase of invention, creativity and resourcefulness, and celebration of the Maker Movement. It's a place where people of all ages and backgrounds gather together to show what they are making and share what they are learning.

The Midwest's largest two-day festival features robots, rockets, virtual reality, 3D printing, handmade crafts, life-size sculptures, hands-on activities and demonstrations.

A shuttle service sponsored by the University of Michigan-Dearborn will also be available at its Fairlane campus, 1900 Hubbard Drive, in Dearborn.

Tickets for Maker Faire Detroit are $28 for ages 12 to 61; $19 for ages 3 to 11 and $26 for ages 62 and older. Children ages two and younger get in free. Members of The Henry Ford receive 50 percent off admission. Visit makerfairedetroit.com for more details.

The Ford Amateur Radio League will have a Special Event Station at the Faire this year.
Listen for N8M from 1300Z-2000Z on both days of the Faire, July 28th and 29th:

10 - 28.400 Ssb. 28.170 cw
20 - 14.250 Ssb 14.130 cw
40 - 7.270 Ssb 7.100 cw
80 - 3.900 Ssb 3.55 cw.
QSL: FARL, P.O. Box 2711, Dearborn, MI 48123. QSL Cards will go out as postcards.

More than 400 makers will bring their wares, ideas, inventions and solutions to this two-day festival offering everything from robots, flame shooters and animatronics to solar-powered mechanical sculptures and fashionable finds.
Come to The Henry Ford, roll up your sleeves, and make something.

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 “Computer”	(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,
2017-2018

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.

XXXXXXXXXXXXXXXXXXX

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/eaa/eaa-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.

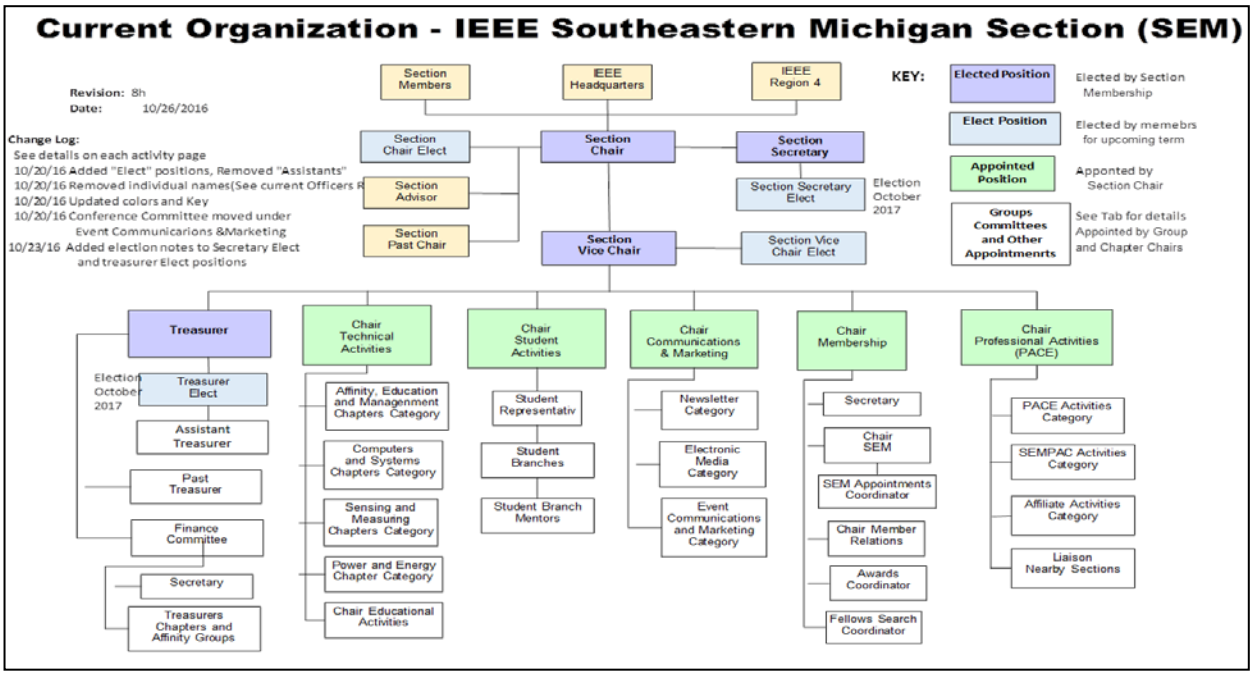
However, members of the section may have multiple technical interests and would like to have meeting information of other chapters. In order to communicate the meeting dates of all the chapters, affinity groups etc., to our members to facilitate their attendance, leaders of the groups are requested to 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 Asst. Secretary

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.

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

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

Eric George
SEM Assistant 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.
(*Which we all understand is 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 Assistant 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
jrwwoodyard@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
jrwwoodyard@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	

Wavelengths Annual Publication Plan for Personal Profiles

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	

IEEE Southeastern Michigan
Electrical and Electronic Engineers Creating Our Future

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

Standing Committees:

Section Adviser
Don Bramlett

Chair Communications & Marketing
Ravi Nigam

Chair Educational Activities

Chair Finance
Nevrus Kaja

Chair Membership

Chair Nominations & Appointments
Kimball Williams

Chair Professional Activities (PACE)
Sharan Kalwani

Chair Student Activities
Mel Chi

Student Representative

Chair Technical Activities
Kimball Williams

IEEE Southeastern Michigan

Electrical and Electronic Engineers Creating Our Future

IEEE Southeastern Michigan

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

Leadership Meetings

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

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