Wavelengths

IEEE Southeastern Michigan
Electrical and Electronic Engineers Creating Our Future

Volume 57 – Issue 4

Contents

Section Chair's Message

Section Chair's Message:

Busy Spring:
There are many activities planned by Chapters, Affinity Groups and our Section this spring. See the calendar at www.ieee-sem.org .

Spring Conference:
Our Spring Conference is planned for May 4 at the Warren Community Center. Details and registration are at http://ieeesem.powweb.com/ieee semconference/. You are encouraged to attend.

Volunteering:
Just because it is Spring and Summer is approaching does not diminish the need for volunteers in our Section or in our Chapters and Affinity Groups. Much of the planning for Fall and Winter take place during the summer months.

The benefits of volunteering include, but are not limited to, building your network, growing your social skills, building your leadership skills and mentoring others with your knowledge. To volunteer, please contact leaders in the areas of your interests (www.ieee-sem.org and click on "About SEM" tab) or contact Kimball Williams our Chair of Nominations and Appointments at k.williams@ieee.org . You will find the experience interesting and rewarding.

Sections Congress:
Sections Congress takes place once every three years. This August representatives from Regions and Sections from all over the world will convene in Sydney, Australia. The purpose is to exchange viewpoints, make recommendations to IEEE International and to learn new and better ways to manage their respective responsibilities. Region 4 and SEM are sending representative to this congress. Please feel free to communicate concerns and recommendations to your SEM officers who will make sure our representatives know your thoughts.

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

Sense of Humor?

April 1 is here, and one's thoughts turn instinctively towards pranks, jokes and gags of all kinds. Engineers are social animals just like everybody else. But there is no doubt in my mind that us techno geeks, do possess a very keen sense of humor, despite what the general public may think.

There is a subtle difference however – our levels of entertainment often are laced with occasionally a great deal of logic, or sometimes convoluted patterns, after all we are creatures driven to design and build things, the way "we" see them.

I was prompted to write this special article, based on a comment by our esteemed colleague – Kimball Williams – who related a story from an ancient April Fools Days edition of "Scientific American", in which issue, they spoke about the emanation of "dark light" from a flash-light in which the batteries had been accidentally placed in reverse polarity!

The humor is clearly unmistakable – to all of us in this field. This reminds me of many of the elaborate pranks we pulled during the days we went to engineering school on our fellow students and for a little while, during the early days of being gainfully employed.

Sometimes it was benign stuff, such as filling a colleague's work area with balloons right up to the height of the cubicle, so they would not suspect as they walked in and opened the door.

Rarely it veered into the extreme, as I recall one occasion where we attached with good old duct tape an air horn underneath the chair, so whenever they sat down it triggered the device and a loud ear piercing blast resulted in them nearly "jumping" out of their skin (Hint: do not try this on elderly folks, who are near retirement)!

A little bit of history about April 1 would be timely. It seems that one day of the year has been always set aside in practically all nations & cultures, as the appropriate for a little gaiety and fun, pulling a harmless hoax on our peers or neighbors. Some digging reveals that way in 1392, the famous book 'Canterbury Tales' by the English poet – Chaucer, mentions tricking a fox on the 32nd day of March, which of course readers took to mean April 1st.

The arts and literature is generously littered with so many examples of pranks and hoaxes at a grand scale. In our engineering domain: the few I would like to share include the one by the Swedish National Television telling viewers how they could convert their black and white TV sets by placing a nylon sock in front of it.

MIT, Stanford and other top class engineering schools are famous for pulling outrageous stunts on that day, which require elaborate planning and considerable resources. In this modern age of the Internet, Google is famous for putting out a hoax every year since 2004. Of course many a true and notable event was announced on this day as well, none of which were false or meant to fool anyone.

Some of the serious and important examples are: In 1960, TIROS-1 satellite began the first broadcast of television pictures from outer space' in 1976 Apple Inc., is formed by Steve Jobs, Steve Wozniak, and Ronald Wayne in Cupertino, California; In 2004 Google announces Gmail to the public.
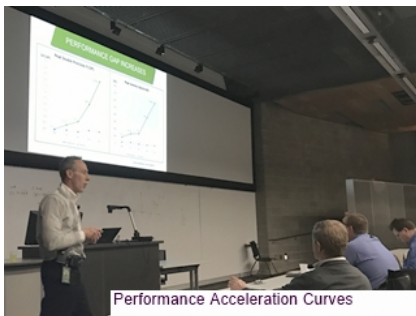
Has any one of our dear readers been a victim OR guilty of an April 1st prank? Do write in and share some of your best stories. I can promise to withhold all names, and the best ones will be published in a future edition of our newsletter – the Wavelength.

Sharan Kalwani, Senior Member

March w/Ch5:

IEEE–CS S.E. Michigan Chapter
March '17
Technical Meeting report

At Oakland University's relatively new Engineering Building, in room EC 116 on March 15th, the section chapter held its second technical meeting of the year. At this event, we hosted a whole team of folks from nVIDIA: Ty McKercher (Principal Solution Architect), Kevin Williams, Bill Veenhuis and Jeff Roberts. The theme of the technical session was all about GPGPUs (General Purpose Graphics Processing Units or GPUs for short) and their evolution from mere assistants in personal computers for speeding up games, to their present dominating role in High Performance Computing, Machine Learning, Autonomous Driving technology and biomedical applications – like a Smartphone App for determining Parkinson's Disease or detecting potential skin cancer.

Performance Acceleration Curves

Kevin kicked off the event by tracing the history of GPUs, and how the company nVIDIA got its start as a spin off in 1993 out in Silicon Valley. Today it is a $7 billion company with over 9,500 engineers. Yes, we were all surprised to learn that nearly 80% of the firm is comprised of actual engineers!

Today they are known as "The AI Company" due to their pioneering work in supporting a huge variety of computing intelligence platforms, both from the hardware and software perspective. Today the various research and actual implementations are dealing with the real lofty high-end, namely Zettabytes (or a unit of information equal to one sextillion (1021) or, strictly, 270 bytes)!

Full House!

To put this in perspective, this is 1,000 Exabytes, and an Exabyte is a 1,000 Petabytes, while a Petabyte itself is a 1,000 Terabytes. All of this data is coming from a variety of sources such as: "IoT" (Internet of Things), streaming video, Natural Language Processing (NLP), Wearable Devices, Cyber Security logs and the steadily emerging world of Connected Vehicles (our own backyard).

Diving further into the history, the "hockey stick' curve in the trend occurred somewhere around 2012, also known as the "Big Bang" of this field, when the powerful capabilities of GPUs became more affordable and achieved record performance levels, in turn permitting machine like intelligence applications to be feasible. Back in 2012, the calculation speed of a GPU was about 1 billion floating

point calculations/second, today it is achieving 5.5 billion calculations/second. Just the sheer compute power is not enough, in order to be meaningful, back in 2008 the GPUs could move data at the rate of 100 Gigabytes/second, and now can touch around 800 Gigabytes/second. Thus a 5X increase in compute plus an 8X increase in data movement rates, contributed to making science fiction like applications possible.

Ty then led us through the rest of the journey by elaborating on how these new ""Deep Learning" scenarios actually function. Their work is based on complex algorithms, which when expressed in software on GPUs, create neural networks and build computational structures or "learn" along the way.

After dealing with numerous training sets, they can accomplish the production tasks quite well, such as recognizing objects, doing inferences, etc. Also they can be fed data from multiple sensors in real-time, which means that they can perform tasks such as autonomous driving. The accuracy has been steadily increasing and the fields in which these platforms are being pressed into service, range all across many industries: internet services, medicine, security, automotive, for starters.
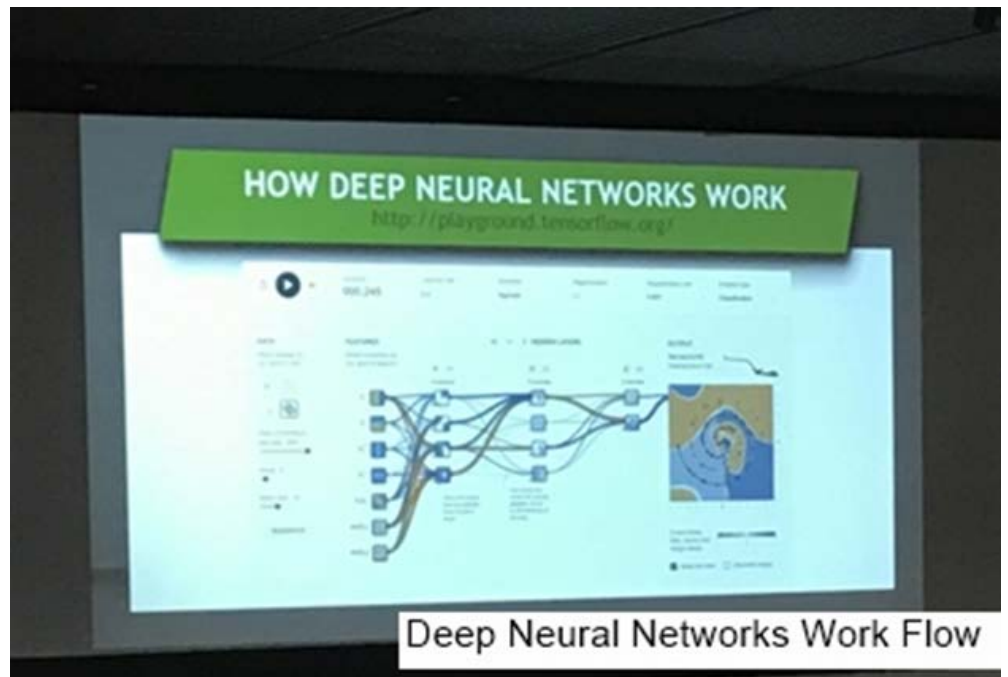
March w/Ch5: Continued:

The architecture behind all of this was shared with us. The latest implementation example – called DGX-1, is an 8 GPU system, connected together in a cubical mesh network topology (NVLink) and more importantly, hosts a very rich software stack. The most popular ones are: Caffee, TensorFlow, CNTK, Theano, etc., which are all packaged in software containers, to make it easy to use. Once this is downloaded and activated, Ty was able to demonstrate many a live internet based applications. In fact, today many cloud vendors are making these available both as a platform and as a service.

The session wrapped up with several questions from the 70+ folks in the audience (32 of whom were IEEE members) on using these platforms for embedded systems, efficiency when compared to other contemporary approaches, future activities, etc. Many were surprised to learn that several of the software packages was open source and freely available.

Several folks hung around for networking after the event, so interest remains high. We do hope to see nVIDIA again in the very near future, perhaps at another SE Michigan venue.

-- Sharan Kalwani (Vice Chair)

Deep Neural Networks Work Flow

Digital Library Use:

Dear Valued IEEE Member,

I would like to thank you for being an important part of our organization. This is a general reminder to all subscribers that IEEE personal digital libraries are designed for your personal research, staying up-to-date in your field, and helping you develop personal patents. However, organizational or shared use is prohibited. Please be assured that this is no indication of any current violation of your subscription(s).

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Changing People?

STOP EXPECTING PEOPLE TO CHANGE

I read a quote a few months ago that struck me – "It's so hard to change yourself, what makes you think you can change someone else?" This seems so true. And yet, how much energy do we invest trying or at least hoping other people will change? We want our not-so-forthcoming managers to give regular and helpful feedback, our homebody selves to enjoy crowds and large parties, our not-so-affectionate partner to become a cuddler.

People are who and (largely) how they are. Even with lots of effort, coaching, and even counseling, it's hard to change.

As someone who leads a training and development company, it feels risky to write this. I'm concerned that my words will be misunderstood. So I want to be sure I'm clear. People can learn new skills. Managers can learn to coach and give feedback. People at all levels and in all roles can learn to communicate differently. Everyone can learn to use new technology. But we don't fundamentally change who and how we are. People who hate to public speak aren't likely to wake up tomorrow clambering to give presentations to a thousand people. People who don't like crowds aren't likely to want to spend every weekend at large sporting events.

What I'm really trying to say is, stop trying to get something from someone who can't give it to you. If you work for someone who never provides feedback, no matter how often you ask, get input from someone else. Lots of people can provide you with helpful information if you ask for it and make it safe to tell you the truth. If you partner or best friend isn't social, ask someone else to go to events with you. If you're chastising yourself for not being more athletic, accept that you like to read, and buy yourself a new book.

Instead of trying to get something from someone who can't give it to you, get what you can from that relationship and get the rest of your needs met elsewhere. And tell others to do the same. I had someone working for me a few years ago who was extremely sensitive and didn't do well receiving feedback. I tried to accommodate her needs and preferences, softening my messages, picking my battles, and in the end, giving less and less feedback. And it was exhausting. Eventually I said to her, "I'm not the right manager for you and this is the not right company for you. It's not a good fit. You won't be happy here, and I want you to be happy. Let's help you find another home."

I'm not telling you to get a new job. I'm telling you to be realistic in your expectations of yourself and others. The most powerful thing you can do is to be yourself and let others be themselves. And if you don't like how or who someone is, hang out with someone else.

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About Shari Harley

Shari Harley is the founder and President of Candid Culture, a Denver-based training firm that is bringing candor back to the workplace, making it easier to give feedback at work. Shari is the author of the business communication book *How to Say Anything to Anyone: A Guide to Building Business Relationships that Really Work*. She is a keynote speaker at conferences and does training throughout the U.S. Learn more about Shari Harley and Candid Culture's training programs at www.candidculture.com.

Future City Judging:

Each year 6th, 7th and 8th grade students in the USA engage in a competition with other students from schools throughout the county to build their math, engineering and science skills by designing a new vision of a 'city of the future'. During the design they consider local, regional and universal factors affecting the lives of their future inhabitants of the city and balance the needs of various classes of individuals. Multiple, and possibly conflicting, requirements are addressed as they design their cities' housing, transportation systems, energy production methods and distribution, recreation spaces and factories and many more.

The experience begins with a focus for the city and selection of a location and definition of its environment. The computer program "SimCity", (a free download), is used to assist students to input the design elements of their city and see the effects of the competing demands on their resources as each is blended into the final design.

As a 'high level' form of STEM (Science, Technology, Engineering, and Mathematics) education, Future City gives teams of students the experience of working in teams, doing research as well as technical writing.

Then when they build 3D models of their city and attend the competition they develop their oral presentation skills. The overall result is a concrete example of the application of their individual studies coursework to practical problems and an awareness of community and business issues on the local and global levels.

For more information see the primary website at: **http://futurecity.org/**

Competitions for Future Cities are held at the State, Regional and National levels with prizes at each level, as well as special prizes by individual organizations and groups. Many times teams from Michigan Schools have won at the Regional and National level.

Winners at the national level may receive:

- 1st Place: A trip to Space Camp and $7,500 from Bentley Systems
- 2nd Place: $5,000 from the National Society of Professional Engineers
- 3rd Place: $2,000 from IEEE-USA
- 4th Place: $750 from Ohio University
- 5th Place: $750 from the National Council of Examiners for Engineering and Surveying

Some of the local teams that participated in this years' competition are pictured in the accompanying photos.

Future City Judging: Continued:

In Southeastern Michigan the primary organization supporting and organizing 'Future City Competition' is the Engineering Society of Detroit (ESD).
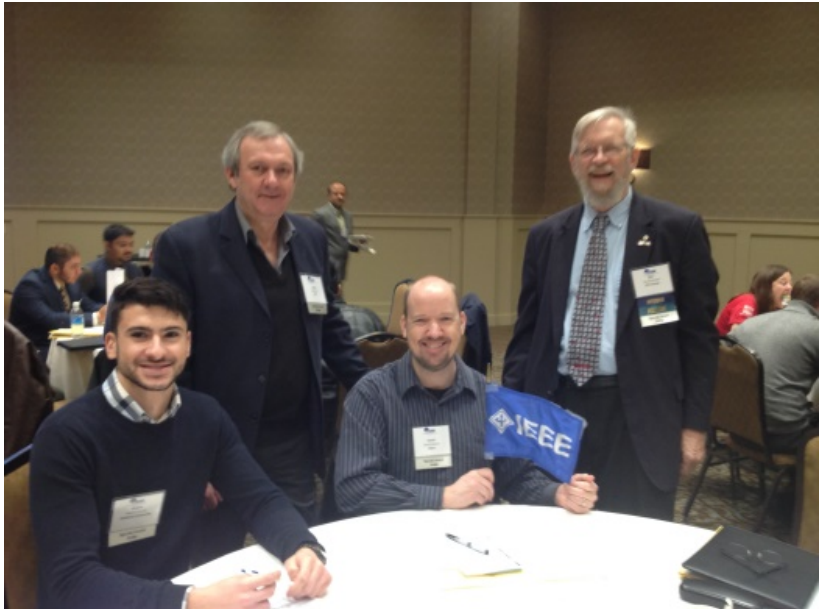
IEEE Southeastern Michigan Section (SEM) is an Affiliate Council member of ESD, and each year our own Don Bramlett leads a team of IEEE members to evaluate the work of the students and present our own "Electro Technology Award" to the team which demonstrates the "Best application of the theory and practice of electrical, electronics and computer engineering and related sciences to promote the sustainable development of the future city.".

On January 23rd, 2017 Don Bramlett lead our SEM team shown in the accompanying photograph. The team consisted of Malek Jaradi, David Moris, Phil Hall, Don Bramlett and Kim Williams (not shown).

We had a great time, met some really bright and engaging young students, and renewed our faith in the next generation.
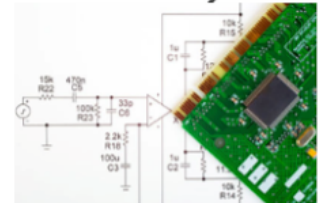
Why not join us next year?

kw

EMC Expert Classes

Officer Nominations:

Nomination for Election:

Now is the time that the MGA (Member Geographic Association) of IEEE requires us to let everyone know when we plan to begin the nomination for officers, and hold the elections for 2017. (A 6 month lead time is written into the MGA Policy Manual).

Some of our members have commented in the past about beginning the nomination process "…in May when we don't hold the election until October or November..".

Now that you have been 'notified', let me present the overall schedule as planned by the Nominations & Appointments Committee:
- March: Notification of Timing
- August: Call for ballot names
- September: Ballot build
- October: Elections (Electronic)
- November: Compile Results
- December: Report Results

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

Nominations for election to posts at the Section and each Geo-unit (Chapter and Affinity Group) will be open in August. Watch for the e-notice and the article that will appear in the July Wavelengths Newsletter.

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

Appointments:

With a large and diverse Section like ours, we experience what is referred to as a 'churn' among our officer ranks.

'Churn' implies that we have an officer body that is in constant evolution and growth. Because the experience of serving as an IEEE officer tends to prepare someone for greater responsibilities, many of our officers find themselves being handed job advancements that take them into more demanding positions.

When that happens, they often need to 'cut back' on their direct involvement in IEEE in order to address the new challenges of their new position. Since IEEE is a totally volunteer organization, we expect to have officers focus on other of their life demands. When that happens we look for replacements.

One of the most productive training grounds for increased job responsibilities is that of an IEEE Secretary. Because it is so successful at training new people for increased responsibilities, it is also one of the most often positions that needs to be filled.

Secretary of a Geo-unit may be just the opportunity you need to improve many of your 'soft' skills.
Please consider the following opportunities:

Secretary Positions Open:
- **Student Branch Mentors Committee**
- **Nominations Committee**
- **Professional Activities**
- **Consultants AG**
- **Chapter 1**
- **Chapter 9**
- **Chapter 11**
- **Chapter 12**
- **Chapter 13**
- **Chapter 15**

These positions above also require membership in the individual Affinity Group or Technical Society that forms the base of the Geo-unit. (Note: this is not true for the Standing Committees, which is why many members gain their early Officer experience in a committee position.)

Training:
It is possible that volunteering for a Secretarial position may be your first experience engaging in an IEEE committee or Geo-unit. While previous experience is always helpful, if you are just starting in a new position it is helpful to quickly review your past training, and go over any available training for the new position.

For an IEEE Secretary (Administrative Assistant) we have posted several training modules on the IEEE SEM Website in the form of PowerPoint and Voice over Power Point (VoPPT) modules. These may all be found on the SEM Website at:
http://sites.ieee.org/sem/about-sem/training/

I recommend at a minimum reviewing:
#32: Secretary Controller of Operations, and
#42: Suggestions for Leading a Committee

If you are interested in exploring your options for participation through one of these positions, please contact me, or the organization Chair.

Kimball Williams
k.williams@ieee.org
313-355-4396

Website Window

Those of us who have been members of the Section for a long time tend to forget that there was a period when we were 'all at sea' when it came to knowing where to go to find information about IEEE, the Section, its Geo-units (Affinity Groups & Chapters) and Standing Committees.

The 'wellspring' of information about IEEE in Southeastern Michigan Section is the SEM Website:
http://sites.ieee.org/sem/

While the first page (SEM Home) of the SEM Website gives you an interesting glimpse into what is going on in the Section, the real depth of information can be found under the various 'TABs' listed across the top of the first page.
About SEM / SEM Blog / Careers / Chapters / SEM Calendar / Section Conference / Wavelengths.

Under About SEM, as an example, you will find sub topics:

- Current Officers and Committees
- Email Notifications
- Membership
- Officer Duties
- Region 4 Website
- SEM Online Community
- vTools
- Training Material
- SEM Meetings List
- Old IEEE-SEM Website
- Student Activities
- IEEE Member Discounts
- Coming Events & Links
- West Michigan Section
- Windsor ON Section
- Expense Reporting
- RSS Feed
- Section History
- MGA Operations Manual

This page alone can keep you busy for a long time.

Panes of Glass

Under the first of these 'TABs' in the 'About SEM' page the first entry is:

- Current Officers and Committees

There are two more entries in that page;
The SEM Organization Chart, and the **Officer Roster**.
In these two documents you can locate the leadership and their reporting routes for all the elected and appointed officers in the Section.

This can be especially helpful if you are new to the Section and want to know what opportunities exist for participation in your technical specialty. The list of Chapters in the Officer Roster also contains the listing of the supporting IEEE Technical Society or Council, so a brief 'search' can lead you directly to the central operation where members with your common interest meet.

Also listed are the Affinity Groups that span all the technical disciplines and focus more on community, networking and social functions. If you are looking for fun group activities, they can be found in those groups.

Training:

Also on the 'About SEM' page you may notice the "Training Material" entry which can direct you to the listing of training modules, both as PFF files and as Voice over Power Point modules.

Module #39 'SEM Website Intro' will give you a brief 'walk' through the Website itself.

If you are interested in using the opportunity to gain experience in the many 'soft skills' that come along with active involvement in the IEEE as an officer, look at module #46 "Virtual Training Plan" and check out what it has to offer.

Stretching out:

By now you should have noticed that at each page in the SEM Website, you will see a link near the top that connects you to the **e-Wavelengths**. This is our on line, up to the minute, listing of local and regional activities that may be of interest to our members.

e-Wavelengths is where you will go to find out 'what's happening in the Section and beyond. Especially if you are new to the Section, you should look at the e-Wavelengths and sign up for its 'RSS' feed to be informed of new items and changes as they occur.

The 'Wavelengths' document you are reading now is our 'historical' archive of documented Section activities, and notification of long term events. Because of the 'periodic' publication of this 'newsletter', we are unable to keep up with recent changes, and new opportunities. This is where the e-Wavelengths is at its best, to keep us 'up to speed' and aware of new opportunities for gatherings and technical meetings.

If you are not already a 'subscriber' to the e-Wavelengths, this is the time to take that action.

kw

Science Fair 2017:

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

The 60th Annual Science and Engineering Fair of Metropolitan Detroit (SEFMD) was held from March 14 through March 17, 2017 in the Michigan Hall of the Cobo Conference Exhibition Center in downtown Detroit. Judging of student projects was performed on Wednesday, March 15. This year the SEFMD had over 130 schools participate from Wayne, Oakland, Macomb and Washtenaw counties with approximately 2,000 students having 1642 projects on display in two Divisions, the Junior Division (6th thru 8th grade students) and the Senior Division (9th thru 12th grade students). Exhibits were classified into 23 general categories for judging; including Embedded Systems, Energy: Physical, Robotics, and System Software.

For the 22nd straight year the IEEE Southeastern Michigan (IEEE-SEM) Section has provided a team of volunteer judges to evaluate student projects associated with IEEE fields of interest. The Section would like to express its appreciation to the IEEE-SEM Section members who volunteered to be members of the IEEE professional organization awards judging team or serve in other roles this year.

The Section wishes to thank the eight (8) IEEE-SEM members, and their companies/institutions, for taking the time to volunteer and help to make the Science Fair a more pleasurable and meaningful experience for the middle school and high school students who participated.

The IEEE-SEM judging team was composed of the following seven (7)) volunteers:

Don C. Bramlett, PE, SMIEEE, FESD, FMSPE
    DTE Electric (DTE Energy) – retired

Rama K. Gottumukkula
    University Of Michigan – Ann Arbor

Mahmood Tabaddor
    Underwriters Laboratories, Inc.

Philip Hall
    University of Melbourne (Australia)

Ralph Mackiewicz
    SISCO, Inc.

Kimball Williams
    DENSO – retired

Bill Quinlan
    American Axle & Manufacturing

Other IEEE/SEM Section members served in other capacities at the SEFMD, such as:

Dave Morris, Ph.D. (General Category Judge)
    MITRE

The judges had the opportunity to view and evaluate a number of exhibits, especially some interesting projects in areas pertinent to IEEE fields of interest. The judges and the high school students in the Senior Division had the pleasure to interface and discuss in depth some of the principles, scientific techniques, engineering approach, experimental results and applications pertinent to the projects.

The IEEE-SEM Section, based on the evaluations of the panel of judges, awarded three (3) First Place Grand Awards in the Senior Division, consisting of a personalized certificate and a cash award for each awardee. These awards were presented to:

Senior Division:

Robert Look, a junior at Addison High School, for his project entitled "Testing the Electrical Energy Production Capability of Microbial Fuel Cells."

Malini Mukherji, a junior at Notre Dame Prep High School in Pontiac, for her project entitled "Determining Light-Source Location using Machine Learning and Solar Cells."

Science Fair 2017 Continued

Josh Zhe, a sophomore at Detroit Country Day Upper School in Beverly Hills, for his project entitled "Raspberry Pi Autonomous Cars Driving and Interacting."

The panel of judges also determined that the IEEE-SEM Section would provide s number of Outstanding Achievement Awards to other noteworthy projects in the Junior and Senior Divisions. Each outstanding Achievement Award consisted of a personalized certificate for each awardee. Some of these awardees include:

Marinos Bernitsas, a freshman at Northville High School, for his project entitled" Do Fish Hold the Secret to Hydrokinetic Energy Harnessing?"

Richard Yang, a junior at Troy High School, for his project entitled "Optimization of Electro Pulsing on 3Y-TZP Ceramic Water Filter Sintering."

Jovana Djokovic, a senior at University Liggett in Grosse Pointe Woods, for her project entitled "Clean Electricity from Waste Water: Implementing and Improving Hydrokinetics."

Isaac Zondag, in the 8th grade at Oakland Christian Middle School in Auburn Hills, for his project entitled "Magnetic Accelerator."

Mathew Yaldo, a senior at AGBU Alex Manoogian High School in Southfield, for his project entitled "Robotic Distance Sensors for Cars."

Hongxiang Zhao, a junior at Detroit Country Day Upper School in

Beverly Hills, for his project entitled "An Integrated Approach to TSP-Based Clustering Algorithms."

Ian Rasch and Parker Authier, seniors at Macomb Mathematics Science Technology Center in Warren, for their team project entitled "Harnessing the Electrical Potential of Lightning."

For further information on the Science Fair judging, awards and project abstracts go to www.sefmd.org.

The IEEE/SEM Section plans to continue to staff other panels of special awards judges at both the Michigan Regional Future City Competition and the SEFMD in 2018, and in subsequent years. These are just a couple of the pre-university education programs that the IEEE-SEM Section promotes.

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EMC in Milwaukee:

2017 Seminar Fee

IEEE Members	$ 125.00
Non IEEE Members	$ 175.00
IEEE Life Members	$ 50.00
IEEE Student Members	$ 20.00

Registration includes Tutorial Record

Attendance Limited to 160 ... *Register Early*

This Seminar qualifies for 8 PDH – Personal Development Hours as defined by the State of Wisconsin - Department of Safety and Professional Services

Registration Instructions

Due to the rising cost of Hotel Conference Facilities, and IEEE Conference Rules, No Group Discounts may be offered.

To Register - go to:

www.emcmilwaukee.com

Crowne Plaza Milwaukee Airport

6401 South 13th Street
Milwaukee, Wisconsin 53221
414-764-5300

The Crowne Plaza Milwaukee Airport Hotel is offering reduced room rates for reservations prior to Friday March 10th, 2017.
Room Rates are $95.00 (single or double occupancy) Mention "**IEEE Seminar**" when making room reservations.

2017 EMC Seminar Committee

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The EMC Chapter of the IEEE Milwaukee Section presents the 2017 EMC Seminar

Global Market Access

An In-Depth Study of GMA's impact on EMC Testing

with

Elya Joffe
President of Elya Joffe - Electromagnetic Solutions, Ltd. and EMC Engineering Specialist and Consultant

and

Mark Maynard
American Certification Body (ACB)
President - IEEE Product Safety Engineering Society (PSES)

March 14, 2017

CROWNE PLAZA
MILWAUKEE AIRPORT

EMC in Milwaukee: (Cont.)

About Today's Seminar –
Who Should Attend?

Design Engineers, Program Managers and Regulatory Managers. This seminar addresses EMC Design Techniques along with Global Safety Regulations and Markings. Today's Seminar will address how our Global Environment requires all three functions to be addressed simultaneously to meet Targeted Dates and Targeted Costs. The attendee will also have access to over 40 Providers of EMC Testing Products and Services.

Elya Joffe

Elya B. Joffe is the President and Principal EMC Specialist of "Elya Joffe - Electromagnetic Solutions, Ltd". With a total of over 30 years of professional experience, his work focuses on consulting and training in EMC and Electromagnetic Effects Engineering. Elya is a Registered Professional Engineer, an iNARTE-Certified EMC Engineer, EMC Master Design and ESD Control Engineer. He has authored/co-authored over 30 papers and is Author of the book "Grounds for Grounding". Elya can be reached at: ebj@StopEMI.com

Mark Maynard

Mark Maynard is the Business Development and Communication Manager at American Certification Body, Inc., and has over 25 years of experience in compliance engineering, in the areas of EMC/EMI, wireless/telecom, product safety, environmental, and quality management systems. He also currently serves as the President-Elect for the IEEE Product Safety Engineering Society, and is the Exhibitions Chair for the 2017 IEEE EMC Symposium. Mark can be reached at markm@acbcert.com .

Welcome … from Jim Blaha, EMC Chapter Chairperson

2017 is our 16th year in offering an IEEE EMC Seminar. This year's program is focused on "Global Market Access" and the Hidden Challenges within the phases of Product Development. This Seminar brings together two Global Experts that understand this Challenge. Elya Joffe is past President of both the IEEE EMC Society and the IEEE Product Safety Engineering Society. He has Lectured and Consulted Globally addressing both applications.

Mark Maynard is current President of the IEEE Product Safety Engineering Society and has extensive experience with Global Certifications, including Wireless Certifications. Join us, seating is limited. Our Goal of providing an EMC Seminar that is Local, Affordable and Providing the Highest Level of Educational Value is again accomplished with Elya Joffe and Mark Maynard.

An In-Depth Study of GMA's impact on EMC Testing

7:30 – 8:20am
Registration and Continental Breakfast

8:20 – 8:30am
Welcome and Introductions

8:30 – 10:00am
1st Technical Session
    Mr. Mark Maynard
        What is Global Market Access?
        Where does EMC fit in with Product Safety?
        Product Markings, DOC's, Directives …
        IoT – What is IoT? How is it Regulated? and
        Who is Responsible?

10:00 – 10:30am
Morning Refreshment Break
    Exhibitors Display and Demonstrations

10:30 – 12:00pm
2nd Technical Session
    Mr. Elya Joffe
        The Challenges in Ultra-High Speed PCB
        Design for EMC and Signal Integrity
        High-speed channel characterization / modeling
        3D IC and 3D packaging
        Measurement Techniques

12:00 – 1:00pm
Lunch with the Exhibitors and
IEEE Acknowledgments

1:00 – 2:30pm
3rd Technical Session
    Mr. Elya Joffe
        How to Fail EMC in 10 Easy Lessons
        Take Home Review Sheet to keep Posted in
        your office.

2:30 – 3:00pm
Afternoon Refreshment Break
    Exhibitors Display and Demonstrations

3:00 – 3:15pm
IEEE Recognition Awards

3:15 – 4:45pm
4th Technical Session
    Mr. Mark Maynard
        Wireless Global Market Access
        Wireless Access – Government Controlled
        FCC Certification vs. the World
        How to Design for Wireless GMA

4:45 – 4:50pm
Mr. Jim Blaha
    Closing Comments and Seminar Survey

4:50 – 5:45pm
Post Seminar Social with Exhibitors

SWE PDC: May 20th   http://compes-pdc.wixsite.com/compes2017

Coalition of Minority Professional Engineering Societies
PROFESSIONAL DEVELOPMENT CONFERENCE 2017

MAY 20th, 2017
8 AM- 4 PM

Theme:

SELF-DRIVEN SUCCESS

REGISTRATION OPEN NOW!!

Kimberly Pittel
(Ford Motor Company)
Keynote Speaker

Anne Bonney
(John Maxwell Team)
Motivational Speaker

Location: **Ford Powertrain Engineering, Driveline & Manufacturing**
29500 Plymouth Road, Livonia, MI 48150

Mission: COMPES PDC allows the ability to network with 200+ professional engineers from private (e.g., automotive, energy, etc.) and public (government) sectors. Although many are minority professionals, NSBE, SHPE, and SWE are planning this professional development conference for all engineers. There will be sessions on technical topics, soft skills, and on developing tools for personal and professional growth.

Registration: Please visit WWW.COMPESPDC.ORG to register by May 6th, 2017. For more information please contact info@compespdc.org

EMCFest 2017:

ADVANCE PROGRAM

The Southeastern Michigan EMC Chapter Proudly Presents:
EMC*Fest* '2017

"EMC Troubleshooting Kit:"

A Tutorial and Exhibition
With Honored Guest Speaker

Ken Wyatt

Thursday, May 11, 2017

**At
Embassy Suites**
19525 Victor Parkway,
Livonia, MI 48152
734-462-6000

IEEE Electromagnetic Compatibility (EMC) Society.
EMCFest'2017 Home Page:
http://www.emcfest.org
Register On-Line!

Program Outline
Thursday May 11, 2017

Time	Event
6:00	**Vendor Table Setup (till 8:30)**
8:30	**REGISTRATION & EXHIBITS**
	CONTINENTAL BREAKFAST
9:00	**EMC Essentials**
10:00	**Break & Exhibits**
11:00	**Common EMC Issues**
12:00	**LUNCH**
1:00	**Developing an EMC Troubleshooting Kit**
2:00	**Break & Exhibits**
3:00	**Pre-Compliance Testing & Case Studies**
4:00	**Ice Cream Reception**
5:00	**Close of EMCFest**

NOTE: breaks will be scheduled at the speaker's discretion. Table-top displays (exhibits) will be open during registration, lunch, all breaks, and the reception. Access to the table-top displays is available during the technical sessions, but the displays may not be manned during those times.

The Program:

EMC Troubleshooting Kit:
This program is focused on developing a Personal EMC Troubleshooting Kit and using it to perform Key Pre-Compliance Tests that will meet today's challenges of tight engineering budgets. A review of EMC Basics and Product Design Fundamentals will keep the "Focus of EMC" at the forefront of your designs. Mr. Kenneth Wyatt has developed an outstanding approach that can be implemented for less than $5,000.00, including a spectrum analyzer! Those attending will greatly benefit from Ken's tutorials and classroom experimentation of these recommended tools. His experience as lead EMC engineer for HP and Agilent Technologies and his independent consulting for a period of over 30 years, will provide interesting insights to his practical approach in solving EMC issues.

EMC in Detroit–(Cont.)

Speaker:

Kenneth Wyatt is president and principle consultant of Wyatt Technical Services LLC, as well as the senior technical editor for Interference Technology. He has worked in the field of EMC engineering for over 30 years. His specialty is EMI troubleshooting and pre-compliance testing and is a co-author of the popular EMC Pocket Guide and RFI Radio Frequency Interference Pocket Guide. He also coauthored the book with Patrick André, EMI Troubleshooting Cookbook for Product Designers, with forward by Henry Ott. He is widely published and authored The EMC Blog hosted by EDN.com for nearly three years. Kenneth is a senior member of the IEEE and a longtime member of the EMC Society. He may be contacted at ken@emc-seminars.com .
 Or
kwyatt@interferencetechnology.com.
.
Check his web site for more information: http://www.emc-seminars.com.

FEE SCHEDULE

IEEE Members, Registered before April 2	**$50**
Non IEEE Members, Registered before 2∢	**$75**
Full –time Students with copy of valid Student I.D.	**$25**
Unemployed / Retired IEEE Member	**$25**
CEU Certificate Only	**$25**
All Registrations after April 15th	**$100**

REGISTER ON LINE!

The registration fee includes one copy of the tutorial record, continental breakfast, lunch, and reception. The organizing committee reserves the right to substitute speakers, restrict size, or to cancel the tutorial. In the event EMC Fest 2017 is canceled by the organizing committee, registration fees only will be fully refunded. Individuals canceling their registration prior to April 15 will receive a full refund.

No refunds will be made to individuals who cancel their registration after April 15.
Attendance is limited. Registration will be confirmed on a first come, first served basis.

www.emcfest.org
Committee & Program Chair
Candace Suriano - Suriano Solutions
248-852-4323
candace@emcsociety.org

Vendor Exhibits & Dinner
Robert Neff
IEEE SEM Section Chair
(248) 767-8904
RLNeff1@gmail.com

Photography: Mike Tykoski
Yazaki
734-983-6228
Tykoski@emcsociety.org

Registrations & Website
Scott Lytle
Yazaki North America
734-983-6012
scott@emcsociety.org

Treasurer: Matt Feusse
734-983-6004
matt@emcsociety.org

Hotel Information
The Embassy Suites Hotel is located 18 miles from Detroit Metropolitan Airport. From I-275 take the 7 Mile Road – East. Travel approximately 1/4 of a mile to Victory Parkway. Turn left on proceed approximately 1/4 mile. Embassy Suites will be on the left. Contact (734) 462-6000 to make arrangements. Airport shuttles are not available so plan a taxi or car to travel to the hotel.

There is no airport shuttle available. Please plan for rental car or taxi transportation.

Embassy Suites in Livonia is offering reduced room rates for reservations. Special Room rates are available (standard room) $121, plus tax. Internet, pool, exercise facility, breakfast and a cocktail reception are free. There are a LIMITED number of hotel rooms at the reduced price. You must mention "Group ID:385806" to get this special rate and reserve your room by April 13. After which rooms and rates are subject to availability.

Other Coming 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
k.williams@ieee.org

An announcement may be placed in the newsletter.

Links:

Michigan Institute for Plasma Science and Engineering:
Seminars for the 2015-2016 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/

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 2015 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.

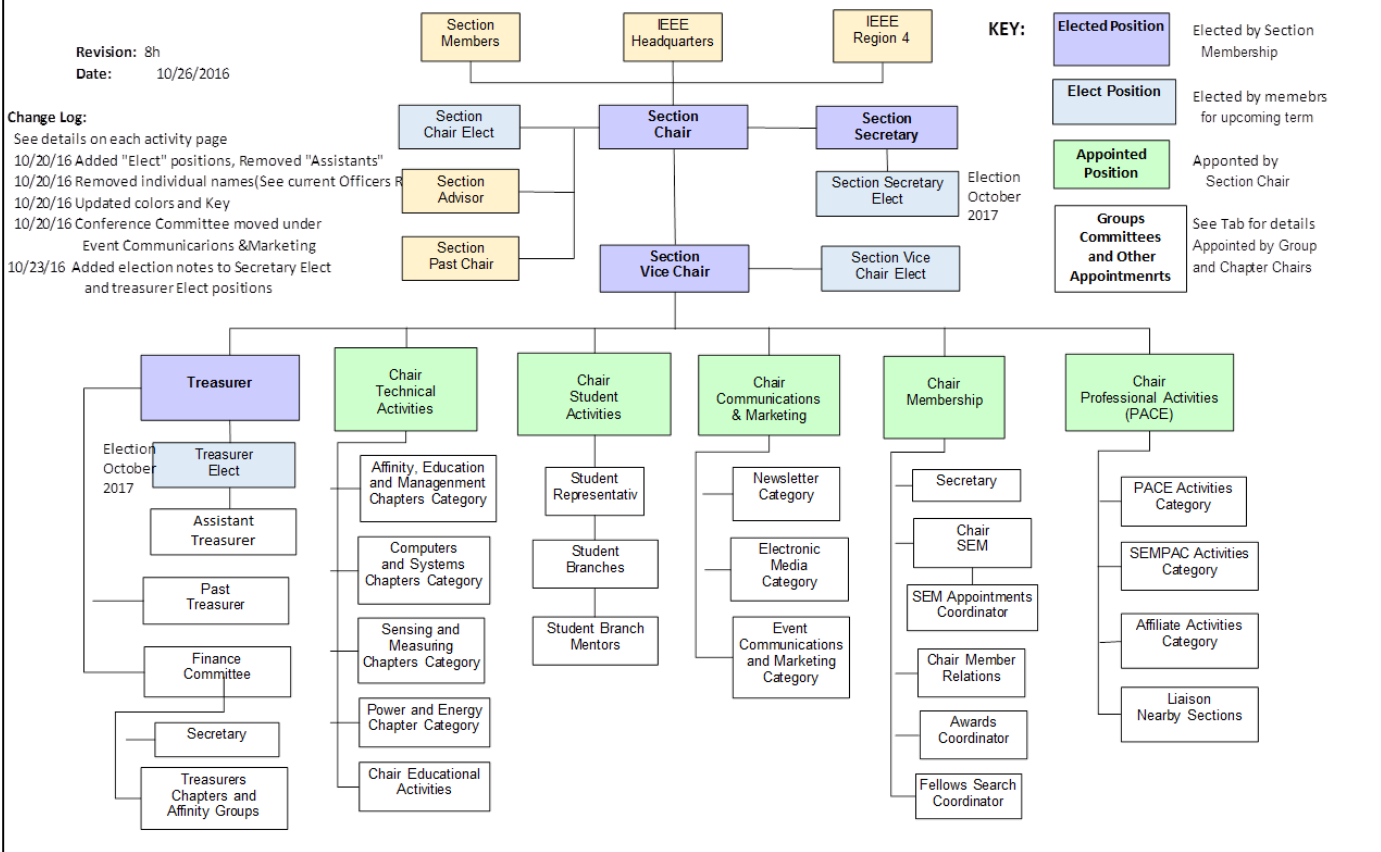However, members of the section may have multiple technical interests and would like to have meeting information of other chapters. In order to communicate the meeting dates of all the chapters, affinity groups etc., to our members to facilitate their attendance, leaders of the groups are requested to 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/ a**nd 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, in PDF format, from the SEM Website at: www.ieee-sem.com
Then, click on "About SEM" Tab, followed by, click on "Current Officers"

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.

April 6, Thursday, Face to Face, 5:30 – 8:00 P.M. https://meetings.vtools.ieee.org/feed/meeting_ical/42551

May 3, Wednesday, Teleconference, 12:00 – 1:00 P.M. https://meetings.vtools.ieee.org/feed/meeting_ical/42552

June 1, Thursday, Teleconference, 12:00 – 1:00 P.M. https://meetings.vtools.ieee.org/feed/meeting_ical/42553

July 12, Wednesday, Face to Face, 5:30 – 8:00 P.M. https://meetings.vtools.ieee.org/feed/meeting_ical/42558

August 3, Thursday, Teleconference, 12:00 – 1:00 P.M. https://meetings.vtools.ieee.org/feed/meeting_ical/42554

September 6, Wednesday, Teleconference, 12:00 – 1:00.M. https://meetings.vtools.ieee.org/feed/meeting_ical/42555

October 5, Thursday, Face to Face, 5:30 – 8:00 P.M. https://meetings.vtools.ieee.org/feed/meeting_ical/42559

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 Mission & Goals

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 editor at k.williams@ieee.org. We also recommend a cc to the chair of the Communications and Marketing Committee, Ravi Nigam at: rnigam154934mi@comcast.net.

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.

Review:

Each month Jim Woodyard takes time to review the current issue and try to keep us from too many errors of both English and content. Jim likes to work in the background but, a special thank you is deserved for his continuous efforts and dedication to the quality of the publication. Thank you Jim!

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:
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	GOLD Award
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!		Humanatarian	
Dec		12		U/D-M	IEEE-Com Apmts.	Fall Conference	Happy Holidays	

Wavelengths Annual Publication Plan for Personal Profiles

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

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 "[f]" button under the top row.)

SEM LinkedIn Page
(Select the "[in]" 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
http://sem.oc.ieee.org

Section Officers

Section Chair
Robert Neff

Section Secretary
David Mindham

Section Vice-Chair
Liang Xi Downey

Section Treasurer
Basil Sherlund

Standing Committees:

Section Adviser
Don Bramlett

Chair Communications & Marketing
Ravi Nigam

Chair Educational Activities
Chaomin Luo

Chair Finance
Nevrus Kaja

Chair Membership
Aisha Yousuf

Chair Nominations & Appointments
Kimball Williams

Chair Professional Activities
Basil Sherlund

Chair Student Activities
Nevrus Kaja

Student Representative
Maoxu Liu

Chair Technical Activities
Kimball Williams

Past Section Chair
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 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