



Section Chair's Message



Section Chair's Message:

Thank you ZF:

The check from ZF for \$3000 that was presented to SEM for STEM activities has been put to good use. See page #2 for details. Thank you ZF for caring about our next generations of engineers. The tag line you see occasionally below our SEM logo (State of Michigan with darkened southeastern area) is "Electrical and Electronic Engineers Creating our Future". It's true, our future products, environment and lifestyle will be determined by what these future engineers create.

Fall Conference – Ethics in Engineering, Science and Technology

November 9 is our Section Fall conference to be held at the Burton Manor in Livonia. Please see details on page #16 and a link to the conference web site and registration. The conference information can also be accessed at our SEM web site (www.ieee-sem.org).

Elections:

Elections for 2018 are over. The Elections and Nominations Committee are examining the results and verifying that all elected and write-in candidates are indeed eligible and willing to serve. Please let me take a moment to thank all officer volunteers who served over this past year. We will need your assistance over the upcoming year even if you no longer hold that office. Your experience is valuable and needs to be shared.

2018 Budget:

The ExCom will begin reviewing the 2018 budget the first week of November. An updated version, based on inputs from the ExCom, will be considered at the December ExCom meeting. A Final Budget will be presented and approved shortly thereafter.

This issue of Wavelengths:

A new feature: "Members News" section starts on page #9. Of course, chapter meetings and events are covered in depth.

And, our editors threw in their monthly interesting science stuff.

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

Volume 57 – Issue 11

Contents

Section Chair's Message	1
STEM Teams Forming:	2
ZF Opportunities:	4
SEM Officer Elections	5
Chapter 5 Distinguished Speaker Visit:	6
Member News	7
Chapter 5 Report:	8
Chapter 8 Report	9
ESW2017 Report	10
Ethics Conference 2017	14
This Month in November	15
Nobel Prize in Physics 2017	16
Chapter 14 Report	19
Chapter 7 Report	19
Chapter 17 Officers	20
Election Follow Up!	22
ORG UNITS cheat sheet	23
Non-IEEE Events:	24
Executive Committee	25
ExCom Meeting Schedule:	25
SEM Monthly Meetings	27
Editors Corner	28
Web & Social Sites	29
Section Officers	29
Leadership Meetings	30
Advertising Rates	30

STEM Teams Forming:

Education Partnerships:

The current series of STEM* classes “Observation & Measurement” at the Caroline Kennedy library in Dearborn Heights will conclude in November and preparations are underway to begin the follow-on “Fundamentals of Electricity” class, beginning in January. (We always begin this class series during cold weather to ensure that the first experiments with static electricity work well.)



Caroline Kennedy Library

At the same time we plan to begin another, parallel, class series on the “Fundamentals of Electricity” at the Bacon Memorial Library in Wyandotte. The staff at the Bacon library has welcomed members of the Motor City Radio Club in 2017, to begin teaching classes toward the ‘Technician’ class “Ham” license.



Bacon Memorial Library

The first class series will conclude in November, graduating nine new Hams into the hobby. We look forward to ‘folding’ our own series of STEM classes into a progressive package that will enrich, introduce, and enable many students both into the technology based hobby of ‘Ham’ radio and into possible future careers in science, technology, engineering and mathematics. *

In anticipation of the proposed start of a ‘Safe Soldering & QRP Rig’ class in January, the library has constructed a “Maker Space” in its upper loft to accommodate twelve work stations for class members (New Hams, Current Students, and Elmers**) to join the class and learn from each other as everyone builds QRP (low power) CW (Morse code) equipment from kits that they can use to build a complete ‘First’ Ham radio station. (At the conclusion of the classes we will ‘check out’ the complete assembly and help new Hams to get on the air and make their first contacts.) This same ‘Maker Space’ will accommodate our “Fundamentals of Electricity” class.

Planning Ahead:

Looking forward to 2018 we need to recruit instructors to teach the classes at the both the Bacon library and the Caroline Kennedy library. We are working now to begin a partnership with more of the local ARRL (American Radio Relay League) Amateur Radio club members to interleave our STEM classes with Amateur Radio classes. Specific days and times for all classes are under consideration by both libraries, and need to be selected by volunteers from both the IEEE and ARRL*** clubs. Possible day and time

combinations are shown below on the next page.

We have a survey form for gathering contact information from our members who wish to volunteer their time to help teach individual class lessons for each of the classes, and we hope to see many SEM Section members step forward to become instructors for these classes.

Volunteer through the site at: <https://4eyes.io/s/a5Bdx/>



Class in Session

Note: Although we have a fairly complete schedule for classes for our Fundamentals of Electricity course, along with power point slides for each class, Khan Academy lessons to accompany each class, and experiments designed to provide ‘hands-on’ experience for the students, none of this is set in stone, and individual teaching teams are encouraged to improve and change up the lessons as they see fit.

Class #	Mon Eve Date	Wed Eve Date	Sat AM Date	Sat PM Date	Topics
1	1/22/2018	1/17/2018	1/20/2018	1/20/2018	The atomic base for electricity - Bohr atom & Periodic Table
2	1/29/2018	1/24/2018	1/27/2018	1/27/2018	Direct Current and Batteries, Circuits & Components
3	2/5/2018	1/31/2018	2/3/2018	2/3/2018	Permanent Magnetics and magnetic fields
4	2/12/2018	2/7/2018	2/10/2018	2/10/2018	Electromagnetics and magnetic forces
5	2/19/2018	2/14/2018	2/17/2018	2/17/2018	Frequency, Alternative Current and Electrical Safety
6	2/26/2018	2/21/2018	2/24/2018	2/24/2018	Frequency and Wavelength
7	3/5/2018	2/28/2018	3/3/2018	3/3/2018	Radio Frequency and Crystal radios
8	3/12/2018	3/7/2018	3/10/2018	3/10/2018	Resonance and resonant circuits
9	3/19/2018	3/14/2018	3/17/2018	3/17/2018	Digital Logic Circuits & Computer Interface
10	3/26/2018	3/21/2018	3/24/2018	3/24/2018	Radio Astronomy

***STEM** (Science, Technology, Engineering & Mathematics). We don't really believe all students will, or should, go into a technology based careers. However we do believe that anyone who expects to prosper in the 21st century needs at least a basic acquaintance with STEM topics that form the operating basis of our civilization.

****Elmers** (From the ARRL) "Elmering or mentoring has long been the backbone of Amateur Radio. While technology constantly evolves, the human interaction between hams will not be replaced and will always remain one of the hobby's strongest traditions. As licensed hams we are all ambassadors of Amateur Radio and we should always be looking at ways in which we can welcome newly licensed hams and project a positive image that will attract others to ham radio." <http://www.arrl.org/elmer-award>

*****ARRL** is the national association for Amateur Radio in the US. Founded in 1914 by Hiram Percy Maxim as The American Radio Relay League, ARRL is a noncommercial organization of radio amateurs. ARRL numbers within its ranks the vast majority of active radio amateurs in the nation and has a proud history of achievement as the standard-bearer in amateur affairs. ARRL's underpinnings as Amateur Radio's witness, partner and forum are defined by five pillars: Public Service, Advocacy, Education, Technology, and Membership.

Kimball Williams
k.williams@ieee.org

ZF Opportunities:



WHAT'S NEXT?

JOIN ZF

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

ZF.COM/CAREERS

SEM Officer Elections

Officer elections have concluded and the Nominations and Appointments committee is now in the process of verifying the results and confirming that "Write-In" candidates are aware of their selection, and that all are willing to serve.

Note: By MGA rules, officers not replaced by election or appointment continue to hold the position to which they were last positioned.

So, from an overall view, how did we do? Below I have listed the % of members in each Geo-unit that voted in this election. The % number shows the % for each Geo-unit, not the absolute number of votes cast.

From a management point of view this provides a second indication of the overall 'health' of each Geo-unit, and the degree which the current officers have managed to 'engage' their members during the year.

The first level of Geo-unit health is gaged by the number and type of activities each provides for its members.

Executive Committee 'officer-'elect' positions.

This year for Secretary and Treasurer 'Elect'. 3%

Affinity Groups:

Consultants: 9%
Life Members: 6%
WIE: 9%
YP: 0%

Technical Chapters:

Ch01 3%
Ch02 9%
Ch03 3%
Ch04 11%
Ch05 5%
Ch06 19%
Ch07 5%
Ch08 12%
Ch09 0%
Ch10 29%
Ch11 3%
Ch12 3%
Ch13 15%
Ch14 5%
Ch15 0%
Ch16 7%
Ch17 2%

Note: Student Branches and HKN Chapters hold their own, independent elections.

So, what's next?

The 'raw data' from the election has been delivered to all the officers in the Section, and now we begin the process of separating out 'write-in' candidates who may be totally unaware that someone placed their names into an officer candidate position, and reconciling conditions where more than one officer received the same number of votes for a single office.

This process usually requires a couple of weeks to sort out, then a final proposed Organizational Roster can be compiled and delivered to the ExCom for final review at their December meeting.

In the meantime, expect to see lots of 'calls' for volunteers to fill vacant slots in our Standing Committees, and a few Geo-unit officer positions as we sift through the data and discuss the future plans with all the candidates.

K.williams@ieee.org
 Chair: N&A Committee.

Chapter 5 Distinguished Speaker Visit:

On October 10th, Chapter 5 was delighted to host Fawzi Behmann, from Austin Texas, who delivered a very content rich talk on the convergence of “**5G, IoT and Network Virtualization**”.



First a little bit about our speaker: Fawzi spent over 30 years in industry and held various executive and leadership positions with Tier 1 companies in the areas of communications and networks spanning semiconductors, communication systems and service providers. Fawzi was the principal architect and championed the definition and the development of integrated pre-IoT telecom alert systems and networking management solutions at Teleglobe Canada. He was a senior product manager with Nortel Networks for enterprise broadband edge and core product releases. Fawzi has also served as the Director of Strategic Marketing with Motorola/Freescale for SoC (“System on Chip”) Networking & Communications product lines in Austin, Texas.

Fawzi is passionate about technology automation and went on to found TelNet Management Consulting Inc. in 2009, offering consulting services in the areas of technology trends and positioning for smart networking and IoT/GIS solutions. Examples included Solar Energy, Public Safety Emergency Response Systems. He organized and chaired workshops, tutorials and was a keynote speaker and distinguished lecturer on major topics such as IoT, 5G, network virtualization and Big Data/Analytics. Fawzi is also a board member with several companies and has several publications and co-authored book on the subject of future IoT “Collaborative Internet of Things for Future Smart Connected Life and Business” published by Wiley, June 2015.

Fawzi is a senior member of IEEE, and is currently the Communications Society NA vice chair, CTS Conference & PACE Chair, and Communications Society, Computer Society & Engineering in Medicine Biological Systems Joint Austin chapter chair. He was the recipient of IEEE Communications Society Chapter Achievement and Chapter of the Year Award in 2015 and 2017 and Outstanding Region 5 member award for 2013, 2014 and 2015. He is currently serving as Conference chair for IEEE Central Texas and organized sessions and IoT workshops at BHI, Smart Tech, and for Africa, in Uganda and Kenya.

With such an illustrious background, the entire session was well over 90 minutes long and a large number of back and forth

conversations ensued, due to the extremely current/impending future technology bent of the theme/topic. Several technologies are converging empowering IoT and delivering a greater impact and advance services to multiple markets by 2020’s. Fawzi led us thru the evolution of the concept of IoT and architectural journey from a pre-IoT to the final thrust of Collaborative IoT.

Throughout the talk, Fawzi highlighted technology trends and provided various examples and scenarios for different market domains such as smart home, smart energy, smart buildings, smart connected vehicles, smart infrastructure, public safety, smart health & wellness, and of course, smart city. Solution building blocks included sensing, wearables, aggregation/gateway, mobile devices and data analytics as enablers.

Finally the talk concluded with some of the factors and challenges to deliver scalable solutions, delivering better quality of services and experience. These included development platforms, 5G, virtualization and security. Ultimately it was clear that there is an unmistakable emerging of an ecosystem, which is cloud based to address this convergence.

Sharan Kalwani
Vice-Chair, Computer Society
SE Michigan Chapter, (Chapter 5)
sharan.kalwani@ieee.org

Member News



Introducing a new feature, little snippets celebrating news about all our members in the Section. We would like to congratulate:

A very happy birthday to Jacob Beningo, who celebrates on November 2nd!

A follow up to those members who recently participated in the elevation 'round up', I have received a number of inquiries on the status of those applications. Here is the general outline of what you can do to check on this (online):

1. Login in to your IEEE.org portal
2. Locate the Senior member area.
3. Scroll down till you locate the "Track Status of Application and References"
4. Review Senior member Status Report; and finally
5. Notification of Result

Reproduced here are relevant sections for your perusal.

Track status of application and references

Once your application has been received and is in the Submitted and Pending Referrals or Submitted and Pending Review status, your name will appear on the Senior Member Status Report. Please allow about five to seven business days after submission for this to occur, as reports are not updated automatically upon submission. You can also sign in to your application at any time and

view the status. (Applications in "Draft" are not posted to the web.)

After your application has reached the **Complete** stage (applications in Word or PDF) or Submitted and Pending Review, it will be scheduled for review at the next available Senior Member Elevation Review Panel. This must occur at least ten days prior to the Review Panel meeting to allow ample time for processing.

Notification of results

You will receive a congratulatory letter and email if you have been approved or an email notification as to whether you have been deferred or denied.

About two weeks following a review panel meeting, an update report with the names of the newly elevated Senior members is published on the web as well as sent electronically to individual subscribers and group mailing lists comprised of Section chairs and newsletter editors.

Approved applicants will:

- Have their name posted in the newly elevated Senior members report after all applicants have been notified
- Receive a formal letter confirming grade elevation after approval
- Receive a wood-and-bronze commemorative plaque and a voucher for up to US\$25, which can be used to join a new IEEE Society of your choice
- Request for employer to be notified using the employer notification form

Denied or Deferred applicants will normally be asked to submit additional documentation in support of their application. This generally means the committee was unable to ascertain whether all the requirements have been met. Failure to document relevant dates of positions or details of how your experience is to be

considered significant are frequent reasons that applications are deferred. The meaning of job titles vary from company to company and may not be sufficient to confirm significant performance. For example, if you were a Team Leader, describe the size and scope of the projects worked on. Once further documentation has been submitted, the application will be sent for reconsideration at the next available A&A Review Panel.

Applicants who have resubmitted information and are still not elevated after multiple panel reviews have the right to an appeal of the decision through the Appeal Committee. The Appeal Committee is comprised of the Vice President of Member and Geographic Activities, the Vice President of Technical Activities, and the Vice President of Educational Activities. Appeals are not automatic and must be requested by the applicant.

The Appeal Committee shall review documentation submitted to the Review Panel and make a determination to uphold or overturn the Panel's decision. The applicant is allowed, but not required, to send along further documentation in support of his/her case. For example, if the Review Panel determined that the applicant had only nine years of professional experience, it may be helpful to provide a calculation of how you meet the requirement. Overlapping work and education experience will not be counted in both categories. If that is not sufficient for any inquiries, suggest they phone the IEEE

Contact Center at (1 800 678 4333) for assistance.

Sharan Kalwani, Associate Editor, Wavelengths, November 2017

Chapter 5 Report:

The IEEE Southeast Michigan Computer Society Chapter is one of the largest societies in the SEM section. We had a huge flurry of activity this month, very much in tune with every month.

15th Annual Embedded Systems Workshop 2017



IEEE SEM Computer Society and Oakland University held the 15th edition of this one-day (free) workshop on Embedded Systems on Saturday, October 21st, 2017 from 8:30 AM till 4:30 PM EDT/EST. This workshop was open to all engineers and students. The aim was to disseminate knowledge, directly benefitting the IEEE members, and at the same time to improve the technology skills pool, indirectly boosting the Michigan economy.

Speakers and experts from the embedded systems industry gave several practical presentations and were also available for discussions and networking throughout the day. In addition to the technical presentations, there were industry information displays and professional recruitment tables. We also had a practically endless supply of coffee/tea, assorted cookies, doughnuts, petite croissants, and apple & strawberry filled strudels, thus keeping the energy and enthusiasm levels high throughout the day.

The ESW 2017 Program and Organizing Committee consisted of Subra Ganesan (Chair), Sharan Kalwani, Ashok Prajapati, Rama Gottumukkula, Dheeraj Patel, and Ben Sweet. For any questions regarding this workshop please feel free to contact the Program

Committee at: esw2017@ieee-sem.org

We also announced that next year's edition, the **16th Annual Embedded Systems Workshop 2018**, will be taking place at LTU (Lawrence Tech University), so preparations for that event are already starting.

Technical Meeting Reports

On October 10th, we hosted Dr. Fawzi Behmann, who is an IEEE Distinguished Speaker and international expert on **"5G and IOT."** This talk was held at Oakland University. Look for the detailed report on this event, elsewhere in the November 2017 edition of the Wavelengths newsletter.

We would like to thank Oakland University for extending their support to the chapter in this regard. For those who attended the talk and would like a copy of the slides, please feel free to contact Sharan Kalwani.

Also planned were double header technical talks on High Density Computer Systems Cooling Technologies **and** Recent Advances in High Performance Computing. Both of these were of high quality and well appreciated by the folks who attended.



Kevin Werely of Motivair Corporation, out from the East Coast (well New York actually), gave a nice in-depth presentation on current market trends with cooling issues in growing dense computing centers. In the old days, typically 8 to 10~12 KW per computer rack was sufficient to be cooled by air conditioning (affectionately known as CRAC

units). These days the racks are stuffed full of high power servers and trending towards 30+ KW/rack! So air is not an option. Rear door heat exchangers, direct motherboard liquid cooling, immersive cooling and some innovative approaches are being successfully applied in many situations.

The second marquee talk was on trends in high performance computing (HPC), or as it was known in those days: *Supercomputing*, and looked briefly at historical developments since the 70s, and listed a few of the modern day mainstreaming of technologies pioneered by that field. A number of applications made possible by HPC, such as

- 1) weather forecasting
- 2) automotive crash testing
- 3) weapons design
- 4) crisis management
- 5) drug design
- 6) future energy exploration
- 7) sports equipment, etc.

Then the talk turned to increasing demand for computers and where it is leading to. The current publicly known list of the top 500 systems in the world today, competition by China to become a pre-eminent supercomputing leader, the future of ExaScale systems, quantum computing, and many exotic possible paths in the future. A quick preview of what one might expect at the upcoming conference <http://sc17.supercomputing.org> being held at Denver, Colorado this year was mentioned.

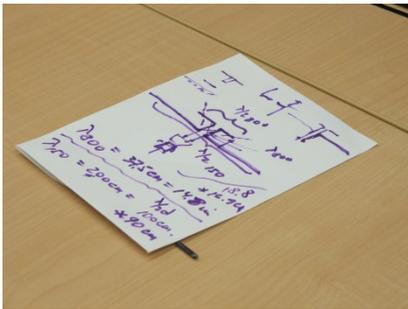
We are planning future talks on many other technical topics in 2018, so feel free to contact us with ideas and suggestions.

Sharan Kalwani
Vice-Chair, Computer Society
SE Michigan Chapter, (Chapter 5)
sharan.kalwani@ieee.org

Chapter 8 Report

On October 19th our Chapter 8, Electromagnetic Compatibility (EMC) was hosted by Robert Bosch Inc. and sponsored by Teledyne LeCroy for a fun evening of an “**EMC Maker: Antenna Challenge.**”

Candace and John Suriano lead the group of 48 members and guests. They divided everyone into 5 teams and provided each team with wire, duct tape, hot glue guns, small tools, aluminum foil (and pie plates), PVC tubing, etc. and challenged each team to build a single antenna that would receive signals on both 150 MHz and 800 MHz in horizontal and vertical polarizations.



Some planning

Some planning, some thought, lots of hand waving and discussions eventually resulted in some plans, sketches and finally building. (Not necessarily in that order).



Construction



Discussion & deliberation

At the conclusion of the construction phase, each team and its antenna was conveyed to the Bosh EMC Laboratory where it was tested to determine how well each antenna performed.



Joanna & Lora Chat

It was interesting to see that all antennas performed within 1 dB of each other, and that all the designs had good performance in both orientations.

In the end, of course there was one antenna that had slightly better results and that team was declared the winner. However, everyone had such a great evening that I would declare John and Candace the ‘winners’ for giving us such an engaging and fun evening.



'Winning' Team



Thank you John & Candace

As always, Chapter 8 awards its speakers with a ‘Thank you’ letter and sends a donation to the IEEE EMC Society ‘Presidents Memorial Scholarship Fund’ in the name of our presenters.

Great job Candace & John. We all look forward to the next one!

kw

ESW2017 Report

Embedded Systems Workshop 2017 Report

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.



1) 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 did have 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 nine 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 4:30 PM, with clean up and tear down accomplished by 5 PM! ESW 2017 is also happy to report that they have approximately 58% fulfillment of the feedback & survey forms distributed at the event, which as many old hands at survey work will note, is a very high percentage return. Results are still being compiled at the time of writing this report, but expect (or feel free to remind us) a summary later in these columns.

We had eight technical presentations in all, 100% by practicing industrial professionals. These ran to 45 minutes each, including Q&A. Most of the speakers stayed on after the talks as several had tables where

they could engage in follow up conversations with many of the attendees. A high quality program booklet was also produced and made available to all who came to the event. This year the committee also attempted to make video recordings on several of the sessions in the hope of preserving and making available the knowledge shared for future members of the chapter. Instrumental in this regard was Dheeraj Patel, who patiently captured as much as he could of the “moving targets” <insert wry smile here>. The actual presentation slides and accompanying audio is being worked on and will be accessible to the membership at a future date.



2) ESW 2017 Registration Table

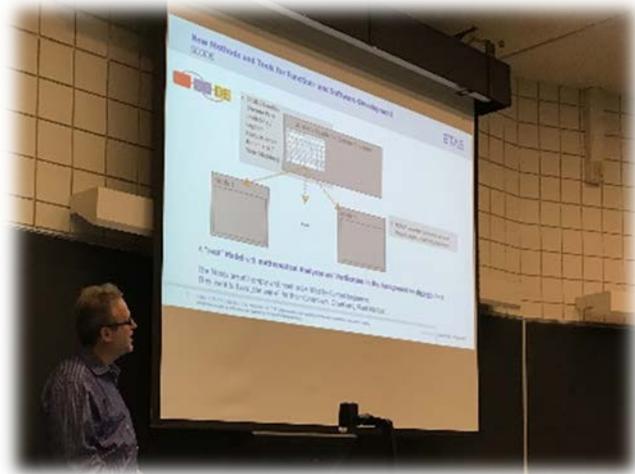
Speaking of members, the registration desk was largely manned by Rama Gottumukkula with superb support and assistance by all of the committee members working in rotation.



3) Chapter V membership desk

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

The day started off with Udo Rieber of ETAS talking about many tools useful in design and validation of control systems.



3) Udo Rieber of ETAS

That was followed by Bill Veenhuis of NVIDIA who gave an inspiring talk on how AI & Deep Learning is making its way into Embedded Systems today.



4) Bill Veenhuis of NVIDIA

After the break we had a local leading company in the Automotive Networking solutions, Dave Robins of Intrepid Control Systems, talk about critical timing and design issues of past and current standards.



5) Dave Robins of Intrepid CS

Appropriately enough this was bracketed by Salvador Almanza, from Vector CANTech, with a talk about higher level modularity and Service Oriented Architectures of Automotive Ethernet.



6) Salvador Almanza of Vector CANTech

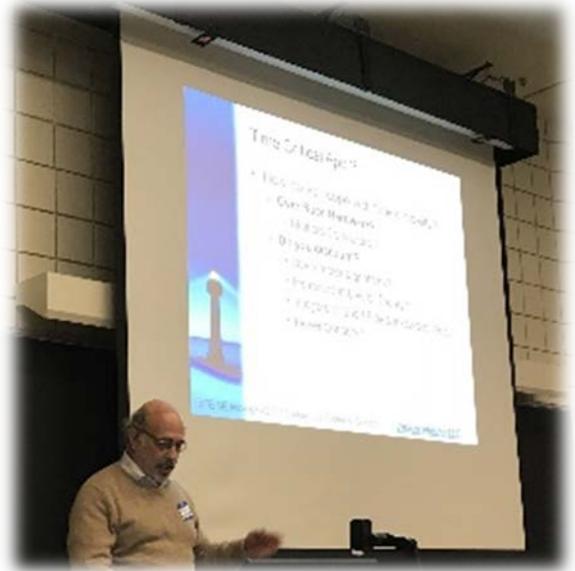
This was followed by lunch, during which many folks engaged the speakers in discussions in between bites of vegetarian/chicken/turkey sandwiches. Also several folks interacted in the hallway where the sponsor tables were located (strategically placed between the talks and the food)



7) Fruitful interactions among the attendees

The afternoon session began with a thought-provoking (or should that be -changing) talk by Jim Morgenstern on how one can strive to get the maximum throughput from

GPUs for Embedded Systems. It turns out that one must re-think, in a very hard way, about the critical sections of algorithms employed in this world. This was for many an illuminating talk



8) Jim Morgenstern on GPUs

And to add to this, a much often required and necessary aspect of Embedded Systems, was a very comprehensive overview of "Verification & Validation" by Subra Ganesan. This touched upon many industry practices, as they have to deliver critical products and are faced with daily methods to help prove their work will stand up to rigorous requirements of the development timeline, costs, and investment of the project.



9) Subra on V&V of Embedded Systems

It was therefore no surprise that following these two heavy topics a much needed coffee & tea break ensued. The post hot-beverage session was then filled by Jim McLeish from DfR Solutions, who spoke from 20+ years of experience in the physical reliability field of electronic systems and the methods they have developed to help satisfy that.



10) Jim McLeish of DfR Solutions

Several attendees found this a very refreshing addition to the roster of talks. To help round off things, these days it is hard not to find conversations often straying into the touchy subject of security, and a talk on this was delivered by Atilla Bulmus of Infineon, who are engineering a much needed method of enabling security protocols in their controller and embedded systems product line.

Finally a quick glimpse into the top 3 choices of programming languages often chosen for embedded development work, and a rapid fly through of the critical as well as strategic importance of IoT (Internet of Things) for the embedded community concluded the technical portion of the talks.

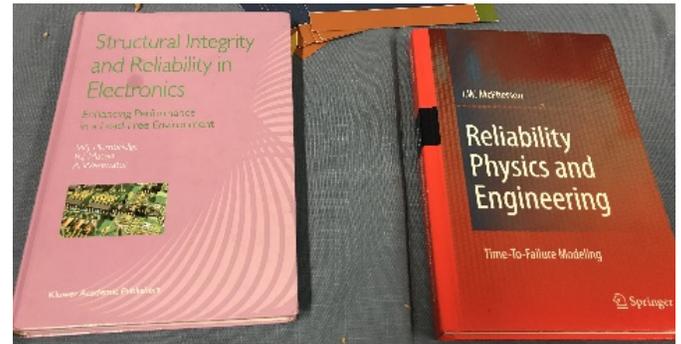


11) Atilla Bulmus (Infineon) on Security



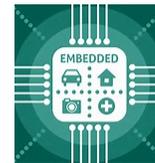
12) DfR Solutions Table Display

All throughout the day, several raffle/door prizes were given away to randomly chosen attendees. These included Cypress controller boards and the grand prize was an Amazon Echo, won by Tedros Berhane, who ironically was the first attendee to show up and had indicated prior to this his willingness to volunteer for chapter activities. This is just some of the positive side effects of this workshop.



13) Several Engineering Textbooks on Display

Lest we forget, we would like to also thank Akio Fujimaki for taking several pictures (to be posted soon) and Kevin Taylor for helping the registration/membership desk.



See you all next year!

Sharan Kalwani
Vice-Chair, Computer Society
SE Michigan Chapter, (Chapter 5)
sharan.kalwani@ieee.org

Ethics Conference 2017

IEEE Southeastern Michigan Section 2017 Fall Conference

November 9, 2017

***Ethics in Engineering, Science and Technology*****Date & Time:** 09 November 2017, 04:30 PM to 09:30 PM (All times are US/Michigan)**Location:** Burton Manor, Main Conference Room, 27777 Schoolcraft Road, Livonia, Michigan, 48150

THEME: We have chosen *Ethics in Engineering, Science and Technology (ETHICS 2017)* in recognition of the difficulty in a modern world of fulfilling multiple and sometimes conflicting moral obligations to different parties. The emergence of engineering as a distinct profession has been accompanied by a need to clarify the relationship between the self-interest that engineering practitioners have in advancing their careers and business interests, and their moral obligations to society, to their employers and/or clients, and to their profession. As global, social, environmental, and business pressures have evolved over the past 150 years, ethical dilemmas have intensified. It has become necessary for all of us to reflect carefully as we traverse an evolving and increasingly challenging ethical landscape.

PROGRAM: ETHICS 2017 provides an exciting opportunity to consider issues concerning modern engineering ethics and ethical standards and their impact on our lives, careers, profession and society. Our keynote and invited speakers, panel forum, and dinner reception will facilitate exchange of experience and perspectives on many levels.

SPEAKERS: ETHICS 2017 will host an impressive range of topics and invited speakers, including:

- **Dinner Keynote:** *Prioritizing ethical considerations at the front-end of design* – John C. Havens, Executive Director of The IEEE Global Initiative for Ethical Considerations in Artificial Intelligence and Autonomous Systems.
- *RFID Implant Technology and Artificial Intelligence: Can We Spell Ethics and Trust?* – Cheryl L. Brown, Associate Professor, Political Science and Public Administration, University of North Carolina at Charlotte.
- *Youth and Technology in a Changing World* – Ali Muzzaffar, Senior Consultant at Deloitte, Chair of the Sir Syed Global Scholar Award, and Delegate at the United Nations 2017 Winter Youth Assembly.
- *Intelligent Personal Digital Assistants – new challenges in security, privacy and tech policy* – Emily McReynolds, Program Director & Researcher, Tech Policy Lab, University of Washington, Seattle, WA.
- *48V Mild Hybrid Vehicle Systems: Modeling, Control and Energy Management Strategy* – Yue-Yun Wang, GM Technical Fellow, Powertrain Systems Research Lab, General Motors, Warren, MI

Register at: <https://events.vtools.ieee.org/m/47031>

Late Registration ends November 5, 2017 at 11:59 PM.

CO-SPONSORS: include IEEE-USA, the IEEE Society on Social Implications of Technology (SSIT), IEEE Technology and Engineering Management Society (TEMS), and the IEEE Standards Association.

FURTHER INFORMATION: For further information, please contact the Conference Chair, Philip Hall, at philip.hall@ieee.org and the SEM Website at: <http://sites.ieee.org/sem/>

This Month in November

Or: Did You Know This?

NOVEMBER 2, 1947 - The first and only flight of Howard Hughes' "Spruce Goose" flying boat occurred in Long Beach Harbor, California. It flew about a mile at an altitude of 70 feet. Costing \$25 million, the 200-ton plywood eight-engine Hercules was the world's largest airplane, designed, built and flown by Hughes. It later became a tourist attraction alongside the Queen Mary ship at Long Beach and has since been moved to Oregon.

NOVEMBER 3, 1957 - Soviet Russia launched the world's first inhabited space capsule, Sputnik II, which carried a dog named "Laika."

NOVEMBER 4, 1890 - The first electrified underground railway system was officially opened in London.

NOVEMBER 8, 1895 - X-rays (electromagnetic rays) were discovered by Wilhelm Roentgen at the University of Wurzburg in Germany.

NOVEMBER 8, 1656 - Birthday - Astronomer and mathematician Edmund Halley (1656-1742) was born in London. He sighted the Great Comet of 1682 (now named Halley's Comet) and foretold its reappearance in 1758. Halley's Comet appears once each generation with the average time between appearances being 76 years. It is expected to be visible again in 2061.

NOVEMBER 9, 1965 - At 5:16 p.m., the Great Blackout of the Northeast began as a tripped circuit breaker at a power plant on the Niagara River caused a chain reaction sending power surges knocking out interconnected power companies down the East Coast. The blackout affected over 30 million persons, one-sixth of the entire U.S. population. Electricity also failed in Ontario and Quebec.

NOVEMBER 9, 1790 - Birthday - German mathematician August Mobius (1790-1868) was born in *Schulpforte*, Germany. He worked in the area of analytic geometry and was a pioneer in topology, the study of geometric figures that remain constant even when twisted or distorted.

NOVEMBER 18, 1883 - A Connecticut school teacher, Charles F. Dowd, proposed a uniform time zone plan for the U.S. consisting of four zones.

NOVEMBER 18, 1789 - Birthday - Photography inventor Louis Daguerre (1789-1851) was born in *Cormeilles*, near Paris. In 1839, at a meeting of the French Academy of Sciences, he announced his daguerreotype process, the first practical photographic process that produced lasting pictures.

NOVEMBER 18, 1889 - Birthday - American astronomer Edwin Hubble (1889-1953) was born in Marshfield, Missouri. He pioneered the concept of an expanding universe. The Hubble Space Telescope was named in his honor. It was deployed from the Space Shuttle Discovery in 1990, allowing astronomers to see farther into space than they had ever seen from telescopes on Earth.

NOVEMBER 27, 1701 - Anders Celsius (1701-1744) was born in Sweden. He invented the centigrade (Celsius) temperature scale commonly used in Europe and most of the world follows the metric system.

Readers are invited to share any major engineering event or milestones that they are aware of that occurred in November, or better yet submit a historical or noteworthy event for the December issue. Submissions can be made using the Suggestions Box or 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

Nobel Prize in Physics 2017

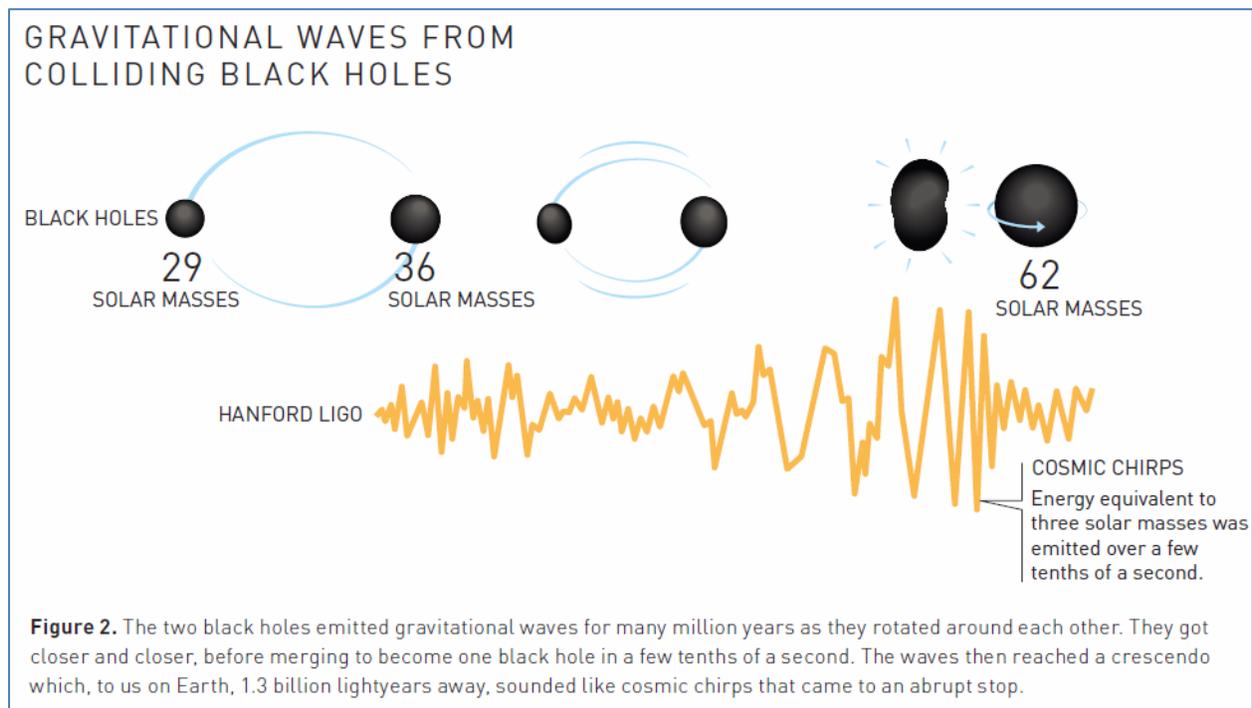
On the 3rd of October 2017, the Royal Swedish Academy of Sciences announced the award of the Nobel Prize in Physics 2017 with one half to Rainer Weiss (MIT) and the other half jointly to Barry C. Barish (Caltech) and Kip S. Thorne (Caltech), all of whom worked on the LIGO/VIRGO Collaboration, "for decisive contributions to the LIGO detector and the observation of gravitational waves."



Figure 14: Rainer Weiss, Kip Thorne, Barry Barish

GRAVITATIONAL WAVES FINALLY CAPTURED

On 14 September 2015, the universe's gravitational waves were observed for the very first time. The waves, which were predicted by Albert Einstein a hundred years ago, came from a collision between two black holes. It took 1.3 billion years for the waves to arrive at the LIGO detector in the USA.



The signal was extremely weak when it reached Earth, but is already promising a revolution in astrophysics. Gravitational waves are an entirely new way of observing the most violent events in space and testing the limits of our knowledge.

LIGO, the Laser Interferometer Gravitational-Wave Observatory, is a collaborative project with over one thousand researchers from more than twenty countries. Together, they have realized a vision that is almost fifty years old. The 2017 Nobel Laureates have, with their enthusiasm and determination, each been invaluable to the success of LIGO. Pioneers Rainer Weiss and Kip S. Thorne, together with Barry C. Barish, the scientist and leader who brought the project to completion, ensured that four decades of effort led to gravitational waves finally being observed.



Figure 15: LIGO sites

In the mid-1970s, Rainer Weiss had already analyzed possible sources of background noise that would disturb measurements, and had also designed a detector, a laser-based interferometer, which would overcome this noise. Early on, both Kip Thorne and Rainer Weiss were firmly convinced that gravitational waves could be detected and bring about a revolution in our knowledge of the universe.

Gravitational waves spread at the speed of light, filling the universe, as Albert Einstein described in his general theory of relativity. They are always created when a mass accelerates, like when an ice-skater pirouettes or a pair of black holes rotate around each other. Einstein was convinced it would never be possible to measure them. The LIGO project's achievement was using a pair of gigantic laser interferometers to measure a change thousands of times smaller than an atomic nucleus, as the gravitational wave passed the Earth.

So far all sorts of electromagnetic radiation and particles, such as cosmic rays or neutrinos, have been used to explore the universe. However, gravitational waves are direct testimony to disruptions in space-time itself. This is something completely new and different, opening up unseen worlds. A wealth of discoveries awaits those who succeed in capturing the waves and interpreting their message.

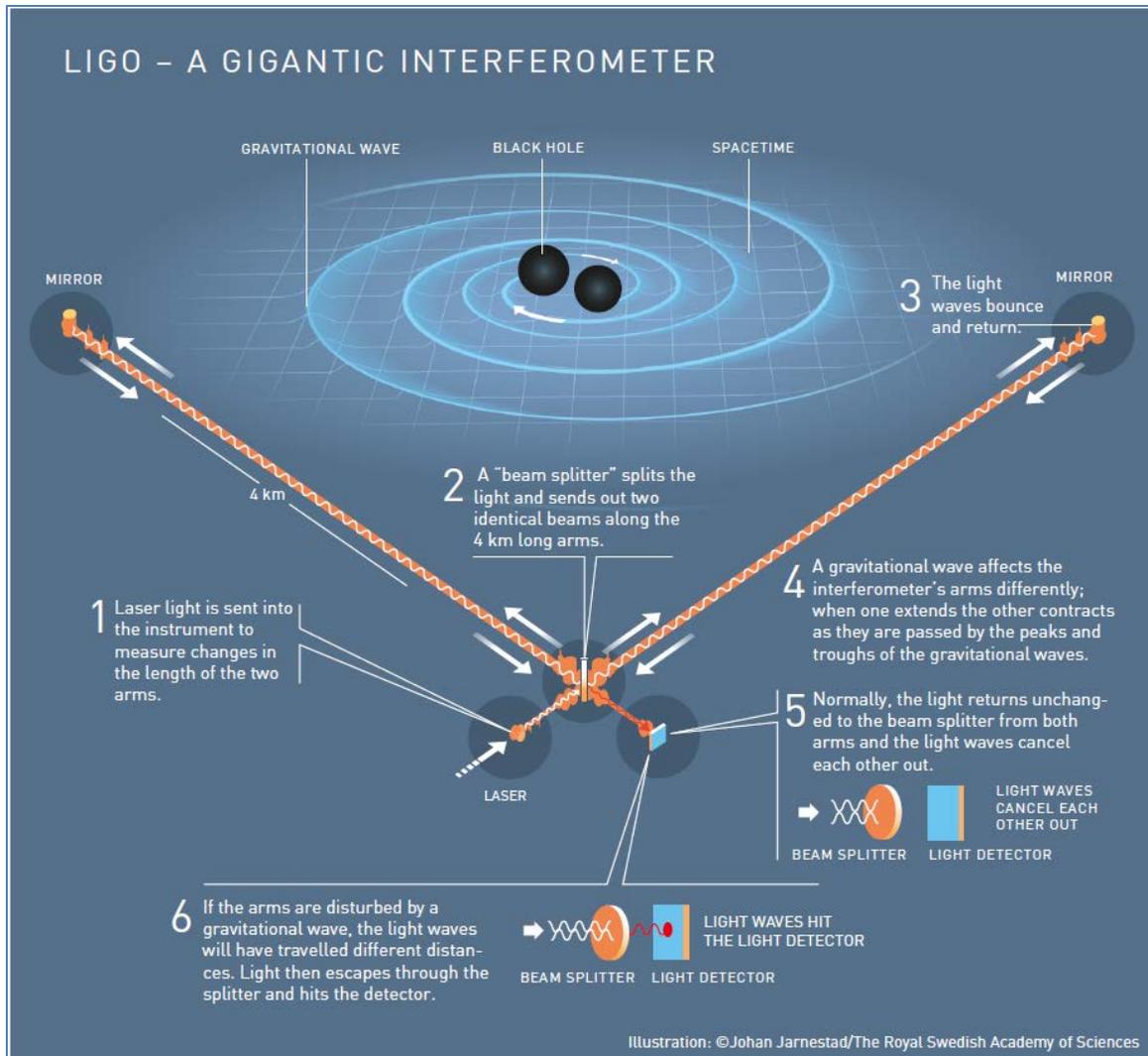


Figure 16: How does it all work?

FOR FURTHER READING:

- 1) Biography of Rainer Weiss at https://www.nobelprize.org/nobel_prizes/physics/laureates/2017/weiss-facts.html
- 2) Biography of Barry Barish at https://www.nobelprize.org/nobel_prizes/physics/laureates/2017/barish-facts.html
- 3) Biography of Kip Thorne at https://www.nobelprize.org/nobel_prizes/physics/laureates/2017/thorne-facts.html
- 4) A Simple Explanation of Gravitational Waves and the LIGO experiment available at https://www.nobelprize.org/nobel_prizes/physics/laureates/2017/popular-physicsprize2017.pdf
- 5) The Mathematics and Detailed (20 pages of reviewed background literature) Science Information on the complete Physics leading to the award and the committee's consideration is available at https://www.nobelprize.org/nobel_prizes/physics/laureates/2017/advanced-physicsprize2017.pdf
- 6) Official web sites of LIGO ~
 - a. www.ligo.org
 - b. www.ligo.caltech.edu
 - c. www.advancedligo.mit.edu

Curated & Formatted by Sharan Kalwani, Associate Editor, for publication in the IEEE SE Michigan section Wavelengths Newsletter for its members reading pleasure, November 2017. Sections and Figures reprinted by e-mail correspondence & permission of Jonna Petterson, Public Relations Officer, The Nobel Foundation, Stockholm, Sweden

Chapter 14 Report

The IEEE Robotics and Automation Society's (RAS) objectives are scientific, literary and educational in character. The Society strives to advance innovation, education, and fundamental and applied research in robotics and automation. The Society provides aid in promoting close cooperation and exchange of technical information among its Members and Affiliates, by holding meetings, and sponsoring periodicals and technical publications. More information: <http://www.ieee-ras.org/>

IEEE RAS in Southeast Michigan is composed of the following officers:

Javier Alcazar, Chair
Chaomin Luo, Vice Chair
CJ Chung, Treasurer
Jonathan Berent, Secretary

Our most recent event was the "Humanitarian Technology Day Conference" at Michigan State University on October 14, 2017.



The committee for the IEEE RAS Humanitarian technology day were:

Thassyo Pinto, Conference Chair
Monica Garcia, Co-Chair
Jordie Liao, Corporate Sponsorship,

- Brendan Murphy, Registration
- Noah Milberger, Marketing

- Brandon Harris, Treasurer
- Javier Alcazar, Advisor
- CJ Chung, Co-Advisor

Six talks, two keynotes, one workshop, one special session, one IEEE R4 meeting, and one robofest competition took place. More than 60 people attended the conference. Three robofest teams presented a humanitarian robotics and automation (R&A) project idea to a panel of judges. Pictures from the Humanitarian day are next.



On March 18, 2017 IEEE RAS held a technical meeting at Lawrence Tech. Two speakers presented:

- Speaker 1 from University of Michigan talked about "Pushing autonomous vehicles to their dynamic limits during obstacle avoidance"
- Speaker 2 from Continental Automotive talked about "Autonomous vehicles and their challenges"



Upcoming events:

April 6, 2018 – IEEE RAS will be at Michigan robotics day at the University of Michigan in Ann Arbor. <http://www.mirobotics.org/> Stop by and learn more about IEEE RAS

May 17-19, 2018 – IEEE RAS will assist in judging the robofest competition at Lawrence Tech. <https://www.robofest.net/index.php> Would you like to be a judge? Contact CJ Chung cchung@ltu.edu

More upcoming events are being planned for 2018. Are you interested in getting more involved in IEEE RAS activities in Southeast Michigan? We are looking for volunteers to join our officers. Help organize events of interest to our robotics community. Contact javier.alcazar@ieee.org for more information.

Chapter 7 Report

Chapter VII is made up of members of two societies, the Power and Energy Society and the Industrial Applications Society. The Power and Energy Society focuses on everything related to the transmission, distribution, storage, and usage of electric energy, including its measurement and control. The Industrial Applications Society focuses specifically on the unique needs of industry and commerce as it relates to energy.

In Southeastern Michigan, the joint chapter has nearly 300 members spread across over 40 employers. We have seven officers that have all been active for several years in Chapter activities. Their volunteer work has been instrumental in allowing multiple, diverse activities for the benefit of our members. In October alone we held two technical meetings. The first was a *Workshop on Interconnecting Distributed Resources with Electric Power Systems* held at the Troy Community Center. The second was a PES distinguished lecture on *Distribution Automation and Management Systems and Advanced Applications in Smart Distribution* that was sponsored by DTE Energy and had nearly 80 attendees!

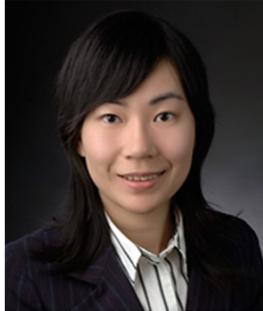
Our Officers include:

- Chair: David Mindham
- V-Chair (Technical Activities): Binaya Joshi
- V-Chair (PES): Looja Tuladhar
- V-Chair (IAS): Michael Anthony
- Secretary: Koustubh Banerjee
- Treasurer: Chris Nelson
- Past-Chair: Ian Hutt

It's an exciting time to be a part of the power industry. Technological innovation and changing generation fuel sources are driving change on the grid at a pace never seen before. It's impacting everyone from Regional Transmission Operators trying to manage the transmission grid under the uncertainty of intermittent resources to the residential customer trying to plug in their solar panels. It is likely that PES and IAS has something to offer everyone's interest - from cybersecurity to controls to communications to planning and operations. Please come check out one of our upcoming meetings or reach out to any of our Executive Committee for more information.

Chapter 17 Officers

Secretary: Wen Li



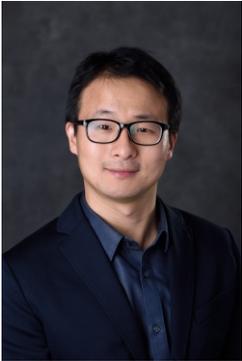
Dr. Wen Li received her B.S. degree in material science and engineering from Tsinghua University, Beijing, and M.S. and Ph.D. degrees both in electrical engineering from California Institute of Technology, Pasadena, in 2004 and 2008, respectively. She is currently an Associate Professor and Associate Chair for Space Management, Public Relations and Special Initiatives Announcement in the Department of Electrical and Computer Engineering at Michigan State University, East Lansing. Dr. Li is the recipient of the NSF CAREER Award (2011), the Best Application Paper Award at 3M-NANO (2011), and the Best Paper Award at International Neurotechnology Consortium (2013). She served as a member of the technical program committee or a session chair for a number of professional conferences, including IEEE EMBS Wearable Biomedical Sensors and Systems Technical Committee, IEEE MEMS, 3M-NANO, IEEE NANO, IEEE NEMS, IEEE BioCAS, and IEEE SENSORS. She is a senior member of the IEEE, and a member of the American Chemical Society (ACS), the IEEE Engineering in Medicine and Biology Society (IEEE-BMES), and the IEEE Eta Kappa Nu Honor Society (IEEE-HKN).

Treasurer:



Dr. Amar Basu received a BSE and MSE in electrical engineering in 2001 and 2003, an MS in biomedical engineering in 2005, and a Ph.D. in electrical engineering in 2008, all with honors from the University of Michigan Ann Arbor. His dissertation, under Prof. Yogesh Gianchandani, was in the area of microscale fluidic actuation and programmable actuation of microdroplets. Amar worked with Intel's Advanced Technology group, General Motors, Silicon Graphics, and served as an adjunct faculty at the University of Michigan. He is currently associate professor at the electrical engineering and biomedical engineering departments at Wayne State University. His research, supported by the NSF, focuses in developing microfluidic and microelectronic technologies for high throughput screening in research and clinical settings. Amar received the IEEE Professor of the Year in 2009 and the Whitaker Foundation Fellowship in 2003. His work as a consultant with Mobius Microsystems and Picocal has resulted in several US patents.

Vice Chair:



Dr. Junghoon Yeom is an assistant professor in the Department of Mechanical Engineering at Michigan State University. He received his B.S. in Mechanical Design and Production Engineering from Yonsei University, Seoul, Korea. He completed his Ph.D. in Mechanical Engineering at the University of Illinois, Urbana-Champaign in 2007. His dissertation was focused on designing, fabricating, and characterizing micro chemical systems including micro fuel cells and micro gas chromatography. Prior to joining in Michigan State University in fall 2013, he was a NRC research associate at US Naval Research Laboratory working on Si nanowire-based chemical sensors and solar cells. Dr. Yeom was a research scientist at Cbana Labs Inc. and served as a principle investigator for NASA lunar surface analysis project. He was also a visiting scholar affiliated with the nano-CEMMS center at UIUC to develop unconventional nanomanufacturing technologies. Yeom holds two patents and has co-authored one graduate-level textbook, Nanofluidics and microfluidics: systems and applications, two book chapters, 31 peer-viewed journal papers, and numerous conference proceeding papers and invited talks in the areas of MEMS, microfluidics, nanomaterials and nanopatterning.

Chair:



Dr. Randy Boone received a B.S. degree in electrical and computer engineering from the University of Iowa (1988), an MS electrical engineering from Wayne State University (1992), an MS engineering management from University of Detroit-Mercy (1996) and completed his PhD in 2011. Randy has been employed with Ford Motor Company for the past 28 years holding numerous product development assignments. His current assignment is working in the Electrified Powertrain Engineering (EPE) organization developing both Hybrid and Electric Vehicle application for future products. Randy is also an adjunct professor with the Electrical and Computer Engineering Department at the University of Michigan – Dearborn for the past 5 years and has taught a number of courses including: Automotive Sensors and Actuators, Engineering Mathematics, Intelligent Highway Systems, Embedded Systems and Active Automotive Safety Systems. Dr. Boone has also taught engineering courses at Wayne State University and Central Michigan University.

Election Follow Up!

As we mentioned in the July Wavelengths newsletter, August is not only time for everyone to take a work break (we call them 'vacations') but, also to consider how, and how much involvement in our IEEE activities we want, and how that involvement can benefit not only the IEEE but, us as well.

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.

In September we called for ballot nominations to the elected offices, and 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. Alternatively, 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,
November 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/>

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@gmail.com

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/semi-nars.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/eaal/eaal-chapters/find-an-eea-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>

Other Happenings

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

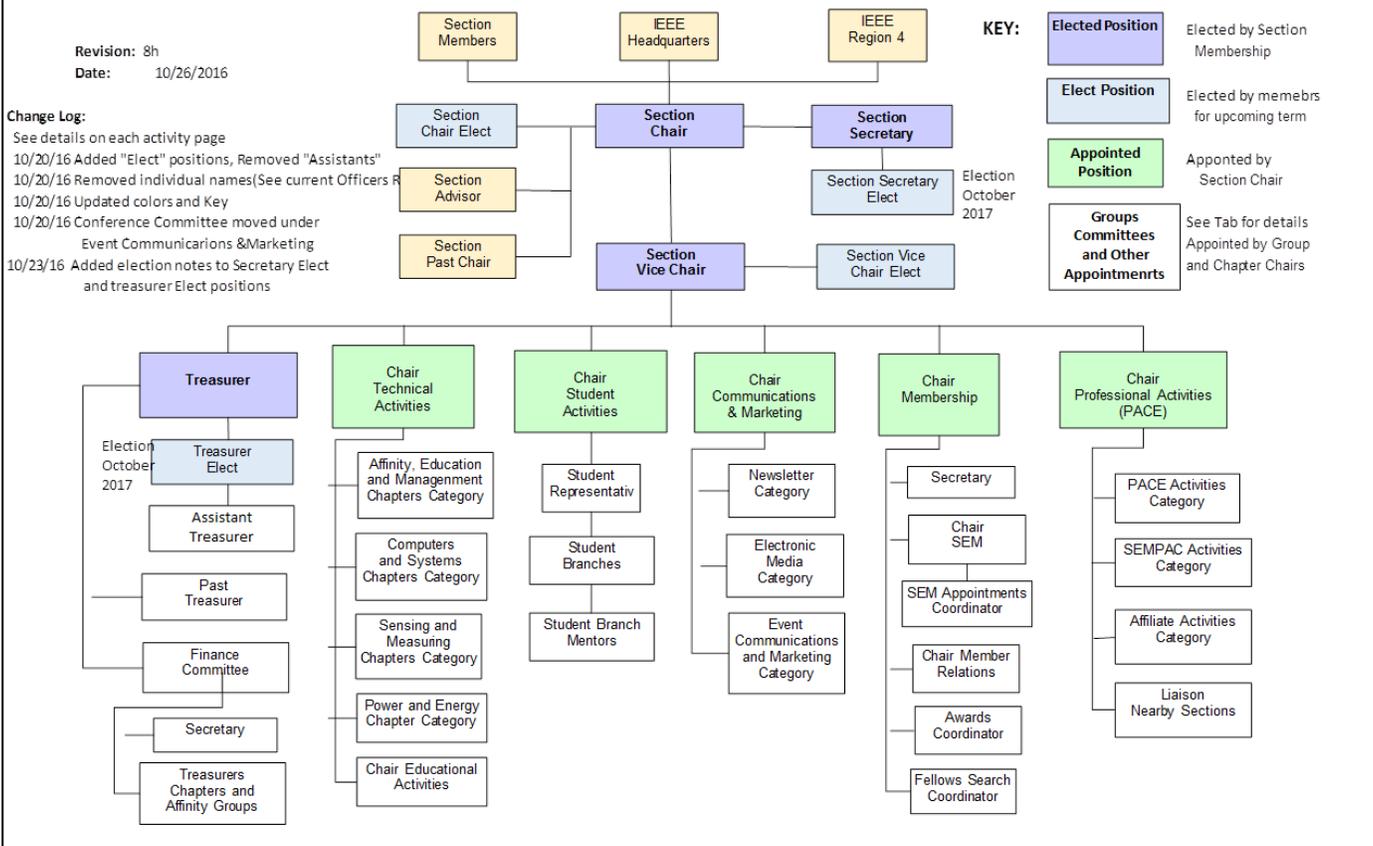
other chapters. In order to communicate the meeting dates of all the chapters, affinity groups etc., to our members to facilitate their attendance, leaders of the groups are requested to send meeting information to our webmasters for posting on section’s calendar.

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

Current Organization - IEEE Southeastern Michigan Section (SEM)



Download the [complete SEM Organization Chart](http://www.ieee-sem.com), 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.

November 1, Wednesday, Teleconference, 12:00 – 1:00 P.M. https://meetings.vtools.ieee.org/feed/meeting_ical/42556

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
jrwoodyard@gmail.com
karen.burnham@ieee.org

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

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

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

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

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

Editors:

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

newsletter alive and lively by providing alternative points of view.

Heads Up

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

Join the Team:

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

wavelengths@ieee-sem.org

OR

anyone of the following:

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

Wavelengths Annual Publication Plan for Articles

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

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

← Wavelengths Annual Publication Plan for Personal Profiles



Web & Social Sites

SEM Website

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

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

Section Website Event Calendar

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

SEM Facebook Page

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

SEM LinkedIn Page

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

SEM Officers:

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

Chair Nominations & Appointments
Kimball Williams

Chair Professional Activities (PACE)
Sharan Kalwani

Chair Student Activities
Hashim Abdul

Student Representative
Mehdi Mohammadi

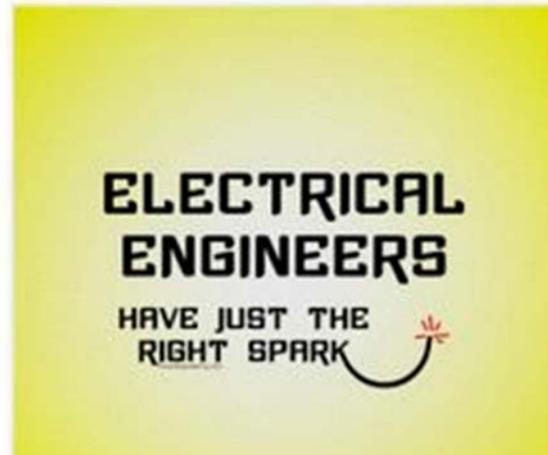
Chair Technical Activities
Kimball Williams



IEEE Southeastern Michigan

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

Click on the picture to give feedback!



Leadership Meetings

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

Advertising Rates

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

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

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

SEM Executive Committee Monthly Teleconferences:

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

SEM Executive Committee Face-to-Face Meetings:

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

SEM Standing Committee Meetings:

SEM Affinity Group Meetings:

SEM Technical Society/Chapter Meetings:

SEM University Student Branch Meetings:

- Meeting schedules are announced on SEM Web Calendar
<http://sites.ieee.org/sem/>
 (Select the "SEM Calendar" button in the top row.)
- Registration for all at:
<https://meetings.vtools.ieee.org/main>