IEEE Southeastern Michigan
Electrical and Electronic Engineers Creating Our Future

Volume 57 – Issue 12

Contents

Section Chair's Message

Budget Process:
The Proposed 2018 Section Budget was distributed at the last ExCom meeting and Chapters, Affinity Groups and Committee Chairmen are asked to look it over at provide input. If you were granted a budget amount last year, you must adjust and justify what you expect for income and expenses for 2018. Please advise myself, Nevrus Kaja or Xinhua Xiao as soon as possible.

My goal is to have an almost final version of the 2018 Budget available for ExCom examination at the December ExCom meeting on December 7.

Elections:
Elections for 2018 are complete. The Nominations and Appointments Committee is currently verifying results. Eligibility for winning write-in candidates is taking place. Tie votes are handled with conversations between the candidates. The Committee plans to deliver a preliminary 2018 Organizational Roster to the ExCom at least one week before the December meeting so that the results can be reviewed by all the Officers.

Windsor Section:
I attended the Annual General Meeting of our neighboring Windsor Section on November 28, 2017 at the invitation of Dr. Mohammad Luiken (Section Chair) and Esrafil Jedari (Section Vice Chair). Also present was Dr. Maike Luiken (IEEE Canada President Elect, Region 7 Director Elect).

Windsor and Essex County were part of our Southeastern Michigan Section until April 2014 when, with the Cooperation of Region 4, Region 7 and our Section, they joined Region 7 (Canada) and became Windsor Section. They started with 98 members, have grown to 232 members and have held 25 technical learning meetings so far. I emphasized they were all welcome to our events and we would be happy to publicize their events.

Windsor Section is not only our neighboring Section, but they are like our child that has grown up and is now on their own. Congratulations Windsor Section we are very proud of you.

Holidays:
May I wish all of you a happy time of year and a future of Peace on Earth. In many ways, Professionally, Personally and through IEEE, we are creating the future of humanity.

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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James Riess, j.riess@ieee.org

EIT Conferences Founding General Chair
Hossein Mousavinezhad, Idaho State University
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Daniel Aloi, aloi@oakland.edu
Subra Ganesan, ganesan@oakland.edu

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Osamah Rawashde

Finance Chair
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Professional Development Program Chairs
Sharan Kalwani, Tarek Ladhiri

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Bob Evanich, b.evanich@ieee.org

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
- 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. Aloi or Dr. Mousavinezhad

Chapter V 2017 Review

A retrospective review of the various activities for the IEEE SEM Computer Society in 2017

History The Computer Society Chapter was the fifth technical chapter formed in Southeastern Michigan, and has been known as "Chapter V" since then. The Chapter in its present form was officially created along with the local section in 1963

Goal: The Society strives to advance the theory, practice, and application of Computer and Information Processing Science and Technology and maintains a high professional standing among its members. The Society promotes cooperation and exchange of technical information among its members and to this end holds meetings for the presentation and discussion of technical papers, publishes technical journals, and through its organization and other appropriate means provides for the needs of its members.

About the Computer Society itself: The IEEE Computer Society maintains local chapters in dozens of cities around the world. The Southeastern Michigan chapter is one of the largest. Interestingly, the Chapter covers ten counties in Southeastern Michigan.

Chapter 2017 Officers

- **Chair:** Subramanian Ganesan
- **Vice-Chair:** Sharan Kalwani
- **Vice-Chair:** Ashok Prajapati
- **Automotive Liaison:** Ramesh Sethu
- **Secretary:** Rama Gottumukkula
- **Industrial Liaison:** Dheeraj Patel.

Overall Chapter 5 Statistics for 2017

- ✓ Average Technical Meeting Attendees: **41**
- ✓ Average Technical Meeting Guests: **27**
- ✓ #L31 – Technical Meetings held: **13**
- ✓ # L31 – Admin Meetings conducted: **12**
- ✓ # L31 – Professional Sessions (done jointly with other chapters): **8**
- ✓ # L31 – Others (Social Activity): **1**

A quick summary of the various meetings, the invited speakers and some content of the events/talks is shared below.

Cloud Platform Considerations for Future Automotive Product Development

Held on 15th February 2017 from 6 – 7:30 PM at Oakland University

Speaker Bill Bone, VP Software Development at CloudSAFE
Speaker Bio Bill is currently VP, Product Development, of CloudSAFE in Southfield, MI. He leads the Product management functions for technical marketing, customer innovation, portfolio management, and NPDI process. Previously, he was CTO, Automotive, for Aras Corp. Prior to this Bill was Director, and Global Infrastructure Strategy for GM. Bill previously worked for HP/EDS as an HP Fellow and Chief Technologist for the Manufacturing, Engineering, and Life Sciences industries. He is active in the ACM, IEEE, SNIA, and SME professional organizations.

A Transition from Gaming to Autonomous Vehicle & Cancer Research

Held on 15th March 2017 from 6 – 7:30 PM at Oakland University

Speaker Ty McKercher, Director of Architecture & Engineering at NVIDIA
Speaker Bio Over the last 9 Years, Ty has integrated NVIDIA technologies to help transform customer workflows. Ty enjoys solving challenging customer problems that intersect HPC, Visualization, and Virtualization. Lately, Ty is helping customers' measure value from emerging technology evaluations in the field of Artificial Intelligence using Deep Neural Networks. Ty is leading a team of NVIDIA Solution Architects for DGX-1 server deployments, and has co-authored a CUDA programming book, plus a chapter in an OpenACC compiler directives book.

Automotive Functional Safety an ISO 26262 perspective

Held on 11th April 2017 from 6 – 8 PM at Lawrence Tech University

Speaker Rami Debouk, GM R&D

Speaker Bio Rami Debouk is a Staff Researcher at General Motors Global R&D Center in Warren, Michigan, USA which he joined in 2000 after receiving his Ph.D. in Electrical Engineering and Computer Science from the University of Michigan, Ann Arbor. His research interests are in system safety methods and techniques, system of systems, failure diagnosis, and fault tolerant systems. Rami represents the USA as a Technical Expert in the development of the functional safety – road vehicles standard ISO 26262. He was named the "Engineer of the Year" by the International System Safety Society in 2009 and was the recipient of the 2014 SAE/InterRegs Standards and Regulations Award for his involvement in developing and implementing safety processes and standards since 2001.

IEEE SEM Spring Conference on IOT / Smart Living

Held on 4th May 2017 from 4 – 9 PM at John Lewis Conference Center, Warren, MI

Chapter Nominated Speaker

Sharan Kalwani – Latest trends in the computing landscape: technologies we can expect

Innovative Design Challenges for Big Data Architectures

Held on 10th May 2017 from 6 – 8 PM at University of Michigan, Dearborn, MI

Speaker Brian Finley, Lenovo

Speaker Bio Brian Finley is the Principal Architect for Big Data Solutions at Lenovo. Brian is an Open Group Certified Distinguished IT Specialist and holds several other technical certifications, writes articles for industry publications, is the creator of SystemImager (a popular Linux mass-deployment software), is an xCAT (cluster management software) developer, and has created and/or contributed to several other open source projects. With 25 years of IT experience across numerous industries, he has a diverse background covering a wide variety of technologies and roles --everything from terminating Ethernet cables to running his own company, Bald Guy Software. Mr. Finley lives in Dallas, Texas, with his wife, four children, one small dog, and a toad.

Internet Security Awareness

Held on 15th July 2017 from 9 – 12 PM at Oakland University, Rochester, MI

Speaker Sharan Kalwani

Speaker Bio Sharan Kalwani is a seasoned scientific, technical and computing professional. Sharan has spent over 20+ years implementing many new and pioneering technologies from operating systems (*nix) , high performance computing (Cray, SGI, compute clusters), engineering applications (CAE simulations), optimization, networking (TCP/IP, Infiniband), operations (ITIL, ITSM), scientific domain (Bioinformatics) and project management. Sharan looks to increase the professional approach of every individual he interacts with. He enjoys teaching, contributing to STEM activities and publishing. He is a senior member of IEEE, ACM, Emeritus member of Michigan!/usr/group, and leads the SIG-Linux section of SEMCO. He is currently the Chair of the IEEE SE Michigan Education Society Chapter for 2017. He has also a published author on the topic: "UNIX and TCP/IP network security."

About the Seminar: Securing your computer and yourself despite the advances in computing technology, the average person, remains vulnerable to all sorts of security threats. In this wide ranging and comprehensive seminar, material is presented that will give you a number of steps you can do to improve the security of your computer {that includes PC, tablet, phone, etc.} at the same time also boosting your privacy so that the Internet is a little bit less of the "Wild West" experience. Some of the topics that presented are:

- Ransomware
- Viruses
- Phishing Scams
- Privacy settings on websites and social media forums (such as Linkedin.com)
- Identity theft and

- Other types of malware
- General Tools (and reliable resources) one can use to assist you

Introduction to Internet of Things (IoT)

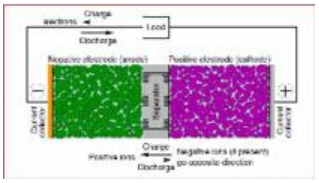
Held on 29th July 2017 from 10 – 1:45 PM at Oakland University, Rochester, MI

About the Seminar The Internet of Things (IoT) is the inter-networking of physical devices, vehicles (also referred to as "connected devices" and "smart devices"), buildings, and other items—embedded with electronics, software, sensors, actuators, and network connectivity that enable these objects to collect and exchange data. IoT is viewed as "the infrastructure of the information society." IoT allows objects to be sensed or controlled remotely across existing network infrastructure, creating opportunities for more direct integration of the physical world into computer-based systems, and resulting in improved efficiency, accuracy, and economic benefit in addition to reduced human intervention. IoT is being planned for power plants, smart homes, intelligent transportation and smart cities. Each thing is uniquely identifiable through its embedded computing system but is able to interoperate within the existing Internet infrastructure. Experts estimate that the IoT will consist of almost 50 billion objects by 2020.
State of Opportunity: Companies are challenged to find the people with skills in order to develop, maintain and expand IoT at all levels and cross sections.
Key Target/Objective: This entire seminar is designed to enable folks to become well informed on the higher level technical aspects of IoT, so they can step into this world with full confidence and the right perspective.

Model Predictive Control Using Physics-Based Models for Advanced Battery Management

Held on 19th September 2017 from 6:30 – 8 PM at Altair World HQ, Troy, MI

Speaker Scott Trimboli, University of Colorado, Colorado Springs
Speaker Bio Professor Trimboli is Assistant Professor of Electrical and Computer Engineering at the University of Colorado, Colorado Springs (UCCS) and is former Director of the Center for Space Studies (CSS) in the National Institute of Space, Science and Security Centers (NISSSC). His research is conducted in collaboration with Prof. Gregory Plett where the focus is on development of control strategies for the management of high-capacity battery systems such as found in electric vehicles. He is currently UCCS principal investigator (PI) of a multi-year program with the Office of Naval Research (ONR) headed by Utah State University.



A Common Vision for IoT, 5G and Virtualization by 2020?

Held on 10th October 2017 from 6:30 – 8 PM at Oakland University, Rochester, MI

Speaker Fawzi Behmann, Vice-Chair, IEEE NA Communications Society
Speaker Bio Fawzi is a senior member of IEEE, and is currently the ComSoc NA vice chair, CTS Conference & PACE Chair, and ComSoc & SP and CS & EMBS Joint Austin chapter chair. He is currently serving as Conference chair for IEEE Central and organized sessions and IoT workshops at BHI, Himss, Smart Tech, and in Africa Uganda and Kenya. Fawzi holds a Bachelor of Science with honors and distinction from Concordia University, Montreal; Masters in Computer Science from the University of Waterloo, Ontario and Executive MBA from Queen's University, Ontario Canada.

Embedded System Workshop 2017

Held on 21st October 2017 from 8:30 – 4:30 PM at Oakland University, Rochester, MI

The Embedded Systems Workshop was held on October 21st, 2017 at 190 Hannah Hall on the Oakland University campus. This was the 15th year that this event has been continuously held and hosted by Subra Ganesan, Professor at Oakland University's Department of Electrical & Computer Engineering.

Attendees of the 2017 ESW event

This in itself is rather remarkable, as the event has been largely pioneered and stewardship provided by Subra on his own (of course with support of various sponsors) over the past 14 years. This year he had a lot of help from a much larger organizing committee, drawn from the Computer Society local chapter (Chapter V), which consisted of Sharan Kalwani (Vice Chair), Ashok Prajapati (Vice Chair), Ramesh Sethu (Automotive Liaison), Dheeraj Patel (Industrial Liaison), Rama Gottumukkula (Secretary) and Benjamin Sweet (Adjunct Faculty at LTU). The planning for this began from July 2017 onwards and many regular face to face and online meetings were held, besides using a number of technology tools (such as the IEEE G Suite) to assist in making things run smoothly, on time and on budget. ESW 2017 had over 220 folks register right up to the last day (October 20th), including a few walk-ins as well. The event had 9 major sponsors, chief among them were **NVIDIA, Intrepid Control Systems, Vector CANTech, ETAS, Beningo Embedded Group, Infineon, Design for Reliability (DfR) Solutions, Image Mining LLC** and **DataSwing LLC**. The organizers were all on site at 7am, setting things up and everything went 100% according to schedule, including breaks, lunch and conclusion at 4:30PM, with clean up and tear down accomplished by 5 PM!

ESW 2017 Registration Desk & Chapter V membership desk

Chapter V also distributed abundant literature on the benefits of becoming an IEEE member, including membership forms and several IEEE as well as Computer Society swag, to help gain mind share, of potential volunteers and future engineers & leaders.

Recent Advances in High Performance Computing

Held on 24th October 2017 from 7 – 8 PM at Oakland University, Rochester, MI

Speaker Sharan Kalwani

About the Seminar In the last few years, many advances have been made in the field of High Performance Computing. This talk will highlight many of these sometimes diverse and seemingly different technology changes, trace them back to their origins and show how HPC is pushing the envelope on many fronts, resulting in the evolution (and occasionally revolution) in computing techniques and hardware choices. Some of the topics we hope to touch upon will be:

- Current work going on for ExaScale Architectures
- Silicon Roadmaps
- Challenges in building & managing large HPC systems
- The gap between HPC capability and software that can exploit it
- Innovative use of HPC in present day society.

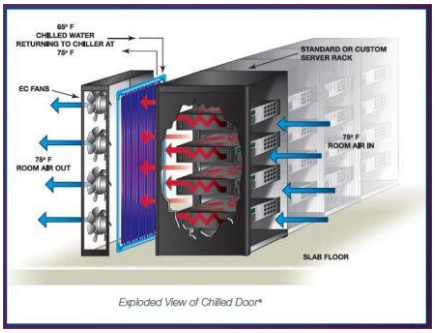
"We couldn't afford faster computers, so we just made them *sound* faster."

Recent Advances in High Density Cooling for Compute Servers

Held on 24th October 2017 from 6 – 7 PM at Oakland University, Rochester, MI

Speaker Kevin Werely, Regional Director, Motivair ChilledDoor® Division

Speaker Bio Kevin has more than 13 years of experience in the IT industry primarily focused on data center infrastructure and emerging technologies. Prior to joining Motivair he was part of a strategic initiative focused on discovering, developing, and launching emerging technologies to the IT channel. Kevin has spent the last 3 years focused on High Performance Computing and the cooling challenges these systems present for data centers and HPC users that deploy them



Exploded View of Chilled Door®

About the Seminar The constant advances in computer technology and the growing adoption of these types of systems are allowing users to achieve new heights with their IT including the use of big data, artificial intelligence, and internet of things, high-frequency trading, oil & gas, research and web scale applications. This rapid rise in adoption has overtaken most colocation and enterprise facilities' ability to cool these often-densified server racks on a large scale. While many facilities publish the ability to provide cooling for higher than standard server racks on a watts per square foot basis, many if not all are unable to manage newer computer systems at that density on a large scale. Colocation, enterprise, and all other data centers must consider how these new computers will interact within the environment they are placed in, educate themselves on the various solutions available to cool these dense servers and build cooling infrastructure that can support the latest computers being used today and in the future. Some of the topics we hope to touch upon will be:

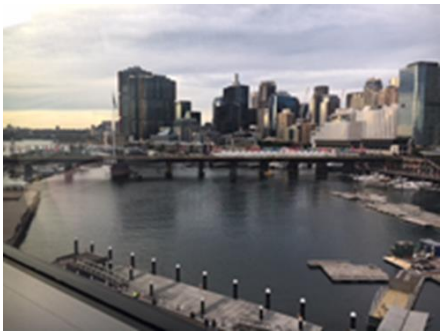
- High density cooling solutions market: What's available today and where are we headed
- Air vs. water – when is air not enough and why?
- Data center facilities management and how to bridge the gap to get things done right
- The importance of cooling flexibility in today's data centers.

Subramanian Ganesan, Sharan Kalwani, Ashok Prajapati, Ramesh Sethu, Rama Gottumukkula & Dheeraj Patel

SE Michigan Computer Society Chapter 2017

Sections Congress

Southeastern Michigan Section, in conjunction with Region 4, was fortunate to be able to support four of our officers to attend Sections Congress-2017 in Sydney Australia, August 11 through 13, 2017. Below we present their individual views and impressions of both the Congress and the "Land Down Under"…



Down Under

From Bob Neff: Length and Breadth of IEEE:

IEEE Statistics were quoted by many speakers. More than 423,000 members in 160 countries, 334 Sections in 10 geographic Regions, 2116 Chapters affiliated with 39 Societies, Over 13,000 active standards and over 600 in development: http://www.ieee.org/about/today/at_a_glance.html?WT.mc_id=ab_lp_qui

Sydney Opera House

MOVE disaster relief truck – IEEE sponsored disaster responder coordinates with Red Cross to provide communications and power. This is located in USA but more trucks being considered for other countries. https://www.ieeefoundation.org/MOVE

Region 4 Specific:

Ad-Hoc Committees: Members in Transition, Unit Engagement (Young Professionals, Section Meetings) , Member Engagement (Promoting Technical activities such as Big Data, Electrification are looking for Industry involvement)

Bob & Hat

Section Specific:

- Technology Topics: Sort SAMIEEE members data base for technology interests, for employers, for occupation
- Attended session on Conference Financing where it was recommended that a Concentration Bank Account be set up in advance of large conference events. Plan 3 months to set up an account.
- Technical Co-Sponsored Events are partnerships with other technical organizations. Section or Society must approve. Cannot use IEEE in name of conference but may use logo in advertising. Can say "All papers will be submitted to Xplore for consideration to be published." Cannot say "papers will be published". TCS fee is $1000 + $15 per paper submitted but this is currently being absorbed by MGA (policy may change).

Technical Observations:

- Dr. Alan Finkel, keynote speaker and Australia's Chief Scientist, presented an inspirational Artificial Intelligence vs. Human Attributes talk about how unique humans are and why robots can't completely duplicate humans.
- The IEEE Global Initiative for Ethical Considerations in Artificial Intelligence and Autonomous Systems has published "Ethically Aligned Design" to emphasize ethical engineering decisions. https://standards.ieee.org/develop/indconn/ec/autonomous_systems.html
- IEEE Standards participation attracts members and provides industry networking. Membership in IEEE is not requires for Standards committee work but is encouraged.
- Attended sessions on 802.11 WiFi, 5G cellular communications, cyber security, artificial intelligence and vehicle autonomy and ethics in engineering.

It's Real!

Networking and Connections:

- Candidates for IEEE President presented their platforms and answered questions at the Region 4 meeting. http://theinstitute.ieee.org/resources/election/meet-the-candidates-for-2018-ieee-presidentelect

Region 4 Attendees

Other:

- Australians not only drive on the left side of the road, they walk down sidewalks and hallways that way too.
- Save your upscale shopping for the Duty Free "Mall" at the Sydney Airport International Terminal
- The most valuable coins are the smallest, except 5 cent coins.
- Glossary:
  - Brekkie == Breakfast
  - Nappy == Diaper

Dr Singh Award

From Nevrus Kaja:

IEEE is a very important and crucial organization for advancing technology for humanity, but with the recent changes in customer behaviors and the new millennials workforce it needs to change and adopt to provide a higher and clearer value for its membership. Vision and mission remain critical but take a slightly different approach to achieve from what they were a long while ago.

Region 4, although an important organizational unit is a non-engaged and rigid body to my opinion. My observation is that some of the volunteers really do not understand the members' needs and their activities are somehow misaligned and disconnected with the membership. More work and revitalization within the region is a must.

From the networking I saw that our section is one of the most active and controlled. While there is still quite a bit of work and improvement is always needed, some of our practices are worth sharing with others. I also observed that some other sections paid better attention to the YP and Industry relationships and this helped them grow.

IEEE Standards has done, continues to do, and will do a great job. I personally see this as an important part of IEEE and we should connect better at the section level with the working groups.

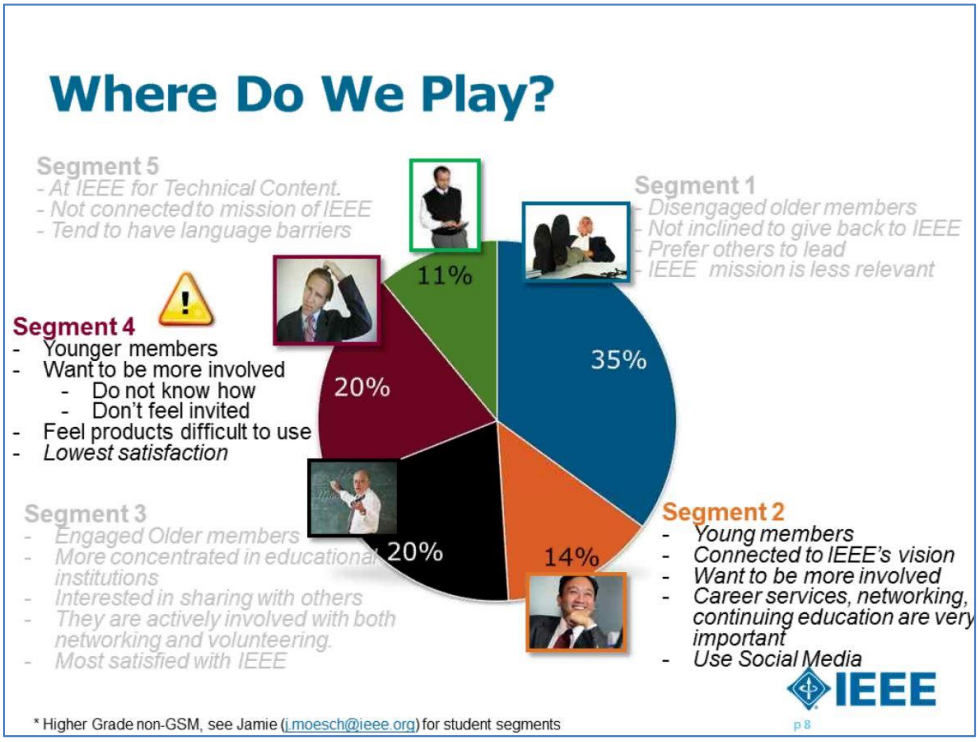
I connected with quite a few volunteers from Region 8 and 10. My questions were always regarding the key initiatives that those sections are taking that impacts membership growth and activity. IEEE value seems to be higher abroad.

From David Mindham:

I think the most interesting take away for me was the different membership demographics of the Regions. In the fastest growing regions, membership growth is largely driven by student memberships.

These members are mostly joining to put IEEE on their resumes and leave quickly after becoming working professionals.

We also struggle with student retention for similar reasons, but have a lot less community at the student levels. The attached chart is very telling for me. Only 54% of IEEE members are engaged in IEEE activities.



Nevi's comments: Region 4 is bureaucratic and full of cronyism. The volunteers are not very tied to the mission of IEEE. Several are not engineers and seem to be engaged in the Region activities solely for networking and personal gain. We'll see very little activity out of the group (with no accountability). I should mention there are very large exceptions to this, but in general I think a management shakeup is needed. It'd be interesting to brainstorm within SEM on how to encourage changes within the Region Governance. (I think a good example of this would be that there was at least 3 members of Southeast Michigan Section attending a conference on how to improve Section Activities that haven't been to a Section meeting in 3+ years.)

I completely agree with Nevrus. I was proud of the effort of the volunteers in Southeastern Michigan and the efforts they put forth. I spoke with pride on several of the initiatives we've done here. We could definitely improve things, but I think generally we are well run and much more active than other groups.

I was interested in hearing more about the new areas in which IEEE is expanding. I think it would be interesting to hold a series of events on "emerging areas with IEEE." I think we could get some support from these groups as they try to get their feet under them.

The most interesting thing I learned from networking was that other sections are actively seeking and soliciting for large money-making conferences. With the core of volunteers we have within our Section plus competitive prices on conference facilities, it'd be interesting to try and do this within our section. I'll draft a proposal for the ExCom.

From Robert Adams:
Sections Congress 2017 was my first exposure to IEEE units larger than the Southeastern Michigan section. At the congress, I learned about struggles in various other sections – such as a South American country where there are large distances between cities and countries like Japan where the IEEE contains vastly more academics than industry professionals.

It was my first exposure to anything at the Region 4 level, which I learned is organized into large, medium, and small sections. I picked up some useful tips from a couple of West Coast sections such as charging $5 for meetings, refundable when the attendee signs in so a more accurate headcount can be maintained. I also took a recommendation from someone to use our membership info (SAMIEEE) to try and figure out the most central location for events.

On the technical society level, it seems like the worldwide IEEE is similar to our local section with certain technical societies being much more active than others. Of the 39 societies listed on ieee.org, only a handful had official presences at the congress. For the worldwide organization, it also seemed like Young Professionals, Industry engagement, and membership retention were the major issues.

The events I went to around these topics were far better attended than the couple of technical event sessions I attended. Overall, it was a very useful event for gathering intelligence on the global IEEE volunteer network and I am very grateful to SEM for sending me.

STEM in SEM:

A STEM Program has been developed by members of the IEEE SEM Education Committee with the goal of fostering an interest in STEM areas through instruction and hands-on activities. The program currently consists of a cycle of three classes offered for students ages x through y at a local library in the evenings. The program was offered this past year at the Dearborn Heights Caroline Kennedy Library; the last class was on July 10, 2017. The success of the program is due to the efforts of IEEE SEM volunteers, library staff and the generous donation from **ZF Cares**, the humanitarian arm of ZF Corporation. The donation was used to improve the classroom equipment used in the hands-on activities of the classes offered this past year.

Current Class Cycle
The current cycle of three classes that begin in the fall and run through spring are:

Observation and Measurement
The fall class is for our youngest students. It emphasizes hands-on activities and covers the following topics:

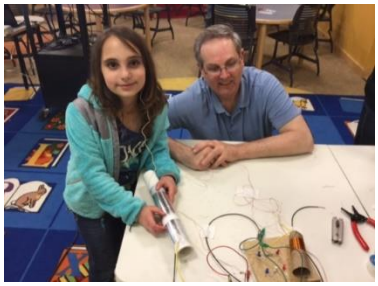
- measurement of weight and dimensions of various solid objects and calculation of their area, volume, mass and density,
- determination of measurement limitations and variability,
- measurement of forces, velocity, acceleration and gravity,
- illustration and discussion of differences between measurements and subjective observations, and
- discussion of the role of estimates, measurements and calculations in STEM.

The class concludes with stating and verifying Archimedes' principle.

Fundamentals of Electricity
The topics and experiments for the winter class are:

- The Bohr model of the atom, periodic table of the chemical elements and the basics of electricity,
- experiments using balloons and static electrical charge to demonstrate like charges attract and opposite charges repel,
- principles of duality, reciprocity and symmetry will be introduced (i.e. Yin and Yang),
- Kirkoff's laws and the relationships between voltage (V), current (I) and resistance (R) will be verified using digital multimeters (DMM) and circuits on proto boards assembled by students,
- magnetism produced by solid materials, constant and alternating currents in circuits will be demonstrated, and
- signal frequency and wavelength will be introduced and demonstrated.

The class concludes with students building a simple diode AM receiver and learning about 'tuned circuits.'



STEM in SEM -2

Computer Programming and Applications

Arduino micro-computers, expansion proto boards, programs, and library supplied laptop personal computers will be used to:

- learn to write, edit, and run simple programs using the skills learned in the 'Fundamentals of Electricity' class,
- integrate 'real world' devices and programs to carry out measurements and control objects, and
- carry out activities that include turning lights on and off, displaying messages on a small screen, sensing room temperature, using sound to measure distances to nearby objects and setting up a remote control switch.

The instructor will help students develop skills and confidence in the use of computers, programs, and small micro-control systems and to apply them to a variety of applications.

STEM in SEM – 3

Lessons Learned

Lessons were learned by the team made up of IEEE SEM volunteers and library staff during planning and offering classes this past year. The long term plan of the IEEE SEM Education Committee is to offer the program through other libraries in the SEM area. The three lessons learned this past year may prove useful to teams as they adapt the program to better serve the community.

1st Lesson Learned-Class Scheduling: Probably the most important lesson learned deals with class scheduling. The team needs to know the dates for community activities, holidays, religious celebrations etc. The activities may result in closure of a library or the absence of students. This past year, classes were scheduled during Ramadan and the majority of students were absent for the final weeks of the class. Hence, the team should develop a class schedule in concert with members of the community that does not conflict with community activities.

2nd Lesson Learned- Class Size and Content: It is important to consider the level of the material to be taught and the complexity of the hands-on activities in determining the size of classes. If the concepts are fairly simple and the hands-on activities are easy, class size may not be an important consideration. However, as concepts and hands-on activities become more complicated smaller student to instructor ratios should be considered.

3rd Lesson Learned- Class Size and Number of Teaching Assistants: In classes where it is expected that the concepts and hands-on activities will be challenging, consider adding teaching assistants to the class. The assistants could be volunteers that would not have the responsibility of teaching the class; they would work with students in small groups when students struggle for the first time with learning a new concept or skill. In the ideal case, the student to instructor ratio of 1:1 would make it possible for the student to be guided through learning and mastering the more complicated concepts and skills.

Moving Forward:

Taking what we have learned thus far in the STEM Program and moving forward will require dealing with new challenges. It is planned to offer the program through other libraries in the SEM area in order to engage more students than are available at one library. Strong working relationships with other library staff and managements must be developed. More teams must be recruited and funding raised for additional equipment and materials. Partnerships must be developed with other groups, e.g., the **Amateur Radio Relay League (ARRL)** clubs, astronomy organizations, rock and mineral groups etc.

A multi-step program is proposed to engage more students in STEM topics:

1. Science Kits for Public Libraries (SKPL) Program John Zulaski (johnzulaski@ieee.org), a member of the IEEE Chicago Section, first proposed using libraries for STEM programs. He has proposed using science kits 'sponsored by IEEE' that demonstrate different aspects of STEM. It would be advantageous for our section to participate in the SKPL Program and distribute kits to libraries as a way of developing a working relationship with them and with the goal of enlisting the library in the STEM Program. The kits would become the property of the library to be used 'on site' in the libraries, in the same way as other 'in house' library materials.

ARRL 100 YEARS

STEM in SEM – 4:

2. Conduct Science Exposure Events at Libraries IEEE volunteers could serve as instructors for groups of students in a SKPL Program on a given day or evening and guide them on the use of SKPL kits and provide sources for additional kit information. Additionally, the STEM Program could be described during the event and materials distributed describing the program. Offering events will require working with library staff and can serve as the first step in exploring the possibilities for the library's selection for the STEM Program.

3. Form Library Teaching Teams. The team building process should begin when a library has received SPKL kits and agreed to sponsor the STEM Program. Volunteers from IEEE SEM and the library staff must be recruited and begin the process of the team working together to obtain class materials, plan the class schedule, assign instructors, obtain a classroom, and develop the class syllabus. These activities should serve as a catalyst to motivate and bind together the team to solve the challenges that may arise during the execution of the STEM Program. A strong component of past teams has been student participation from local IEEE University Student Branches and HKN Chapters. The STEM Program gives university students valuable experience as well as provides the program with much needed teaching assistants. More emphasis should be placed on involving university students in the program.

4. Budget and Funding Expanding the STEM Program to other libraries will require additional funding to ensure each library has the equipment and supplies for the learning that results from hands-on activities. The funding must include the cost for the maintenance of equipment and purchasing supplies for libraries that have already offered the program, as well for purchasing new equipment and supplies for libraries offering the program for the first time. Hence, a budget must be developed and funding obtained for offering the program at each library. Initial funding for the SKPL Program will be relatively modest while funding for an expanded STEM Program will be more significant. The IEEE SEM Education Committee is beginning the process of writing a proposal to obtain funding to support the 2018 SKPL and STEM Programs.

Involvement of ARRL Clubs

Association with local ARRL Clubs and involvement of 'Hams' can be an important component in keeping students interested and involved in STEM activities. The hobby may become a life-long interest of students. Also, it may result in involvement with a group of like-minded and public-service minded role models and friends. These are positive factors that should not be ignored.

Soldering:

Soldering is an important skill in the field of electronics. Our first attempt at teaching soldering in one of our other classes proved to be challenging for the students. Learning soldering takes time; additionally, teaching it without using it in projects is pointless. Soldering should be taught in a separate class and used in the other classes. Planning for the next series of classes will incorporate a specific soldering objective for some of the classes, and an overall soldering objective for the cycle of classes. A likely objective is for each student to build a low-cost kit-based 'Ham' radio station, an objective for which 'Hams' are an excellent resource.

Ham Radio:

Given the ratio of Ham Radio Operators (referred to as 'Hams") who are electrical engineers and technicians, it was not surprising that several of the instructors and helpers in our classes are 'Hams'. What did surprise us was that the

Hams chatting about amateur radio activities before and after class interested some students enough that they took the initiative to study for and receive their FCC Amateur Radio license!

Future class planning will look seriously at promoting interest in electrical engineering and technician career paths. More involvement in hands-on electronic activities and its inherent approach to learning will be included in the program.

STEM in SEM – 5

Use of "Maker Kit" in Program

One puzzle that we just resolved is the question of the specialized "Maker Kit" equipment used by students in classes. In the first class with specialized equipment it was expected that once the students went home with their own kits, they would experiment with them to discover just what could and could not be done with the components.

This did not happen!!! Without exception, students did not open or 'play' with the kits or the tools in them.

This prompted a re-assessment of the question of whether such 'Maker Kits' should be retained at the library and only taken out of storage and used by students only during class. This approach will be used during the next offering of the Fundamentals of Electricity class to determine the effect on student learning and, interest.

Praise of Instructors and Volunteers

Much praise is due teachers and volunteers who either led the classes, or who were able to drop in and assist in teaching classes, coaching individual students, setting up facilities at the beginning of class, and tearing down at the end. The volunteer instructors (and Akio Fujimaki, our STEM photographer) made each class special, and not only provided valuable assistance and moral support during each class, but also made each class more effective and fun for everyone involved.

As the SKPL and STEM Programs are expanded to more libraries, it is hoped there will be more volunteers with this wonderful spirit of giving and helping young students succeed.

A heartfelt 'Thank You' is extended to our sponsors who have helped move this program from what looked like a good idea to become a community asset and a resource for learning and growing for young students in the IEEE SEM Section.

Thank you to:
IEEE Southeastern Michigan Section,
ZF Gives and the
Dearborn Heights Caroline Kennedy Library.

Member News

Introducing a new feature, little snippets celebrating news about all our members in the Section.

Congratulations to Ashok Prajapati, for completing 7 years at FANUC Robotics.

News from around town

Introducing yet another new feature for your reading pleasure.

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

Autoliv breaks ground at new Southfield location

Friday, November 3, 2017

Autoliv has broken ground in Southfield for their new 180,000 square foot Electronics Technical Center.

The new building is scheduled for completion at the beginning of 2019 and will house 900 employees — 250 of which will be new hires.

— Sean D. Gardner, The Oakland Press

URL:
http://www.theoaklandpress.com/business/20171103/autoliv-breaks-ground-at-new-southfield-location

KUKA Robotics Corp. Offers Robotic Arms for Medical Devices, Hosts Grand Opening

BY STEPHANIE SHENOUDA

Shelby Township-based KUKA Robotics Corp. will be hosting the grand opening of its new Metal and Arc Tech Center from Nov. 29-30 at its headquarters. The Tech Center allows engineers to test new technologies and customized solutions without disrupting their own facilities.

The company also offers training to robotics technicians on its equipment to mediate the skilled trades' shortage.

The event will showcase 13 live robot demonstrations, highlighting KUKA's KORE Carts for education, mobile platforms, and Metal and Arc pre-configured robotics packages. The company will offer four 30-minute presentations on mobile robotics and mobile platforms, Ready2Use Packages, KUKA Connect and the Internet of Things, and Pre-Engineered Systems.

The office is located at 51870 Shelby Parkway and the event is open to companies looking to automate manufacturing processes or learn about updates in robotic technology. Presentations run from 10 a.m. to 2 p.m. or 3-7 p.m. on Nov. 29 and 8 a.m. to noon on Nov. 30.

KUKA will also be demonstrating the first robotic component certified for integration into a medical product during the 2017 Radiological Society of North America show in Chicago from Nov. 26-30.

The LBR Med lightweight robot has a range of capabilities including: ultrasound scanning, needle biopsy, suturing, and more. Visitors will be able to interact with the robot and see its demonstrations, including an ultrasound application. The robot's torque control feature allows users to feel the force feedback on the phantom.

"The robotic assistance systems developed in cooperation with our medical product manufacturers make us the leading supplier of technology for customers in the medical technology sector," says Michael Otto, vice president of KUKA's healthcare and advanced robotics division. "With our application developments, we aim to make a major contribution to patient safety and meet the high requirements of medical technology."

The KUKA Group, based in Germany, has annual global sales of $3.5 billion and employs 13,200 worldwide.

URL:
http://www.dbusiness.com/daily-news/Annual-2017/KUKA-Robotics-Corp-Offers-Robotic-Arms-for-Medical-Devices-Hosts-Grand-Opening/

Mahindra to invest $22.3M, create 105 jobs in Auburn Hills, Pontiac

By Natalie Broda, nbroda@digitalfirstmedia.com,, @NatalieBroda on Twitter

Wednesday, November 22, 2017

Mahindra & Mahindra, Ltd. recently announced it would build the first new automotive plant in 25 years in Auburn Hills and now the company is releasing more details on the project.

Mahindra is planning a $22.3 million investment to bring the company's North American automotive headquarters and off-road vehicle manufacturing to Auburn Hills as well as a facility in Pontiac.

The move is expected to create 105 jobs, according to a release from the Michigan Economic Development Corporation.

The Auburn Hills facility will be upgraded to serve as a headquarters, engineering center and manufacturing location for three models of off-road utility vehicles and prototype vehicles. The Pontiac facility, a former General Motors location, will be renovated into a warehouse and parts distribution center.

Mahindra currently already has a technical center in Troy.

"The fact that Mahindra has established new operations centers here for the third time in four years is a testament to Michigan's global leadership in automotive R&D and advanced manufacturing," Lt. Gov. Brian Calley said in a statement.

"Mahindra's success in Michigan communicates to international decision makers that our state holds great opportunities for growing their businesses."

Mahindra also received a an $850,000 Michigan Business Development Program performance-based grant after choosing Michigan over competing sites in Alabama, Arizona, Indiana, North Carolina and Texas.

URL: http://www.theoaklandpress.com/general-news/20171122/mahindra-to-invest-223m-create-105-jobs-in-auburn-hills-pontiac

Chapter Reports:

Chapter 8 Officer's Dinner:

On November 2nd Southeastern Michigan Chapter 8 (EMC) hosted its traditional yearly Officer's "Thank You" dinner in Auburn Hills at the Macaroni Grill.

This event, is actually a chance for the officers to say 'Thank You' to their significant others and spouses for putting up with all the time they devote to IEEE when they could be spending that time with their families and friends.

Our Chapter 8 officers and their dedication have made this particular 'Geo-unit' one of the most successful, and productive, in our section. In addition, several of these officers serve on Section level Standing Committees and help keep our Section alive and functioning.

Around the table the officers from the left we see Akio Fujimaki who also serves as our Section Photographer, Malcolm Lunn who provides the Section Audio / Visual support during meetings and conference and is one of our strongest STEM supporters and instructors, Matt Feusse, Chapter 8 Treasurer and yearly EMC Fest Treasurer,

Scott Lytle, Chapter 8 Chair and Section Webmaster as well as chief organizer for the yearly EMC Fest. At the end of the table we see Steve Tomba, Chapter 8 Secretary, Jim Woodyard, Chapter 8 Awards Chair, SEM contributing newsletter editor and past Section Chair, Candace Suriano, Chapter 8 Vice-Chair for Technical Activities and Section Education Committee STEM Coordinator, John Suriano, who assists Candace with Chapter presentations such as the October 'Antenna Challenge' event at Bosch which provided so much enjoyment for all our members. Finally there is Kimball Williams who just seems to show up wherever there is a free meal.

To all the Chapter 8 officers, and especially to their families and friends, we say THANK YOU for another year of dedication and service to all our Section members.

Robofest Report

Robofest 2017 Summary Report for IEEE SEM and Region 4

Robofest is a world-wide autonomous robotics competition for pre-college (4th ~ 12th grade) and college students to inspire interest in engineering. Student teams design, construct, and program their robots to compete for trophies in a variety of competitions using any computing controllers, sensors, actuators, and parts.

This year a total of 2,846 students in 948 teams participated from 11 countries (Canada, China, Colombia, Ecuador, Egypt, Ghana, Hong Kong, India, Mexico, South Africa, and South Korea) in addition to 11 States from the U. S. (California, Florida, Hawaii, Illinois, Michigan, Minnesota, Missouri, Ohio, Oregon, Texas, and Washington). Figure 1 shows students advanced to Michigan Championship. Each of 1,406 students who participated in competitions in the USA received IEEE SEM and Region 4 Pace sponsored medal. (See Figure 2). In addition, Robofest teams demonstrated projects at the Spring SEM conference at Macomb Community College on May 4, 2017 and IEEE RAS Humanitarian Technology Day at MSU on Oct 14, 2017.

Figure 1) Robofest Michigan Championship

Figure 2) IEEE medal awarded to the USA students

IEEE Florida West Coast Section (FWCS) was one of the sponsors for the Final World Championship held in St. Pete Beach, Florida. Florida IEEE members who helped with Robofest include: Sean Denny (FWCS Secretary), Russell Grieshop, Craig Ross, Peter M. Blackford, Kenneth Fiallo, and among others (See Figure 3 and 4). Sean Denny, Bill Collins, Mike Okneski, and David Steele also volunteered for *Robofest Thanksgiving Parade* on November 4th at the St. Pete Beach Recreation Center, FL. IEEE SEM members who served as Judges include: Thassyo Pinto, Javier Alcazar, Vamshi Thatipally, Maria Castano, and Dhrubajit Chowdhury (See Figure 6 and 7). Robert Neff, IEEE SEM Section Chair, received plaques of appreciation from LTU (See Figure 8). A 13 minute long, 2017 overview video can be accessed at: https://youtu.be/gLf188cUGTw

Figure 3) IEEE booth at Robofest venue

Figure 4) IEEE Florida Volunteers in front of an IEEE banner

Figure 5) IEEE Florida volunteers with Robofest T-shirts

Figure 6) IEEE Judges in front of IEEE

Figure 7) IEEE Judges at HTD Robofest

Figure 8) IEEE SEM Chair received plaques from LTU

This Month in December

Or: I Did Not Know This! ☺

December 2, 1942 - Physicists led by Enrico Fermi carried out the world's first successful nuclear chain reaction at the University of Chicago.

December 2, 1982 - The first permanent artificial heart was implanted in 61-year-old Barney C. Clark by Dr. William De Vries at the University of Utah Medical Center in Salt Lake City. Clark, who was near death at the time of the operation, survived 112 days after the implantation.

December 6, 1877 - At his laboratory in West Orange, New Jersey, Thomas Edison spoke the children's verse "Mary had a Little Lamb..." while demonstrating his newly invented phonograph which utilized a revolving cylinder wrapped in tinfoil to record sounds.

December 9, 1993 - A five-day repair job in space on the $3 billion Hubble Space Telescope was finished by U.S. astronauts.

December 10, 1896 - Swedish chemist Alfred Nobel died at San Remo, Italy. His will stipulated that income from his $9 million estate be used for awards recognizing persons who have made valuable contributions to humanity. Nobel recipients are chosen by a committee of the Norwegian parliament. Prizes for Peace, Physics, Chemistry, Medicine, Literature and Economics are presented annually in a ceremony in Stockholm, Sweden, on the anniversary of his death.

December 11, 1901 - The first transatlantic radio signal was transmitted by Guglielmo Marconi from Cornwall, England, to St. John's, Newfoundland.

December 14, 1962 - The Mariner II space probe sent back information from the planet Venus, the first information ever received from another planet.

December 17, 1903 - After three years of experimentation, Orville and Wilbur Wright achieved the first powered, controlled airplane flights. They made four flights near Kitty Hawk, North Carolina, the longest lasting about a minute.

December 23, 1947 - The transistor was invented at Bell Laboratories by John Bardeen, Walter Brattain and William Shockley, who shared the Nobel Prize for their invention which sparked a worldwide revolution in electronics.

December 23, 1642 - Birthday - Isaac Newton (1642-1727) was born in Woolsthorpe, Lincolnshire, England. He was a mathematician, scientist and author, best known for his work *Philosophiae Naturalis Principia Mathematica* on the theory of gravitation. He died in London and was the first scientist to be honored with a burial in Westminster Abbey.

December 27, 1571 -Birthday - German astronomer Johannes Kepler (1571-1630) was born in Wurttemberg, Germany. Considered the father of modern astronomy, he discovered the elliptical (oval) shape of the orbits in which the earth and other planets travel around the sun at a speed that varies according to each planet's distance from the sun.

December 27, 1822 - Birthday - French chemist-bacteriologist Louis Pasteur (1822-1895) was born in Dole, France. He developed the pasteurization process to kill harmful bacteria with heat and found ways of preventing silkworm disease, anthrax, chicken cholera, and rabies.

December 31, 1879 - Thomas Edison provided the first public demonstration of his electric incandescent lamp at his laboratory in Menlo Park, New Jersey.

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)
Engineering History Buff/Aficionado

Election Follow Up!

Welcome New Officers:
After the flurry of activity that always surrounds every election, especially when we have 247 officer positions and at least half come up for election each year, it takes a while to sort out and confirm the results. That step has now concluded, and the results are on their way to the Section Executive Committee to be validated.

Our January newsletter will publish the final results to all our members, and the Section Website will carry the complete listing of all Section, Committee, Affinity Group and Chapter officers along with their published contact information.

Thank you to all our Section members who voted in the election and kept faith with the democratic election process for selecting leadership. It is by constant attention to who is leading us and what they are doing to guide our progress and nurture future leaders to take their place that we ensure we are all on the path to a future we can all support and be proud to be a part.

Officer 'Churn':
You may have noticed the tendency for officers in a Chapter, or Affinity Group, or Branch to rotate from year to year, taking on one position for a year or two, then moving to another position and rarely staying in a single position for a long period of time.

This is something that is encouraged by the MGA when it suggests that a 'Chair' of a Chapter should not hold the position for more than 3 contiguous years.

There are three factors of concern here:

1st: By working as an officer, in any position, we learn and develop a unique set of skills. By changing office positions from time to time to another position, we develop and sharpen other skills, and can continue to grow. If we were to remain in only one office for an extended time, we limit the scope of those skills we can develop.

2nd: By moving from position to position, and especially when we advance from positions within a Chapter or Branch to those at the Section, and then on to positions at the Region or Society levels, we expand the possible set of tools we can learn, while also expanding our personal and professional contacts within the areas were we volunteer.

3rd: By making 'room' for new officers to step into positions we have left, we give younger volunteers the opportunity to gain those skills we have already acquired.

What's Next for you?
This continual development of skills, talents and contacts is one of the primary reasons for the existence of an organization like IEEE, to give our members the setting and opportunity needed to develop and grow as individuals, and successful engineers.

However, some of us are aware of our IEEE affiliations only within the context of the technical Society to which we have focused our career goals. We may not even be aware of the local activities which occur around us in our Section all through the year. To help sort out the mixture of Societies and local Chapters, Sharan Kalwani, one of our Wavelengths Editors, has created the 'cheat sheet' on the following page which gives a condensed overview of the Geo-units in our Section and their associated technical 'parent' organizations.

Let me encourage you to review that overview page, and consider what involvement in the local organization for your technical discipline could do to enhance your personal skill set and foster the development of skills that can promote a more successful engineering career.

You may find that a position within the Administrative Committee (AdCom) of a Geo-unit may be just the thing to help you on the next step of your career. Simply volunteering with the Geo-unit to help out with its normal functions can give you a more subtle entry into local activities. This often leads to more responsibility and an elected position in the future.

Section level Standing Committees also can provide a more general and diverse set of skills. These are all appointed positions and do not require election to an office to begin active involvement with the Section. Contact any one of your Section officers to discuss your abilities, background, and where you might both 'fit in' and benefit from becoming a more active volunteer.

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,
December 2017

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/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

Makers 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 David Mindham, the section secretary at: **dmindham@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.

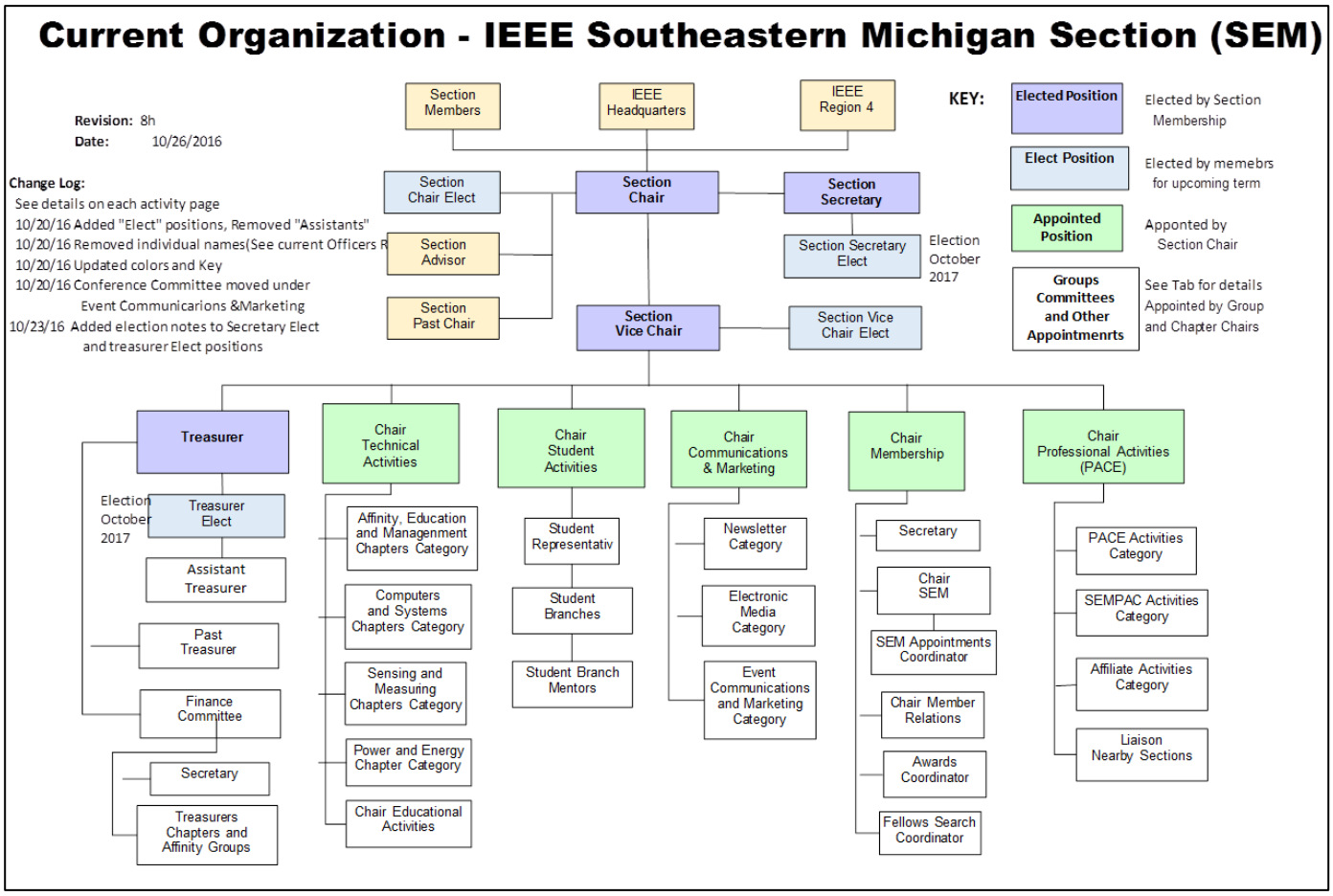
Other Meetings:
About half of our members maintain memberships in one or more of the IEEE technical societies, which automatically makes them members of the local chapter which is affiliated with that society. As a result, they should receive notices of the local chapter meetings each month.

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.

David Mindham - SEM 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 2017 remainder 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 meeting.

December 7, Thursday, Teleconference, 12:00 – 1:00 P.M. **https://meetings.vtools.ieee.org/feed/meeting_ical/42557**

David Mindham
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.

David Mindham
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 **David Mindham** the SEM Section Secretary.at:
dmindham@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.

David Mindham
SEM Section Secretary.
dmindham@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	

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 Officers".

SEM On Line Community Section Officers
http://sem.oc.ieee.org

Section Officers

Section Chair
Robert Neff

Section Secretary
David Mindham

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
Hashim Abdul

Student Representative
Mehdi Mohammadi

Chair Technical Activities
Kimball Williams

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