



Volume 54 – Issue 10
October 2014

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Wavelengths Newsletter is produced by IEEE volunteers and published by IEEE Southeastern Michigan (SEM) Section (<http://sites.ieee.org/sem>) for the Section members.

Newsletter website Archive:
<http://sites.ieee.org/sem/about-sem/sem-history/wavelengths-magazine-archive/>
Email: wavelengths@ieee-sem.org

Wavelengths

Section Chair's Message

October Message:

The nominations for election of our 2014 Section, Chapter, and Affinity Group officers is currently open and the nominations period has been extended to close on **October 15, 2014**. (See page 5)

Current officers who wish to remain in office must go through the nomination and election process for 2014. Others who are interested in any of these positions must follow the same process.

The self-nomination process appears to be working well at <https://ieee.fluidsurveys.com/s/SEM-2015-Election-Nominations/>

The process for nominating other people requires you to know their membership number. If you wish to nominate someone whom you know would do a good job and you wish the committee to determine their availability and interest level, please submit and e-mail to ieee.nominations@gmail.com.

The Fall Conference planning is on schedule and the committee is preparing a wonderful program



that will be entertaining and educational. The very latest information, updates and registration are available at our SEM web site (www.ieee-sem.org).

Our Chapters and Affinity Groups are in high gear and offering many interesting meetings and presentations. These are highlighted on our home page and also in the IEEE SEM calendar you can access by clicking on the Calendar tab at the top of the home page.

As always, your ideas and suggestions are encouraged and welcome.

Robert Neff
IEEE SEM Section Chair
RLNeff1@gmail.com

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Technology Management:

The IEEE organization formerly known as the Technology Management Council has gone through two major change processes.

Initially formed as the Technology Management Society, its broad 'appeal' across a wide variety of IEEE disciplines suggested that it could better serve the IEEE in the form of a Council, as opposed to a Society. (Councils are composed of an association of Societies united together by a common interest.) The Council is a 'child' of the Technical Activities Board (TAB).

Local 'Chapters' of a Council can be formed under the auspices of the Section. When this is done, the Member Geographic Association (MGA) designates all the members in the Section who are members of at least one of the Societies that comprise the Council automatically to be members of the local Council Chapter.

Since Councils are formed of a large number of Societies, it is no wonder that local Council Chapters become the largest Chapters in the Section. In our Section, Chapter 10 and Chapter 17 are both Council Chapters and maintain the largest membership. Chapter 10 with 1089 members... that is, until this year.

With the opening of IEEE member registration in August of this year (already in progress at this time) you will find the option available to join the renewed ...

Technology and Engineering Management Society

...is once again an available option.

After several years as a Council, the Board of Governors of Technology Management requested, and received permission from the IEEE Board of Directors and TAB to become a Society once more.

Chapter 10:

In Southeastern Michigan, Chapter 10 (Technology and Engineering Management Society) Chair is Dr. Robert Reynolds, professor at Wayne State University.



Dr. Reynolds currently teaches courses on Cultural Algorithms, Computational Intelligence in Games, Artificial Intelligence, and Game Programming at Wayne State in the Department of Computer Science. In addition, he has given over ten tutorials on Cultural Algorithms, including a tutorial at the both the 2012 and 2013 IEEE World Congress of Computational Intelligence.

Chapter Activity:

Chapter 10 is sponsoring a talk at the IEEE SEM Fall conference by Dr. Nestor Rychtycky, a technical expert in Artificial Intelligence at Ford Motor Company. Dr. Rychtycky will discuss "Applying Semantic technologies in Industry". In the era of "Big Data" how can semantic technologies be used to reason about and act upon data from a variety of disparate sources. Nestor will discuss this based upon his experience at Ford Motor Company.
Title: Applying Semantic Technologies in Industry

Chapter 10 supported a day long workshop at Wayne State University on September 12 on "Developing Games for the Microsoft Store" by Jennifer Marsmann from Microsoft. Over 50 individuals were in attendance.

A new beginning:

As the Technology Management Society goes through its process of conversion from a Council to a Society Chapter 10 will be following the same path.

Beginning with the new IEEE member registration year, Chapter 10 members must 'Renew' their membership and include Technology and Engineering Management Society (TEM) as one of their society options in order to remain "official" members of the Chapter here is Southeastern Michigan.

As this is written, the current IEEE SMAMIII database listing for TEM membership shows only 2 members in our Section. With the 2014 month of September, Chapter 10 has gone from one of the two largest Chapters in our Section to the smallest, and it now needs to begin the process of rebuilding its membership, its Officer Executive Committee, and its schedule of activities.

If you are involved in engineering management, and interested in working with our Technology and Engineering Management Chapter, please add the Technology and Engineering Management Society to your list of member societies when you **renew your IEEE membership**.

To volunteer to assist Chapter 10 through its 're-berth process, contact the current Chair:

Dr. Robert Reynolds at:
robert.reynolds@wayne.edu

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University Mentors Needed

The IEEE University Student Branch Mentor Program is an initiative that has been adopted by the Strategic Activities Committee (SAC) and was designed to maximize the interaction between IEEE Student Branches and their local Sections. Frequent communication between students and Section members is important so that students feel like true IEEE members. The role of the Branch Mentor is meant to augment the valuable contributions of the Counselor.

A Student Branch Mentor is a Section member not associated with the University who is appointed by the local Section, in consultation with the Student Branch members, to be a mentor to a specific IEEE Student Branch. Each Branch Mentor should be a member of both the Section Executive Committee and the Student Branch Executive Committee.

He or she will

- Provide guidance,
- Serve as a liaison between the Student members and the Section Executive, and
- Encourage new graduates to stay active in the IEEE.

A recent graduate who has some firsthand experience in Student Branch operations and Section activities is an ideal candidate for a Branch Mentor.

Some suggested duties for the Branch mentor include:

1. Meet with Student Branch members regularly.
2. Participate in all Section Executive Committee meetings.
3. Assist the Student Branch in developing effective programs.

4. Provide a dependable bridge between the Student Branch and local Section.
5. Work closely with the Student Branch Counselor and the Section SAC Chair.

Though this program some expected benefits are:

- Increased interaction between Student Branches and local Sections;
- Improved continuity of Student Branch Operations;
- Improved retention of recent graduate members;
- Improved student/faculty/industry cooperation;
- Increased young member participation in Section activities.

Branch Mentors in SEM

The University Student Branch mentors program began in Southeastern Michigan Section in 2010 and the initial system was able to support most of the active Branches. However, shifts in Section management pushed the attention of the leadership away from the Mentor program for a couple of years and the overall activity was allowed to languish.

Organizational changes, and new leadership in Student Activities have brought the Mentor Program off of the 'back burner' and we are reaching out to our initial group of Mentors as well as looking for new candidates to fill some of the 'gaps' that naturally develop in any organization over time.

Southeastern Michigan Section currently hosts 11 University's that support engineering curricula. Of these, 9 have Student Branches with current, or recent, activity. Our present goal is to identify two mentors

for each of these Branches who can participate actively in the operation of their 'home' branch.

Ideally, mentors would live or work near the University that hosts the Student Branch and have time available to participate in regular Branch Executive Committee meetings and member activities. They would also be welcome to participate in the regular meetings of the Section Executive Committee to maintain that 'link' between the Branch and the rest of the Section.

We are seeking mentor candidates for:

- **Eastern Michigan University**
- **Lawrence Technological University**
- **Michigan State University**
- **Oakland University**
- **University Of Detroit-Mercy**
- **University Of Michigan-Ann Arbor**
- **University Of Michigan-Dearborn**
- **University Of Windsor**
- **Wayne State University**

If you are interested in participating to help make your local IEEE Student Branch a successful and beneficial experience for our student members, please contact:

Nevrus Kaja: Student Activities Chair
nkaja@umich.edu
 -or-

Kimball Williams:
 Temporary Mentor Secretary
k.williams@ieee.org

and lets talk about your options.

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2014 Officer Elections

The Nominations & Appointments Committee process of assembling the ballots for officer elections for the Section, the Affinity Groups and our Technical Chapters has been extended to conclude on **October 15, 2014**. **If we have not received your nomination by that date, your name will NOT be on the election ballot.**

The IEEE Member and Geographic Activities organization (MGA) recommended schedule for the steps in a Section election have are undergoing a change this year. The vTools electronics support tools are upgraded to permit automatic identification of eligible voters for the ballots for each Chapter and Affinity Group, and we are doing our best to align with that revised schedule.

To complete this process in a timely manner we will be updating you each month with the current status of election nominations and finally the election as collected in our vTools survey system.

All the officer positions within our Section elements are collected in an on-line form that anyone in the Section may access.

Officer Positions:

All of our Section elements have the same ballot election positions

- **Chair**
- **Vice-Chair**
- **Secretary**
- **Treasurer**

Each of these positions is elected for a 1 year term, with the possibility of reelection the following year.

MGA recommends that no officer hold an elected position for more than 3 consecutive years. This is to encourage younger officers to 'step up' to the learning experience of holding an office, to encourage our more senior volunteers to become 'mentors' of the new officers and to

themselves 'step up' to more responsible positions in the Section, the Region and in the upper MGA and TAB organizations.

Requirements:

The MGA insists that all officer candidates share some common characteristics.

All candidates must:

- *Be a paid up "Member". (You will verify that by submitting your **member number** with your application in the survey. We will cross check against the SAMIEEE member database.)*
- *Hold member grade of Graduate Student or higher.*
- *To be a candidate for an Affinity Group (AG) or Chapter (Ch) office, you must be a member of the AG or Chapter primary organization.*

The software system is set up to evaluate these requirements as a first level check of a candidate's qualifications.

If one of these qualifications is not met, the candidate is invalidated for that position.

The complete listing of all the officer positions in Southeastern Michigan Section may be found on the SEM Website at: <http://sites.ieee.org/sem/> Use the Top Banner, and click on the "About SEM" button. Then in the side bar that shows up, click on the "Current Officers" button. In the central page, note the list of officer rosters and click on the most recent.

The complete list of Affinity Groups and Technical Societies is shown in the title block with each of the relevant SEM elements. If you are in doubt as to whether or not a particular Chapter or AG represents a Society, you may find that information in the Officer Roster.

It should be noted that we often 'elect' and/or 'appoint' more than one "Vice-Chair" to an Affinity Group or Chapter to handle the multitude of activities that in which a busy organization becomes involved. This is especially true of our "Joint" Chapters where more than one technical society makes up the Chapter. In this case, we recommend that there be one Vice-Chair for each constitute Society in the Chapter.

Election Nominations Site:

In order to either nominate yourself for an officer position, or to nominate someone else for election to a position, open the vTools Survey site at:

<https://ieee.fluidsurveys.com/s/SEM-2015-Election-Nominations/>

Be aware that one of the first items you will need to use the survey is either your **member number**, or the member number of the person whom you are nominating for election.

Current Nominations Status:

On the next page we are publishing the charts of the current level of nominations for Affinity Group and Chapter officer nominations. If there is a "1" in a cell, then there is at least one candidate for that office. (MGA recommends we find 3 candidates for each office.)

If you are a current holder of an officer position in an Affinity Group or Chapter, please be aware that a nomination for continuing in your office is **NOT automatic! You **MUST** either self-nominate for election in September, or have someone else nominate you for your office, or for another office in the Section.**

We look forward to hearing from you soon.

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Chapters & AGs w/# of Candidates for Each Office

Ch's & AG's	Chair	Vice Chair	Secretary >	Treasurer	Name
Cnslt	2	0	0	1	Consultants Network
LIFE	2	1	0	0	Life Members
WIE	0	0	0	0	Women In Engineering
YP	0	0	0	0	Young Professionals
1	1	2	0	0	Circuits & Systems, Signal Proc., Info Th.
2	0	0	0	0	Vehicular Technology
3	0	0	0	0	Aerospace & Elec. Sys., Communications
4	1	5	1	1	Trident (Ant, Elect Dev., uWave, Photo)
5	1	3	1	1	Computers
6	0	0	0	0	Geoscience & Remote Sensing
7	2	1	0	1	Power Engineering, Industrial App.
8	1	2	1	1	Electromagnetic Compatibility (EMC)
9	0	0	0	0	Power Electronics, Industrial Electronics
10	0	1	0	0	Engineering Management
11	1	0	0	0	Eng. in Medicine & Biology
12	1	0	0	0	Control Systems
13	0	0	0	0	Education
14	1	2	0	0	Robotics & Automation
15					<< Open Slot >>
16	3	0	2	0	Computational Intelligence / Sys.Man.Cyber.
17	2	0	2	0	Nano Technology Council
SEM	2	2	1	1	SEM (Section)
					53 Candidates to date

Chapter & AG Offices w/Minimum # of Candidates

Ch's & AG's	Chair	Vice Chair	Secretary >	Treasurer	Name
Cnslt	1	1	1	1	Consultants Network
LIFE	1	1			Life Members
WIE					Women In Engineering
YP					Young Professionals
1	1	1	1	1	Circuits & Systems, Signal Proc., Info Th.
2					Vehicular Technology
3	1	1	1	1	Aerospace & Elec. Sys., Communications
4	1	1	1	1	Trident (Ant, Elect Dev., uWave, Photo)
5	1	1	1	1	Computers
6					Geoscience & Remote Sensing
7	1	1	1	1	Power Engineering, Industrial App.
8	1	1	1	1	Electromagnetic Compatibility (EMC)
9					Power Electronics, Industrial Electronics
10					Engineering Management
11	1	1	1	1	Eng. in Medicine & Biology
12	1	1	1	1	Control Systems
13					Education
14	1	1	1	1	Robotics & Automation
15					<< Open Slot >>
16	1	1	1	1	Computational Intelligence / Sys.Man.Cyber.
17	1	1	1	1	Nano Technology Council
SEM	1	1	1	1	SEM (Section)
					34 Chapter & AG Offices w/ min # of candidates
					84 Total Offices to fill
					40% Percent Filled

Election Schedule

The chart of our planned timeline for conducting the election process is shown below. We began notification of the election in late April and have repeated the "Call" for candidates at all levels and Geo-Units on a regular basis each month (and lately each week).

A change in the vTools system allowed us to compress the overall schedule extend the nomination process an extra 6 weeks.

We have postponed the final 'lock' of each ballot until **October 15**, which is as late as we can possibly delay the process.

We will launch the ballots on October 20 and close the election process on November 10.

In the charts above you can see that we only have about 30% of the positions indicating at least one candidate for the office.

Was your submission to the nomination process received OK? .

Check your nomination status at:

<http://sem.oc.ieee.org/committees/nominations/committee/elections/information> in the file

"Candidates_List_(Date)". Look for the most current date. We will update this file at least once each week.

Units	16-Apr	23-Apr	30-Apr	7-May	14-May	21-May	28-May	4-Jun	11-Jun	18-Jun	25-Jun	2-Jul	9-Jul	16-Jul	23-Jul	30-Jul	6-Aug	13-Aug	20-Aug	27-Aug	3-Sep	10-Sep	17-Sep	24-Sep	1-Oct	8-Oct	15-Oct	22-Oct	29-Oct	5-Nov	12-Nov	19-Nov	26-Nov	3-Dec	10-Dec
Section	N			N				CN						CN			CN									BB	LB			CE				RR	
Chap10	N			N				CN						CN			CN									BB	LB			CE				RR	
Chap13	N			N				CN						CN			CN									BB	LB			CE				RR	
Cons.	N			N				CN						CN			CN									BB	LB			CE				RR	
LIFE	N			N				CN						CN			CN									BB	LB			CE				RR	
WIE	N			N				CN						CN			CN									BB	LB			CE				RR	
YP	N			N				CN						CN			CN									BB	LB			CE				RR	
Chap1	N			N				CN						CN			CN									BB	LB			CE				RR	
Chap14	N			N				CN						CN			CN									BB	LB			CE				RR	
Chap16	N			N				CN						CN			CN									BB	LB			CE				RR	
Chap3	N			N				CN						CN			CN									BB	LB			CE				RR	
Chap5	N			N				CN						CN			CN									BB	LB			CE				RR	
Chap11	N			N				CN						CN			CN									BB	LB			CE				RR	
Chap17	N			N				CN						CN			CN									BB	LB			CE				RR	
Chap4	N			N				CN						CN			CN									BB	LB			CE				RR	
Chap6	N			N				CN						CN			CN									BB	LB			CE				RR	
Chap8	N			N				CN						CN			CN									BB	LB			CE				RR	
Chap12	N			N				CN						CN			CN									BB	LB			CE				RR	
Chap2	N			N				CN						CN			CN									BB	LB			CE				RR	
Chap7	N			N				CN						CN			CN									BB	LB			CE				RR	
Chap9	N			N				CN						CN			CN									BB	LB			CE				RR	
Chap15	N			N				CN						CN			CN									BB	LB			CE				RR	
																Build Ballots		^	^			^			^										
																Launch Ballots						Close Elections			^										
																Report to Section Executive Committee		-----																	
																Nominations		Capture Nominations																	
																(Advise Members)																			
																(Notifications to members every 2 to 3 weeks)																			



The 29th Annual USECA Hamfest 2014

Sunday, October 26, 2014 8 AM - 2 PM
(Note date change!)

Vendors will be allowed in at 6:30 AM

United Food & Commercial Workers 876 Hall
876 Horace Brown Drive, Madison Heights, MI 48071
(2 blocks south of 13 Mile Road between Stephenson Highway and John R Road)
GPS Coordinates: 42.516818, -83.113124

New & Used Sales
Radio Test Bench
VE Test Session
(9 AM - 10 AM)
Great Door Prizes
Food & Fun

Admission is \$5.00
at the door

Hourly
Drawings!

Talk-in on the USECA Repeater 147.180+ 100 Hz PL
Questions? Contact: usecaarc73@gmail.com or
Rosemary Anderson, WB8YAB @ 586-979-4456

*Our 3rd year
at this larger
location!!
More Tables!*

You will receive your tickets and table numbers when you sign in the day of the swap.

QSL card checking for DXCC is available. Forms need to be filled out in advance. Does not include 160m. All other bands and ARRL awards are covered.

Table Reservations with Ticket

Name _____ Call _____ email _____

Address _____ City _____ State _____ Zip _____

No. Tables _____ No. tickets _____ Amount Enclosed _____

A ticket is required for admission. Tickets are \$5.00 each and will be available at the door. Tables are \$12.00 each + \$5.00 admission. Tables and tickets should be reserved in advance. If there are tables available the day of the Hamfest, the cost is \$15.00. **DO NOT ATTACH ANYTHING TO THE WALLS!!**

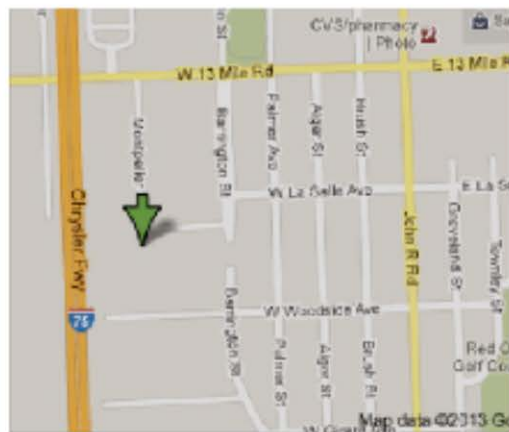
Please make checks payable to USECA and send with this form to:
USECA Hamfest, PO Box 46331 Mt. Clemens, MI 48046

**VE Testing
9 AM - 10 AM**

Please contact Alec, NF8X at nf8x@arrl.net to pre-register or for questions. Pre-registration is encouraged, but not required. Please bring \$14.00 cash along with photocopies of any existing license or CSEs. Originals will not be accepted.

Two forms of ID are required, with at least one being a photo ID. You will also need to provide your Social Security number or FRN.

Revised 1/22/2014



Student Branch Officer Training Workshop

Sunday, October 26, 2014 9 AM to 3 PM

Fairlane Center North (at University of Michigan - Dearborn) Quad E
19000 Hubbard Road, Dearborn, MI, 48126

No Admission Charge

Workshop Overview

SEM Section Student Activities has initiated a pilot project named **Student Network Project** aimed at networking the Student Branches in the section.

Many of the Student Branches across the section faced a common set of problems. Each Student Branch tackled the problems in their own way. A study revealed that like there were common problems, there were also common solutions. Many of the problems were solved by peer-to-peer connections and hence came up the concept of networking. The learning/best practices from different branches were collated and formed the base for the Student Network Project in the section. Part of the Student Network Project is also the Student Officer Training workshop.

“Student Officer Training Workshop” is focused on training and assisting officers on migrating their work onto newly elected officer and teaches them about the resources provided by IEEE, and their duties to remain an active branch.

Meeting Agenda:

<u>DURATION</u>	<u>ACTIVITIES</u>	<u>TRAINER</u>
9:00 AM – 9:30 AM	Registration and Continental Breakfast	
9:30 AM – 9:45 AM	Overview and Presentation of IEEE & IEEE-SEM	Don Bramlett
9:45 AM – 10:15AM	Brief Introduction about Student Branches and their members	Nevrus Kaja
10:15 AM – 10:45 AM	Brief Information Session of Roles & responsibilities of New officers	Samer Koda
10:45 AM – 11:00 AM	Break	
11:00 PM – 12:00 PM	Break out Sessions for different Officers:	
1200 PM – 1:00 PM	Lunch	
1:00 PM – 2:00 PM	Student Branch Presentation (6-8 Minutes Each)	Student Branch Chairs
2:00 PM – 2:30 PM	Discussion Session with IEEE SEM and Student	Student Activities Chair
2:30 PM – 3:00 PM	Fundraising, recruiting and Events	Don Bramlett

Join us as a new Student Officer to explore endless opportunities and resources of IEEE
(and for the old Student Officers: please do not forget to hold Student Branch elections before October 15 !!)

Contact **Nevrus Kaja** – Chair of Student Activities, or visit the **website** below, for more information.

Please register at: <https://meetings.vtools.ieee.org/m/28049>

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FALL CONFERENCE

Thursday Evening, November 13, 2014

Best Western PLUS Sterling Inn

34911 Van Dyke Avenue, Sterling Heights, Michigan 48312
Tel: +1 586 979 1400

Meeting Agenda:

- 4:00 PM – 5:15 PM Registration
Display Tables / Student Posters / Networking
- 5:15 PM – 5:30 PM Conference Overview / Recognitions
- 5:30 PM – 6:00 PM Panel Discussion
- 6:00 PM – 7:00 PM Breakout Technical Sessions (2 Speakers per session)
- 7:00 PM – 7:45 PM Dinner
- 7:45 PM – 8:45 PM Keynote Speech
- 8:45 PM – 9:00 PM Awards and Recognition



Keynote Presentation: Emerging Nano Science and Technology For Medicine Gregory W. Auner

Strauss/TEAMS Endowed Chair and Director,
Smart Sensors and Integrated Microsystems (SSIM) Program
Wayne State University, School of Medicine

The emerging area of micro- and nano- science and engineering is leading to an unprecedented comprehension of the fundamental building blocks of nature. This technology will most profoundly affect the nature of science, engineering and medicine in the 21st century. Device structures with characteristic dimensions significantly below 1 micron have led to the investigation of a whole range of novel physical and chemical phenomena. In turn, these new phenomena promise to give rise to a new generation of materials and devices working on completely different physical and chemical principles. The newest frontier to nanotechnology is in medicine. Development of new and novel devices will impact areas ranging from molecular imaging and detection, to bio implants, diagnostic, and micro robotics. The major technological barrier to fabricate functional nanostructures is the ability to synthesize nano-structures of sufficiently small dimension, specific pattern and uniform size distribution. Most importantly, these structures must be directly fabricated into microsystems to allow functionality of the structures. Therefore, the implementations of these systems require advanced technologies to integrate the nanostructures to microsystems as well. Without such integration, the functionality of the nanosystems cannot be realized. New technology such as laser induced self-assembly of nanoarray platforms (SNAP), novel materials synthesis, and atomic-layer engineering are key for the development of devices for applications in biological and chemical sensing systems, microfluidic drug and chemical delivery systems, micro imaging systems, and chronically implantable micro and nano devices. As an example, materials synthesis, micromachining and nano integration in microsystems will be presented for an array of applications including a neurological implants for the central nervous system, guided growth of neurons for spinal cord injuries, probing systems for pathogen and cancer detection, and artificial skin sensor arrays for robotics with 108 greater sensitivity than human skin to name a few.



Conference Website:

<https://meetings.vtools.ieee.org/m/27391>



FALL CONFERENCE

Thursday Evening, November 13, 2014

Best Western PLUS Sterling Inn

34911 Van Dyke Avenue, Sterling Heights, Michigan 48312
Tel: +1 586 979 1400

Panel Discussion

Moderator:



Dr. Hoda S. Abdel-Aty-Zohdy, J. F. Dodge Chair Professor,
Oakland University

Technical Presentations (after Panel Discussion)

Parallel Presentations Followed by Dinner and Keynote Address

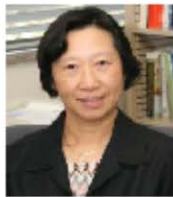
Mobile technologies for homebuilt aircrafts and drones



Sanjay Dhall
Emergent Systems Corp.
Experimental Aircraft
Association

Amateur homebuilt aircraft are an inexpensive alternative for average people to enter the field of aviation. However, certified aviation related autopilot systems tend to be expensive. Meanwhile, rapid advances being made in mobile electronic technologies are enabling availability of dynamic positioning and orientation data. Combining these with off the shelf electromechanical servo devices and display tools, has the potential to offer amateur aircraft builders access to sophisticated control and monitoring technologies without significant costs. This presentation offers some personal experiences of migrating mobile technologies for use in amateur aviation.

Intelligent Energy Control and Management in Hybrid Electric Vehicles (HEVs)



Dr. Yi Lu Murphey
Professor and Chair, ECE,
University of Michigan - Dearborn

This presentation will discuss research in intelligent energy management for Hybrid Electric Vehicles (HEV) and a machine learning framework, ML_EMO_HEV, developed for the optimization of energy management in an HEV, machine learning algorithms for predicting driving environments and generating optimal power split for a given driving environment. The effectiveness of predicting roadway type, traffic congestion levels, driving trends, and learning optimal engine speed and battery power from Dynamic Programming using neural networks trained under the ML_EMO_HEV framework are presented using results from experiments conducted on a simulated Ford Escape Hybrid vehicle model provided by Argonne National Laboratory's PSAT (Powertrain Systems Analysis Toolkit).

Conference Website: <https://meetings.vtools.ieee.org/m/27391>



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Technical Presentations (after Panel Discussion)

Parallel Presentations Followed by Dinner and Keynote Address



Gary Gruenberg, P.E.

US Commercial Nuclear Power

US nuclear power plants have racked up an impressive 50 years of operation without one fatality. Compare this fact with the other major sources of electric generation. It makes you wonder why commercial nuclear power is not booming in the US as it is in China. This presentation will discuss the current state of the US nuclear power industry and its future.

Design and Verification Challenges of Automotive Embedded Systems



Dr. S. Ramesh

Embedded applications like automotive control software are becoming complex: from single to multiple functions and features, from centralized to distributed, federated to integrated architecture, from passive to active control, simple to safety-and business-critical applications, closed to open systems, from single party to multi-party development, from isolated to connected components and so on. Rigorous software engineering of Automotive Control Systems is an important area of research requiring significant involvement of software engineering researchers, domain experts and practitioners. It is a big challenge to build effective methods and tools for developing such systems. In this talk, some of the challenges are highlighted in the context of automotive embedded systems and a few preliminary solutions methods developed by our team are discussed.

IEEE Power & Energy Society Scholarship Plus Program



Kevin Taylor
Chair, SEM IEEE PE/IA

Power and energy engineers work with some of today's most exciting technologies, developing solutions to problems that affect our lives and lifestyles. The PES Scholarship Plus Initiative provides scholarships and real world experience to undergraduates interested in power and energy engineering careers.

Conference Website:

<https://meetings.vtools.ieee.org/m/27391>



FALL CONFERENCE

Thursday Evening, November 13, 2014

Best Western PLUS Sterling Inn

34911 Van Dyke Avenue, Sterling Heights, Michigan 48312
Tel: +1 586 979 1400

Technical Presentations (after Panel Discussion)

Parallel Presentations Followed by Dinner and Keynote Address

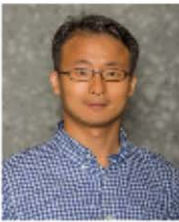
Applying Semantic Technologies in Industry



Dr. Nestor Rychtycky

In a world overflowing with big data, semantic technologies are rapidly becoming a significant factor to help increase understanding and reasoning with different types of data. Semantic technologies include knowledge representation languages such as OWL/RDF as well as tools to create ontologies and support reasoning and inference. They provide significant advantages in terms of flexibility, performance and expressiveness when dealing with disparate data from different locations. This presentation will discuss the use of semantic web technologies in several different industrial applications and show how effective this approach can be.

Micro/Nanotechnology-Enabled Gas Sensing and Nanomanufacturing



Dr. Junghoon Yeom

Timely identification and measurement of gas constituents are essential in many areas of science and technology, and the micro gas chromatograph (μ GC) analyzer are being developed around the world for myriad applications ranging from detecting undesirable compounds in air for security and safety, facilitating process control in industry, and sensing compounds in breadth for health monitoring and diagnosis. Key drivers for the miniaturization efforts include speed (less than a few seconds), cost ($< \$1000$), portability (PDA size), energy consumption (< 10 J), sensitivity (< 1 ppb), and reduction in false positives (< 1 in 10^6). This presentation will discuss at the system level the design, fabrication, and assembly of the UIUC μ GC system and the characterization of the individual components (micro preconcentrator, microvalves, microcolumns, and micro/nano gas sensors). An emphasis will be placed on how the micro/nanotechnologies help us to improve the device performance and address the challenges associated with the scale-up fabrication.



Conference Website:

<https://meetings.vtools.ieee.org/m/27391>

Section Volunteer Options:

The Electronic Media Sub-Group of the **Communications & Marketing Committee** is looking for several new members who are willing to learn and grow into the following positions:

- LinkedIn Page Coordinator**
- Facebook Page Coordinator**
- ListServ Operations Coordinator**
- On-Line-Community Coordinator**

Each of these positions will be an active function with significant responsibilities to maintain and facilitate communications among our members.

Interested members should use the link below to indicate your interest, and the Nominations and Appointments Committee will contact you:

<https://ieeefluidsurveys.com/s/semcommittee/?code=>

The **Technical Activities committee** led by Doctor **Ali Eydgahy** is seeking of experienced IEEE members to serve as 'Mentors' to help guide and encourage Chapters in our Section to achieve their full potential.

Each of these officers work with the leadership of the individual Chapters and Affinity Groups (Units) in their "Cluster" as a mentor to promote, encourage and ensure effective functioning and reporting.

We currently are searching for a **Technical Activities Coordinator** to coordinate the **Computers and Systems group**:

- Ch 1 Signal Processing / Circuits & Systems / Information Theory.
- Ch 3 Aerospace & Electronic Systems / Communications.
- Ch 5 Computers
- Ch 14 Robotics & Automation
- Ch 16 Computational Intelligence / Systems, Man and Cybernetics.

In essence, they will serve as a 'coach' for the Unit officers.

Interested members should use the link below to indicate your interest, and the Nominations and Appointments Committee will contact you:

<https://ieeefluidsurveys.com/s/semcommittee/?code=>

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Secretary Opportunities:

Several of the IEEE SEM Committees and some Geo-Units... (Affinity Groups (AG) and Chapters)... are in need of Secretaries.

At this time we are looking for several members who are willing to learn and grow into the Secretary positions with the following

- Education Committee,
- Student Activities Committee
- Communications and Marketing Committee,
- PACE Committee
- Membership Committee,
- Nominations and Appointments Committee,
- Consultants Affinity Group
- Chapter 2 (Vehicle Technology)
- Chapter 10 (Technology Mgmt.)
- Chapter 12 (Control Systems)
- Chapter 13 (Education)

Each of these positions will be an active function with significant responsibilities to maintain and facilitate communications among our members.

Active participation in a **Committee** does not require relevant Society membership as a requisite factor.

Participation in an **AG or Chapter** does require relevant AG or Society membership.

Interested members should use one of the two links below and the Nominations and Appointments Committee will contact you:

For Appointments to Committee:

<https://ieeefluidsurveys.com/s/semcommittee/?code=>

For Affinity Groups & Chapters:

<https://ieeefluidsurveys.com/s/semcommittee/?code=>

Executive Committee

The **SEM Executive Committee** is the primary coordination unit for Southeastern Michigan (SEM) IEEE operations. The basic organization chart below shows the 2014 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 Website first page.

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 put 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:
Most 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 those meetings each month.

However, most of our members are not 2-dimensional beings, with only one focused interest. That means that they would likely find meetings of the other Chapters also of interest. In order to communicate those options to our members and facilitate their attendance we ask each of our

Chapters to send their meeting information to our Webmasters who post the meeting information on the Website 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.

You may also set up automatic e-mail notifications of web updates by using the **"Email Notifications"** button at the top of the **SEM Tools/Links** side banner.

David Mindham - SEM Secretary

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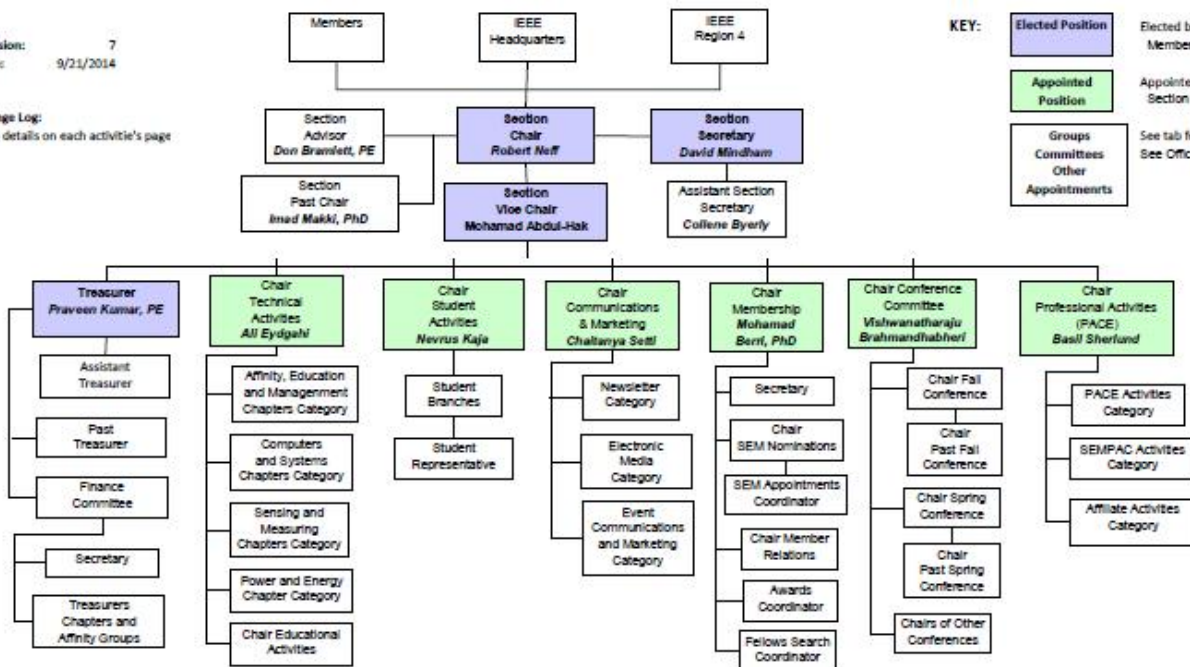
2014 Organization - IEEE Southeastern Michigan Section (SEM)

Revision: 7
Date: 9/21/2014

Change Log:
See details on each activity's page

KEY:

- Elected Position Elected by Section Membership
- Appointed Position Appointed by Section Chair
- Groups
Committees
Other
Appointments See tab for details
See Officers Roster



Section Mission & Goals**Section Focus:**

The IEEE SEM Senior Officers of the Section have reaffirmed the overall Mission and Goals of the Section, which align with the overall objectives of IEEE worldwide and with the guidance provided by our leadership in Region 4.

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
- 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,
- 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.

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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.(See Below)

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

The only caveat is that you please register using the specific meeting form found at:

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

This will ensure we have sufficient space, refreshments and support for everyone who joins the meetings.

Teleconference Schedule

(held from 12-1 PM):

- Wednesday, November 5th
- Thursday, December 4th

F2F Meeting Schedule:

- Thursday, October 2nd

More information for the f2f meetings will be sent out as the dates are approached. Keep in touch via the SEM Web site (<http://sites.ieee.org/sem/>) or use the links to the SEM Facebook or LinkedIn pages on the SEM Web page.

vTools Schedule:

All the normally scheduled meetings of each of the other Section 'units' are listed each month in the vTools area of our SEM website at:

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

These announcements refer to:

Standing Committee Meetings:

Affinity Group Meetings:

Technical Chapter Meetings:

University Student Branch Meetings:

Calendar Schedule:

Meetings are also announced on the SEM Web page Calendar

<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 the '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 would be happy to have you as a participant.

Many volunteers get interested in Section activities when they get a chance to attend an 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

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Editors Corner

This is the 10th 2014 issue of the Wavelengths newsletter.

Earlier editions in this series may be found on the IEEE SEM Web page 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, **Chaitanya Setti** at: chaitanyagini@ieee.org.

The newsletter does not have a staff of reporters to 'investigate' what is going on in the Section and write up informative articles.

We rely on our Officers and Members to provide the 'copy' that we finally present to our readers as the newsletter.

Wavelengths – Focus Plan:

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

Wavelengths – 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	

The **Wavelengths – Focus Plan and Personal Profiles** plan shown in the matrix below is conceived as a method to ensure a reasonable coverage of normally expected Section activities and events.

We try to finish each issue assembly by the week before the first of each month to allow time for review and corrections. If you have an article or notice, please try to get it to us on time or early 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.

Letter to the Editor:

We would like to see "Letters to the Editor" as a regular column but, of course that means that someone must send an e-mail to the editor...[hint!](#)

Co-Editors:

I am selfishly looking for someone interested in helping to edit the newsletter along with me who can learn the process, share in the duties, and help keep the newsletter alive and lively by providing an alternative point of view.

If you feel you might be that person, or would like to train to become that person, please let me know.

k.williams@ieee.org

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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

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

Section Officers

Section Chair
Robert Neff

Section Secretary
David Mindham

Section Vice-Chair
Mohamad Abdul-Hak

Section Treasurer
Praveen Kumar

Section Adviser
Don Bramlett

Chair Communications & Marketing
Chaitanya Setti

Chair Conferences
Raju Brahmandhabheri

Chair Educational Activities
Chaomin Luo

Chair Finance
Bassel Atallah

Chair Membership
Mohamad Berri

Chair Nominations
Chaitanya Setti

Chair Professional Activities
Basil Sherlund

Chair Student Activities
Nevrus Kaja

Student Representative
Hanan Mekawy

Chair Technical Activities
Ali Eydgahi

Past Section Chair
Imad Makki



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:

Advertising Rates

SEM Website & Newsletter
Advertising Rates / Month:

Our readers specify & purchase a wide range of electronic components, equipment and services. Our sponsors come from industry, education, and nonprofit organizations.

Full page \$500,

Half page \$250

Quarter page \$125,

Eighth page \$65.

SEM Executive Committee Monthly Teleconferences:

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

SEM Executive Committee Face-to-Face Meetings:

- 1/Qtr. Usually held at U/M-D Fairlane Center
- 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>