Wavelengths

Volume 64 – Issue 12

Contents

Upcoming Events

We have several events coming up this month, all are listed below, FYI.
Note: All times are EST/EDT. If any events are missed do kindly bring them to the attention of wavelengths@ieee-sem.org. Enjoy!
You can also use this bookmark to view All of the links at a single glance
http://bit.ly/sem-upcoming

Event	Date	Time
Documentary Night: Julia Robinson	2024-12-06	1730 hours
Life Members Affinity Group	2024-12-09	1200 hours
Chapter 8; Admin Teleconference	2024-12-09	1200 hours
Annual Section Admin meeting and dinner	2024-12-12	1800 hours
Designing a career path	2024-12-14	1100 hours
Technical Writing Skills That Will Advance Your Career - SEM Young Professionals Speaker Event	2024-12-16	1130 hours
Documentary Night – Ultimate Space Telescope	2024-12-19	1700 hours
EMC Society meeting	2024-12-31	1430 hours

Chair's Column

What to look forward to this month of December:

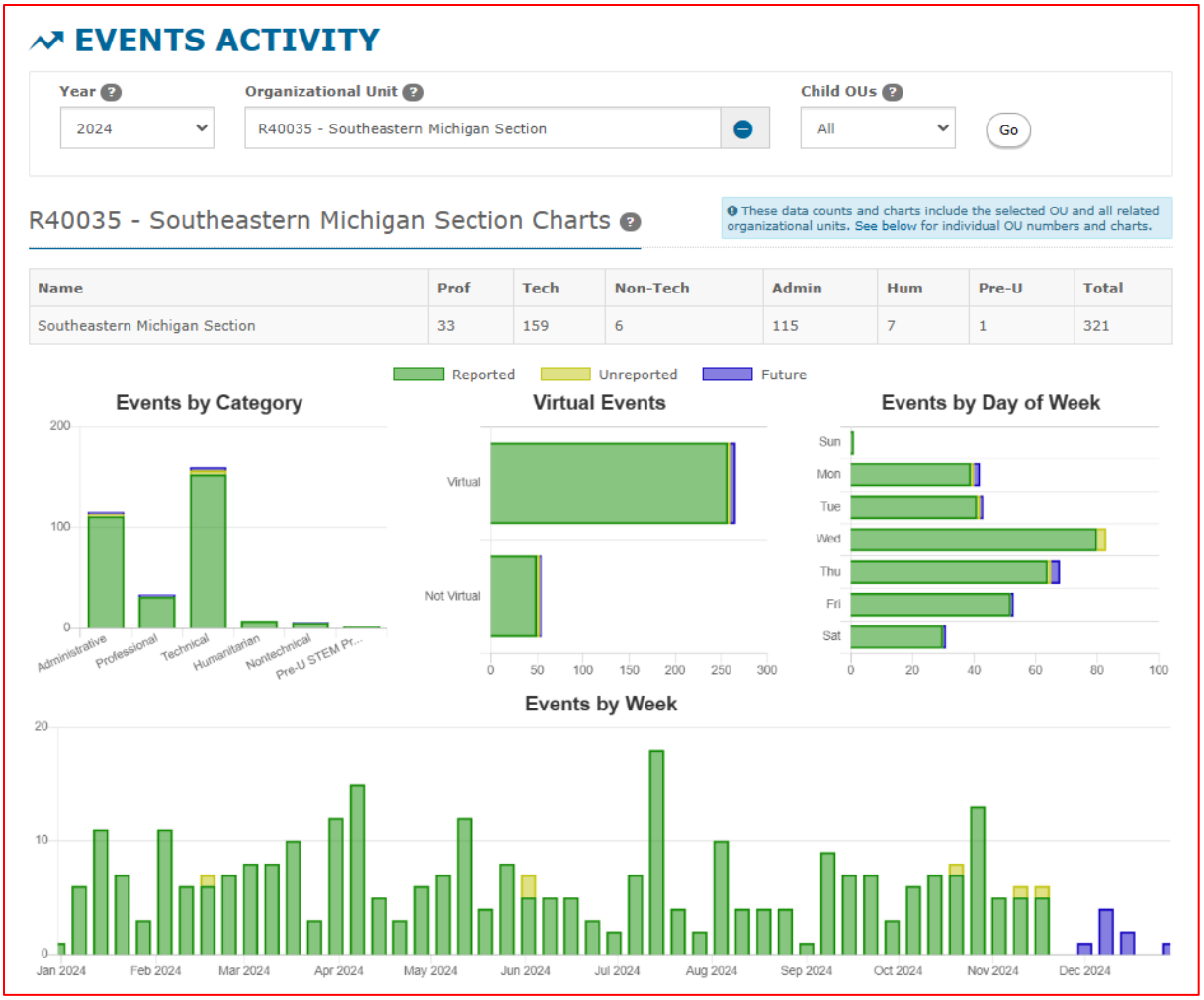
- The annual tradition of a December face to face meeting continues on December 12th – we hope you all can join in person. But registration is required. See https://events.vtools.ieee.org/m/382837 for details. There is a deadline, since a headcount is involved. Also similar to last year – we have also invited the chapter officers of the local SE Michigan sister professional tech societies to also join us. This is great opportunity to network with them and discover potential synergies.
- We have two documentaries scheduled in the month of December:
  - Life of Julia Robinson – an American mathematician
  - The Ultimate Telescope – NASA/ESA/CSA joint project: James Webb Space Telescope (JWST)
- Your local Young Professionals has been most active throughout this year and has always scheduled events of direct benefit for you. The most upcoming one is on technical writing skills, one which I will also check out! Kudos to that Affinity Group (AG) and in fact everyone should seriously consider attending.
- Not to forget yet another active AG – LMAG (life Members), whose long-time active member – Kimball is helping to organize a talk on "Designing a Career Path". LMAG is one of the most experience rich organization units (OU) in IEEE and I urge everyone to take advantage of their deep and diverse background.

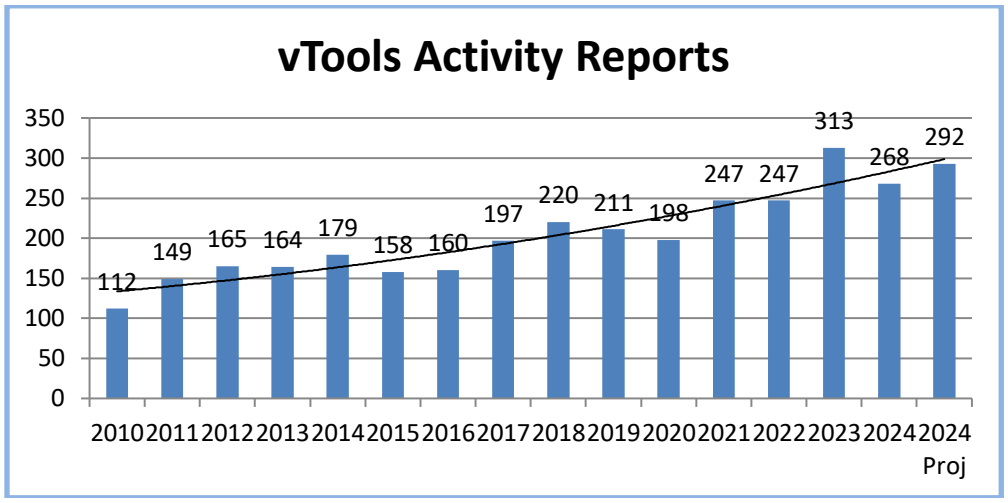
Volunteering:

- ✓ We, IEEE Southeastern Michigan Section, function based on the work of our volunteers. If someone has important obligations that reduce their ability to volunteer, other volunteers need to step in and carry the load. The more volunteers we have, the easier the workload on everyone. Please volunteer, you will find the experience interesting and rewarding. There is a dedicated article on volunteering elsewhere in this edition.

You can find ALL the other upcoming events using the short URL link: **https://bit.ly/sem-upcoming**

Our YTD performance (from Vtools) or https://events.vtools.ieee.org/tego_/events/activity:





Remember – every little bit helps, and the Section is here to help! If you have not taken the opportunity, do reach out to any of the Section officers (lifelong email contacts listed below). Who knows what unknown but immense value you may discover, by simply connecting with us. A possible membership annual rate discount, OR an upcoming soft skills event OR need of a professional member for a technical person resource OR opportunity to participate in a standards making process OR a chance to mentor a young graduate student in a domain badly needed in our section of the world OR network with a book publisher OR….the possibilities are limited only by your enthusiasm.

Finally, I ask you to help share news about our IEEE Section to fellow engineers. This will help us fulfill the mission and goals, which is to use technology to help society. Do help us gain more visibility – word of mouth, invitations to our tech events, skills, join as members, post our events to your social media feeds, etc.

Also of note – we take a great deal of interest in our members welfare. We are already planning 2025 events for senior elevation PLUS membership development.

I look forward to hearing from you and seeing you at our events. As always, your ideas and suggestions are encouraged and welcome. If I don't hear back (good or bad) I will assume all is well 😊

Sharan Kalwani
Via email: chair@ieee-sem.org

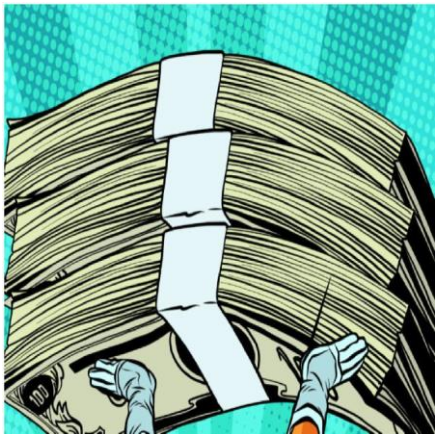
Section members are encouraged to engage using any of these online platforms:

To reach any of our SECTION officers, for any help/assistance you seek you may try these easy to remember email addresses. The objective is to ensure business continuity, so one need not try to remember or hunt for the contact information! They can help you find your chapter officers or point you in the right direction for any query. They are:

- Chair is chair@ieee-sem.org
- Vice Chair is vicechair@ieee-sem.org
- Treasurer is treasurer@ieee-sem.org
- Secretary is secretary@ieee-sem.org
- Advisor is advisor@ieee-sem.org

The Kariko Problem

The Karikó problem: Lessons for funding basic research *By* Stuart Buck Feb. 1, 2022, reprinted from https://www.statnews.com/2022/02/01/kariko-problem-lessons-funding-basic-research/



New scientific institutes are springing up all over the place[2] these days: Arcadia Science[3], New Science[4], Arc Institute[5], Activate[6], Actuate[7], Astera[8], Convergent Research[9], and more. They're usually funded by Silicon Valley[10] and have bold ambitions to advance scientific progress more quickly.

Why this flurry of activity? After all, the National Institutes of Health spent nearly $43 billion[11] on biomedical research in 2021, and the National Science Foundation spent nearly $8.5 billion[12] on other areas of science. Why would anyone want to bother with funding a small fraction of a percent of that?

Because they are convinced that the current system of science funding is uncreative and inflexible and that it's time to try new approaches. For example, one common argument is that we need to "fund people not projects,"[13] meaning we need to find the smart and visionary scientists and give them funding that isn't tied to narrow projects.

As much as I like this idea, I worry about a different problem, one that none of the new initiatives to date would necessarily fix. I call it the Karikó problem.

Katalin Karikó[14] is the now-celebrated scientist who, along with a colleague, published a key paper in 2005[15] on messenger RNA. Her discovery ultimately formed the basis for two Covid-19 vaccines: one made by Pfizer and BioNTech, where Karikó now works, and one made by Moderna. But Karikó wasn't always celebrated. Far from it.

She earned her PhD in biochemistry at the University of Szeged in Hungary, currently ranked by US News as the 712th best university[16] globally.

She emigrated to the U.S. in 1985 with her husband and then-young daughter to take a postdoc position at Temple University in Philadelphia, and eventually got a job as a non-tenure-track research assistant professor at the University of Pennsylvania. But she was demoted in 1995 because, no matter how many times she applied for NIH funding for her mRNA research, she never got a grant for it.

As one of her former colleagues wrote[17], "by the time I joined the lab, Karikó's history was still only discussed in hushed tones as a cautionary tale for young scientists." Karikó herself has said[14] that after such a demotion, it's common to "just say goodbye and leave because it's so horrible."

Yet she persisted. A couple of years after her embarrassing demotion, she ran into immunologist Drew Weissman at the office copy machine[18] and struck up a conversation about mRNA. Weissman was intrigued, and asked Karikó to come work in his lab. Eventually, the pair figured out how to modify mRNA just enough that it would still work, but without triggering the body's immune system to kill off the molecule first. That led to their groundbreaking 2005 paper (which, by the way, was recognized as groundbreaking only in retrospect: at the time it was "summarily rejected[19]" by the prestigious journals Nature and Science, with Nature commenting that it was just an "incremental contribution[20]").

It is a miracle that Karikó stuck in academia for so long after being treated this way.

That's why we should worry about the invisible Karikós: the people with good ideas that weren't popular at the time who dropped out of academia. It's unlikely that she was the only person in the world who had an interesting idea in 1985 that could have turned into a groundbreaking discovery over the next few decades.

We'll never know what we missed.

That makes me think about the "fund the person, not the project" approach. To be clear, this could be a great idea, and it is well worth experimenting with. But would Karikó herself have done any better with that approach?

It's hard to imagine. At Karikó's demotion in 1995, no one would have said, "Here's a 40-year-old Hungarian scientist who went to a fairly obscure university, who has zero well-known mentors vouching for her, who has spent some 10 years working on a problem that no one thinks is solvable, and who started in a non-tenure track position[20] only to get demoted from there. Let's give her a few million dollars in unrestricted funding over the next 10 years."

So, here's the Karikó problem in a nutshell: Anyone can identify Karikó in retrospect, given her persistence and her eventual discoveries. But what do we do *right now* to find the 2022 versions of Karikó who simply don't (yet) look like the "visionaries" or "geniuses" who would be eligible for "person not project" funding?

My answer? Bend over backward to fund a more diverse range of people and ideas, even deliberately including ideas that are currently perceived as unpopular, unworkable, obscure, and the like. After all, many scientific discoveries can be traced back to origins that didn't seem promising — like CRISPR, which began with a Spanish study on salt-loving archaebacteria in 1993[21] — or even to ideas that are actively opposed by the establishment.

To be sure, the success rate of this approach might be low. But if we funded 10,000 people who looked like a younger Karikó, and only one of them did something that would have the impact of her mRNA research, that would be well worth it.

Stuart Buck is the executive director of the Good Science Project and a senior advisor to the Social Science Research Council.
About the Author: Stuart Buck, @stuartbuck1

Links

1. https://www.parsintl.com/publications/stat/
2. https://arbesman.net/overedge/
3. https://www.arcadia.science/
4. https://newscience.org/
5. https://arcinstitute.org/
6. https://www.activate.org/fellowship/
7. https://actuateinnovation.org/
8. https://astera.org/
9. https://convergentresearch.org/
10. https://www.theatlantic.com/ideas/archive/2022/01/scientific-funding-is-broken-can-silicon-valley-fix-it/621295/
11. https://www.aip.org/fyi/2021/final-fy21-appropriations-national-institutes-health
12. https://www.aip.org/fyi/2021/final-fy21-appropriations-national-science-foundation
13. https://www.nature.com/articles/477529a
14. https://www.statnews.com/2020/11/10/the-story-of-mrna-how-a-once-dismissed-idea-became-a-leading-technology-in-the-covid-vaccine-race/
15. https://www.cell.com/immunity/fulltext/S1074-7613(05)00211-6
16. https://www.usnews.com/education/best-global-universities/university-of-szeged-501065
17. https://www.wbur.org/news/2021/02/12/brutal-science-system-mrna-pioneer
18. https://www.bu.edu/articles/2021/how-drew-weissman-and-katalin-kariko-developed-mrna-technology-inside-covid-vaccines/
19. https://www.nytimes.com/2022/01/15/health/mrna-vaccine.html
20. https://www.pnas.org/content/118/51/e2119757118
21. https://pubmed.ncbi.nlm.nih.gov/8412707/
22. https://twitter.com/stuartbuck1
23. https://www.statnews.com/topic/research/
24. https://www.statnews.com/contact/

Tech Activities REPORT

Report ending: November 29th, 2024

Ch's & AG's	Ave Tech Mtg. Attend	Ave Tech Mtg Guest	#L31 -Technical	#L31 -Admin	#L31 Professional	#L31 -Other	Geo-Unit Name	# Unreported	Total Mtgs
Cnslt	43	20	1	1	9	0	Consultants Network	0	11
LIFE	0	0	0	11	1	0	Life Members	0	12
WIE	29	21	2	10	2	0	Women In Engineering	0	14
YP	14	0	3	12	0	0	Young Professionals	0	15
1	10	1	1	5	0	0	Circuits & Systems, Signal Proc., Info Th.	0	6
2	100	18	5	3	0	0	Vehicular Technology	1	8
3	29	4	1	0	1	0	Aerospace & Elec. Sys., Communications	0	2
4	22	2	9	0	0	0	Trident (Ant, Elect Dev., uWave, Photo)	0	9
5	47	6	47	8	6	4	Computers	0	65
6	30	4	4	0	0	0	Geoscience & Remote Sensing	0	4
7	31	3	11	7	0	1	Power Engineering, Industrial App.	0	19
8	67	31	11	9	0	0	Electromagnetic Compatibility (EMC)	0	20
9	177	16	2	6	0	0	Power Electronics, Industrial Electronics	0	8
10	8	2	2	6	0	0	Engineering Management	0	8
11	0	0	0	2	0	0	Eng. in Medicine & Biology	0	2
12	16	2	1	1	0	0	Control Systems	0	2
13	0	0	0	0	0	0	Education	0	0
14	23	0	2	1	0	1	Robotics & Automation	0	4
15	22	2	9	0	0	0	Nuclear Plasma Science Society	0	9
16	4	2	1	2	1	0	Computational Intelligence / Sys.Man.Cyber.	0	4
17	16	1	3	0	0	1	Nano Technology Council	0	4
18	21	9	3	1	0	0	Magnetics Society	0	4
									0
SEM	59	31	6	24	7	1	SEM (Section)	3	38
Tot	768	174	124	109	27	8	NOTE: Highlight Green = Active	4	268
		23%					NOTE: Highlight clear = Concern		

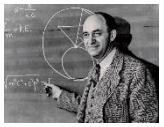
SEM Section Chapter and Affinity group leaders who are not showing any technical or administrative meetings are encouraged to reach out to the TAcom for assistance. Those chapters and groups with unreported meetings please update your L31 reporting. Please refer to the Section Health snapshot above.

Chapters 1, 3, 11, 12, 13, and 16 need to add/conduct technical meetings so as to keep their current chapter designation. There are several chapters with at least one technical and or professional meeting reported. This is an end of year push to get all of our technical chapters healthy. As a whole our Section continues to exceed our projections for technical meetings hosted for our membership. Thanks to all OUs working to engage their membership.

V/r Jeffery V. Mosley
Chair, Technical Activities Committee (TAcom)
jvmosley@ieee.org
Southeastern Michigan Section, IEEE Region 4

This Month in December

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



December 2, 1942 - Physicists led by Enrico Fermi carried out the world's first successful nuclear chain reaction at the University of Chicago, in a converted squash court under the stands of Stagg Field.

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

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

December 9, 1906 – Birthday of Grace Brewster Hopper (née Murray) was an American computer scientist, mathematician, and United States Navy rear admiral. One of the first programmers of the Harvard Mark I computer, she was a pioneer of computer programming. Hopper was the first to devise the theory of machine-independent programming languages, and the FLOW-MATIC programming language she created using this theory was later extended to create COBOL, an early high-level programming language still in use today.

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

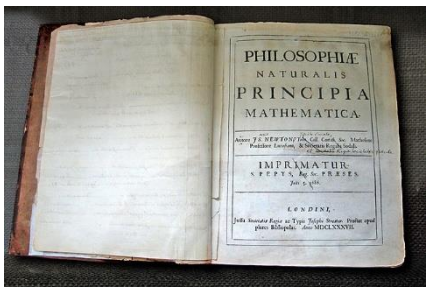
December 10, 1896 - Swedish chemist Alfred Nobel died at San Remo, Italy. His will stipulated that income from his $9 million estate be used for awards recognizing persons who have made valuable contributions to humanity. Nobel recipients are chosen by a committee of the Norwegian parliament. Prizes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

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

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

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

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



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

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

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

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

This continues the yearlong feature of interesting ***engineering*** events or milestones that occurred in a specific month. Readers are invited to share their views and opinions (or suggestions) at the accompanying link. Submissions can also be made using direct email to the editors at: wavelengths@ieee-sem.org.

Past readers have asked to feature one or more of these events in more detail. So, in 2024, we have featured many documentaries that helped shed more light on these luminaries and also explored the hidden side of their life stories.

We will also endeavor to republish an article from various publications in the same month of Wavelengths, featuring one or more of these luminaries. I urge any and all faculty of the STEM departments to share this with their students!

Also, like previous months in 2024, where we screened online scheduled documentaries featuring several of the folks mentioned in this column, we will repeat them ALL in 2025, as part of a growing series. Enjoy!

Sharan Kalwani
2022-2024 Chair, Southeastern Michigan Section,
Passionate Engineering History Buff/Aficionado

Member News!

The IEEE southeastern Michigan Section is extremely proud and happy to welcome members, who recently got upgraded to senior status. It is all part of our Membership Development on-going initiative to play a role in the professional lives of our members and support them in every which way possible. Congratulations to Ajay Prasad. Do feel free to contact him for follow up.

Mohamad Berri & Sharan Kalwani.
Membership Development committee

Ajay Prasad

Ajay Prasad is a Product Lifecycle Management (PLM) professional based out of the Metro Detroit area with over 21 years of experience and expertise in the design, architecture, development, implementation and technical sales of ENOVIA PLM systems across various industries such as automotive, industrial equipment, energy and consumer goods. Ajay received his Bachelor of Engineering degree in Industrial Engineering and Management from the RV College of Engineering, Bangalore, India in 2000 and Master of Science in Computer Science from the University of Birmingham, Edgbaston, UK in 2002.

After graduating, he started working at Tata Consultancy Services (TCS) as a mainframe professional and later in the area of Product Lifecycle Management (PLM) implementing and customizing ENOVIA PLM solutions across industries such as automotive, healthcare and industrial equipment working with customers in India and the US. He later went on to work for Dassault Systems in India as a Technical Sales Consultant for ENOVIA PLM software. In 2015 Ajay returned to the US and joined the ENOVIA Worldwide Center of Excellence team at Dassault Systemes.

Currently he works as an ENOVIA Worldwide Industry Process Expert with responsibilities that include technical sales of ENOVIA PLM, technical sales teams' enablement and serving as the glue between field teams, customers and product R&D in pre and post sales situations to foster customer success and adoption of ENOVIA PLM software.

He can be reached at https://www.linkedin.com/in/ajprasad/

2024 / 2025 SEM Officers

The IEEE SEM Organizational Roster is Located in the IEEE Southeastern Michigan website at:
http://sites.ieee.org/sem/

Under the TAB titled "About SEM" use the button:
"Organization Roster" to download the PDF version of the current Roster.

(Note: It is also a good idea to download the Organization Org Chart as well in order to get the complete 'big picture' of the Section.)

(Note: To protect the members from getting spam email, the roster is password protected. Request access by sending email to our web master – Scott Lytle.)

Years ago, we used to publish the complete Chart and Roster in the Newsletter. But that was when we had only 5 committees and 9 chapters.

Today we have 16 committees and sub-committees, 18 Technical Chapters, 4 Affinity Groups and 8 Student Branches. The total roster divides into 12 pages with 247 identified officer positions.

That seems like a large organization, and it is, but it also presents our members with many volunteer opportunities to grow their capabilities through the experience of working with leaders who can guide and nurture engineering talent and widen the scope of volunteering through 'hands on' training in those 'soft skills' that can only be mastered by 'doing.'

We often refer to learning the non-technical side of an engineering career as similar to learning to play a musical instrument, or a sport, or how to dance. You can read all the books you want but, you only really learn by doing.

Reading the Roster

Once downloaded notice that the roster is divided into five major segments:

- Executive Committee
- Standing Committees
- Affinity Groups
- Technical Chapters
- Student Branches

Within each segment you should find, at a minimum, the e-mail account for each officer, and in many cases, a work phone and a cell phone for quicker contact.

You may note a number of identified officer roles that have a blank cell (highlighted in yellow) where we would expect an officer name. These are vacant officer positions.

If you notice a vacancy where you might be interested in contributing to fill that role, please contact the relevant 'Chair' in that organization and discuss the duties of the office and consider helping out in that element.

As with all others, the road to this learning begins with the first step. That step is inquiring and finding out what skills go with each position. That information is maintained in the IEEE Center for Leadership Excellence at:
https://ieee-elearning.org/CLE/

Good luck!

RoboFest News

(1) 2025 Season Rules Released - Kickoff Meeting Dates
(2) LTU Visit Days on December 14
(3) Warmup Competition/Judge Training on February 15th
(4) Pre-season Workshop Schedule
Note: All times are listed in Eastern Time unless noted

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(1) 2025 Season Rules Released - Kickoff Meeting Dates

The Robofest 2025 Season International Rules were released on Saturday, September 28. Please join us as we review the rules and answer questions at an upcoming kickoff meeting. The US Rules, including clarifications and updates from the first kickoff session in October will be uploaded on November 6. The remaining kickoff meetings are as follows (Zoom Links are available on the Robofest.net 2025 Main Page): **Saturday, January 11, 2025** 10:00 am ~ 11:30 am (In person and Zoom)

(2) LTU Visit Days on December 14

We encourage Robofest participants to consider LTU as an option for their higher education. To learn more about what the university has to offer (over 100 undergraduate, masters and doctoral degree programs), LTU is hosting a visit day from 9:00am to 1:30pm, on **December 9th**, where prospective students can meet current LTU students and faculty, hear about campus living, and much more. To register, visit: https://apply.ltu.edu/portal/ltuvisitdays

(3) Warmup Competition/Judge Training on February 15, 2025

We are hosting a Warmup competition and Judge Training on Saturday, Feb 15th,1:00pm ~ 4:30pm in the Computer Science Robotics Lab, Room J234 on the LTU Campus. Teams who would like to participate should send an email to spalonis@ltu.edu. There is no registration fee for this event, but teams must be registered AND PAID at a local competition (or Pre-Registration) in order to participate. Please limit to one team per coach. Check-in for registered teams begins at 12:45pm; We encourage Michigan Site Hosts and Volunteer Game Judges to register and attend to gain first-hand experience running the 2025 Game. Registration is open:
https://www.robofest.net/rms/volunteer.ControllerServlet?newMainPage=index.jsp&siteID=1551

(4) Pre-season Workshop Schedule

Workshops are available at no cost to registered 2025 Teams. They are held in the Computer Science Robotics Lab on LTU Campus, robots and laptops are provided. workshop materials will be made available on the eAcademy/Workshops page.

LEGO EV3 with Scratch for Game
Saturday, 1/25/25: 9:00 am ~ 12:00 noon
LEGO SPIKE Prime/Robot Inventor with Scratch for Game
Saturday, 1/25/25: 1:00 pm ~ 4:00 pm
VEX IQ with VEXcode for Game
Saturday, 2/1/25: 9:00 am ~ 12:00 noon
LEGO EV3 with Scratch Intro to Exhibition
Saturday, 2/1/25: 1:00 pm ~ 4:00 pm

Registration is open under **Available Workshops** on the registration page on Robofest.net https://www.robofest.net/rms/SharedPagesServlet?cmd=getWorkshopsTable

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Lawrence Technological University / Robofest / J-233 / 21000 W. Ten Mile Rd, Southfield, MI 48075
Prof. Elmer Santos, Director, esantos@ltu.edu, Shannan Palonis, Assistant Director, spalonis@ltu.edu, Pam Sparks, Coordinator, psparks@ltu.edu, Dr. CJ Chung, Professor of Computer Science, Robofest Founder, Executive Council Chair, cchung@ltu.edu, Dr. Chris Cartwright, Associate Professor of Math, Executive Council Member, Dr. Eric Martinson, Chair of Math & Computer Science Dept, Executive Council Member
http://www.robofest.net http://facebook.com/robofest https://www.linkedin.com/company/robofest-official

2025 Geo-unit Funding:

As we approach the end of 2024 this is the time to do some long-range planning for activities that would interest our members. For our Technical Chapters we generally try to focus on the primary technical interests of our supporting Societies, and that is good and proper. However, try to consider alternatives to engage your members in events that will bring everyone together in face-to-face meetings.

Since the global pandemic and the discovery of how convenient virtual meetings can be we have seen very few face-to-face meetings which means we don't get to meet each other in ways that allow us to know each other as people, not just images on a screen. We see this 'distance' in our difficulty in nominating members we 'know' for officer position in our elections, and in our social activities.

Yes, face-to-face meetings are more difficult to arrange, and often will cost some funds for a location, refreshments, a meal, etc... However, the depth of interactions and social engagement is substantially better than with virtual meetings. Recall that one of our Section goals is to increase member 'engagement', and that is best accomplished with in-person meetings. However, there are considerations that should be part of planning.

Michigan in the Winter is less conducive to meetings that require personal travel, and during the months when snow, cold rain and dreaded 'sleet' is likely to interfere with driving, this would be time to plan virtual meetings. However, late Spring, Summer and early Fall provide opportunities for outings to visit local engineering laboratories, attend in-person presentations, or arrange tours of local places of interest. (Have you ever had a tour of the baggage handling operation at a local airport, or a local museum with a special guide to discuss their engineering exhibits? How about a Chapter member picnic at a local park?)

These take more planning and funding than a virtual meeting but their level of engagement is so much greater that they are well worth the effort. But, they need to be planned, and if financial help is needed, the detailed plan with cost estimates needs to be presented to the Section Finance Committee (FinCom) in order to be approved and given its proper place in the Section's long-range financial plan.

If your Chapter or Affinity Group has met its minimum number of qualifying meetings (meetings focused on the interests of your members) then there will be funds sent to the Section earmarked for your Geo-unit as 'seed money' to help you get started with any events requiring at least some funding.

Each qualifying meeting must be reported in the vTools Event system and for Technical Chapters, the event type must be "Technical". For Affinity Groups, reported as either "Technical" or "Non-Technical" to qualify for 'Rebate' funds. The minimum is 2 meetings per year. For Geo-units with 6 or more meetings in the year, there is a 'bonus'.

Geo-unit	#Meetings	Rebate	Bonus (6+mtgs.)
Tech Chapter	2 Minimum	$200	$75
Affinity Group	2 Minimum	$200	$75

The 'Bonus' is not a lot of money but, it is there to encourage Geo-units to hold meetings to engage their members and create a "Professional Home" for all.

So, how do you gain access to the Rebate funds for your Geo-unit? For the minimum amount of the rebate your Chapter or Affinity Group has 'earned' through reported meetings in the past year, contact the Section FinCom, or go directly to the Section Treasurer. If you only require the funds your Geo-unit has earned through qualifying meeting, a simple request to the Treasurer is all that should be required.

If you are planning a meeting that needs more than minimum funding available through your rebate, create a planning document that describes the event and includes detailed cost estimates of all the factors needed to successfully complete the event. Submit your plan to the Finance Committee (FinCom) before one of its monthly meetings for consideration.

When planning for an event requiring funding, consider charging a nominal fee for attendees. This fee should not necessarily be calculated to completely 'cover' the total meeting cost, given the expected level of attendance. What a minimal fee does is improve the likelihood of members actually attending the event, instead of deciding to cancel at the last minute. Now they have some 'skin in the game' and are more likely to show up.

Plan Ahead:
At this time of year, the Section FinCom is beginning to assess the level of rebate expected for those Geo-units that have met, or exceeded, their meeting requirements and determining what the final year-end financial status of the Section is likely to be.

The FinCom is also beginning to plan for the next year and expects to see requests for funding appropriate meetings from each of its Geo-units in order to begin long range planning for spending in the coming year. The long-range spending plan is used to predict the financial state of the Section during an active year to be sure there are sufficient available funds to cover the known and planned expenses without deficit spending.

Note: That means that some events that are planned may not be funded, if the predictions show they cannot be covered with currently available funds including expected 'rebate' funding. This is also a caution that early long-range planning by each Geo-unit is prudent if you hope to be approved.

Committees:
While the above advice is directed primarily to our Geo-units (Chapters and Affinity Groups) the same applies to each of our Standing Committees as well. Given the objectives and goals of each committee some will/should require funding to complete their work before the end of the year. Certainly, it should be the intention of each committee Chair to plan at least one 'Thank you' outing during the year for the members of the committee for all their work.

See the FinCom meeting schedule for the rest of 2024 elsewhere in this issue of Wavelengths and do your planning NOW!

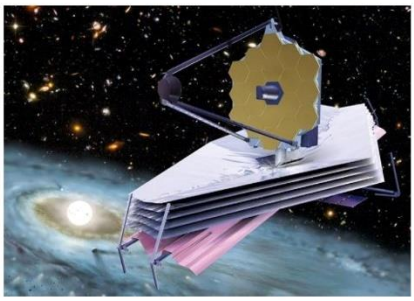
30

Documentary: Ultimate Space Telescope

IEEE Southeastern Michigan

Presents:

The Ultimate Space Telescope: A Documentary



IEEE Southeastern Michigan
Electrical and Electronic Engineers Creating Our Future

We proudly present the documentary: The Ultimate Space Telescope.

Summary:

Follow the dramatic story of NASA's James Webb Space Telescope (affectionally known as JWST) – the most complex machine ever launched into space – in hopes of peering deeper back in time than ever before and answering some of astronomy's biggest questions. For more details about the JWST – read the article published in IEEE Southeastern Michigan's monthly newsletter – Wavelengths, July 2022 edition. (the URL of which can be found below)

https://r4.ieee.org/sem/wp-content/uploads/sites/6/2022/07/07_2022_WL_Rev1.0.pdf

At Glance

- **When:**
  Date: Dec 19, 2024
  Time: 05:00 – 7:00 PM (EST/EDT)
- **Where:**
  Online via Webex (to be shared only after you have a confirmed registration)
- **Audience: OPEN to ALL***

Sponsored by IEEE Southeastern Michigan

***Pre-Registration Required!**

https://events.vtools.ieee.org/m/417078

IEEE Advancing Technology for Humanity

IEEE Southeastern Michigan Section

Documentary: Julia Robinson

IEEE Southeastern Michigan
Presents a Video Documentary:
"Julia Robinson"

IEEE Southeastern Michigan
Electrical and Electronic Engineers Creating Our Future

Julia Hall Bowman Robinson (December 8, 1919 – July 30, 1985) was an American mathematician noted for her contributions to the fields of computability theory and computational complexity theory—most notably in decision problems. Her work on Hilbert's tenth problem (now known as Matiyasevich's theorem or the MRDP theorem) played a crucial role in its ultimate resolution. Robinson was a 1983 MacArthur Fellow.
Running time: 50 minutes ()

Quick Summary

- **When:**
  Date: Dec 5th, 2024
  Time: 05:30 – 6:30 PM (EST/EDT)
- **Where:**
  Online via Webex (to be shared only after you have a confirmed registration)
- **Audience: OPEN to ALL***

Sponsored by IEEE Southeastern Michigan Computer Society Technical Chapter

***Pre-Registration Required!**

https://events.vtools.ieee.org/m/413673

140 YEARS

IEEE Southeastern Michigan Section

ORG UNITS cheat sheet

Section Unit Name or Affinity Group or Chapter Name (Organizational Unit code is in parentheses)

Consultants Network Affinity Group:	(CN40035)	
Life Members:	(LM40035)	
Young Professionals:	(YP40035)	
Women in Engineering:	(WE40035)	
Chapter: 01 (CH04049)	(SP01)	Signal Processing Society,
	(CAS04)	Circuits and Systems Society and
	(IT12)	Information Theory Society
Chapter: 02 (CH04051)	(VT06)	Vehicular Technology Society
Chapter: 03 (CH04053)	(AES10)	Aerospace and Electronic Systems Society and
	(COM19)	Communications Society
Chapter: 04 (CH04050)	(AP03)	Antennas and Propagation Society,
	(ED15)	Electron Devices Society,
	(MTT17)	Microwave Theory and Techniques Society,
Chapter: 05 (CH04055)	(C16)	Computer Society
Chapter: 06 (CH04056)	(GRS29)	Geosciences and Remote Sensing Society
Chapter: 07 (CH04057)	(PE31)	Power Engineering Society,
	(IA34)	Industrial Applications Society
Chapter: 08 (CH04088)	(EMC27)	Electromagnetic Compatibility Society
Chapter: 09 (CH04087)	(IE13)	Industrial Electronics Society,
	(PEL35)	Power Electronics Society
Chapter: 10 (CH04142)	(TEM14)	Technology and Engineering Management Society
Chapter: 11 (CH04099)	(EMB18)	Engineering in Medicine & Biology
Chapter: 12 (CH04103)	(CS23)	Control Systems Society
Chapter: 13 (CH04113)	(E25)	Education Society
Chapter: 14 (CH04115)	(RA24)	Robotics And Automation Society
Chapter: 15 (CH04144)	(NPS05)	Nuclear Plasma Sciences Society
Chapter: 16 (CH04125)	(CIS11)	Computational Intelligence Society,
	(SMC28)	Systems, Man and Cybernetics Society
Chapter: 17 (CH04128)	(NANO42)	Nanotechnology Council
Chapter: 18 (CH04162)	(MAG33)	Magnetics Society

Section Unit Name or Affinity Group or Chapter Name (Organizational Unit code is in parentheses)	
University Of Detroit-Mercy:	(STB00531)
Michigan State University:	(STB01111)
University Of Michigan-Ann Arbor:	(STB01121)
Wayne State University:	(STB02251)
Lawrence Technological University:	(STB03921)
Oakland University:	(STB06741)
Eastern Michigan University:	(STB11091)
University of Michigan-Dearborn:	(STB94911)

Use the Geo-unit 'Codes' (Shown above between brackets '()' for faster access in the vTools system applications.
Example: Using STB94911 in the vTools search window goes directly to the Student Branch.
Faster than typing '`University of Michigan-Dearborn`'. This works for all Affinity Groups, Technical Chapters and Student Branches.

HKN Code	HKN Name (Student IEEE Honor Society)
HKN029	University of Michigan-Ann Arbor, Beta Epsilon
HKN042	University of Detroit-Mercy, Beta Sigma
HKN054	Michigan State University, Gamma Zeta
HKN073	Wayne State University, Delta Alpha
HKN163	University of Michigan-Dearborn, Theta Tau
HKN164	Lawrence Institute of Technology, Theta Upsilon
HKN190	Oakland University, Iota Chi
HKN244	Southeastern Michigan Alumni

Why do we publish this? Well, this is most useful when searching the vTools page for entering L31s or creating new events or searching for existing events!

[NOTE – the Student Branch Chapters of several Societies has been eliminated, due to several years of non-activity as well as there is no one left, who started it years ago!]

Curated & Maintained By
Sharan Kalwani,
Chair, IEEE Southeastern Michigan Section (2022-2024)
Editor, Wavelengths (*Serving you as an active newsletter contributor since 2018)*
Enthusiastic IEEE volunteer since 2011

Use the Geo-unit ‘Code’ for faster access in the vTools system applications.

Activities & 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. **NOTE: The IEEE SE Michigan section website is located at http://r4.ieee.org/sem/**

SEM Wavelengths:
https://r4.ieee.org/sem/about-sem/sem-history/wavelengths-magazine-archive/

SEM Calendar of events:
https://r4.ieee.org/sem/sem-calendar/
Select "SEM Calendar" button in the top row of the website. 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 Collabratec Workspace:
https://ieee-collabratec.ieee.org/app/workspaces/5979/IEEE-Southeastern-Michigan-Section/activities
An IEEE supported space for online chat, discussions, connecting with other global IEEE entities, besides our local Michigan folks.

vTools Meetings:
http://sites.ieee.org/vtools/
Select "Schedule a Meeting" button in the left-hand column of buttons.

Other Happenings

Here are some of the non-IEEE functions that may be of interest to you or someone you know. 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. NOTE: Copy the URL and paste it into your browser address bar.
These websites were checked in June 2022 and found viable.
Send details to: wavelengths@ieee-sem.org OR letters@ieee-sem.org

Michigan Institute for Plasma Science and Engineering: Seminars for the academic year:
https://mipse.umich.edu/seminars.php

Model RC Aircraft
http://www.skymasters.org

Model Rocketry
https://www.nar.org/find-a-local-club/nar-club-locator/

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
https://www.robofest.net/index.php/about/contact-us

Science Fiction Conventions
https://2022.penguicon.org/

http://www.confusionsf.org/

Mad Science
http://www.madscience.org/

ESD PE Review Class
https://www.esd.org/programs/pe/

Maker Faire:
https://swm.makerfaire.com/

It appears that the SouthWest Michigan Maker Faire was a casualty of the Global Pandemic, as were many of our friends and several organizations.

However, we retain this link for anyone wishing to make contact and consider pumping life back into what was a wonderful experience.

Executive Committee

The Executive Committee is the primary coordination unit for Southeastern Michigan (SEM) IEEE operations. The basic organization chart below shows the current arrangement of communications links designed to provide inter-unit coordination and collaboration.

The SEM Executive Committee meets in a teleconference each month, usually on a Thursday at 6:30 pm. The specific meeting days, times, phone or WebEx numbers and log in codes are published on the IEEE SEM Website calendar: **http://r4.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 **Christopher Johnson**, the section secretary at secretary@ieee-sem.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.

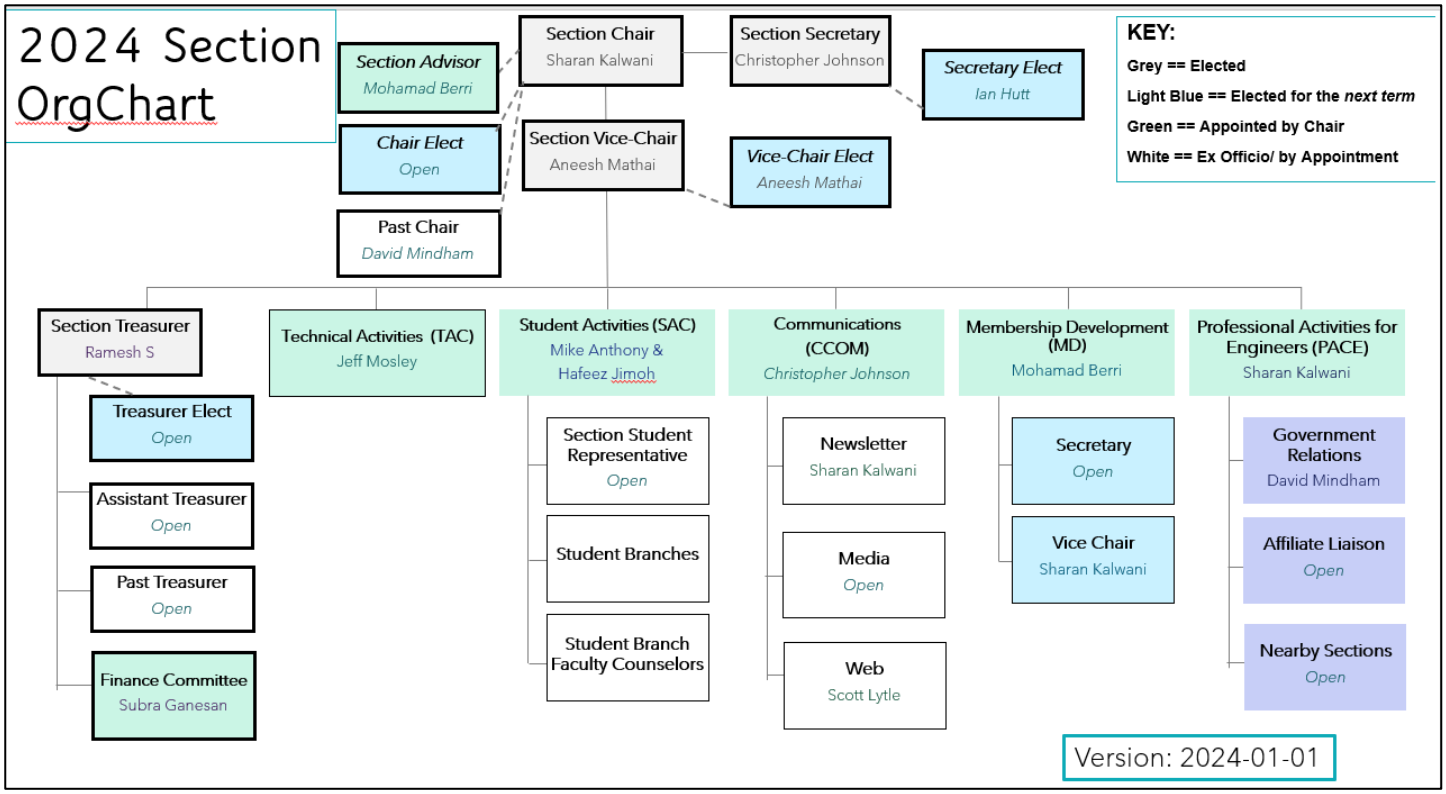
However, members of the section may have multiple technical interests and would like to have meeting information of other chapters. In order to communicate the meeting dates of all the chapters, affinity groups etc., to our members to facilitate their attendance, leaders of the groups are requested to send meeting information to our webmasters for posting on section's calendar.

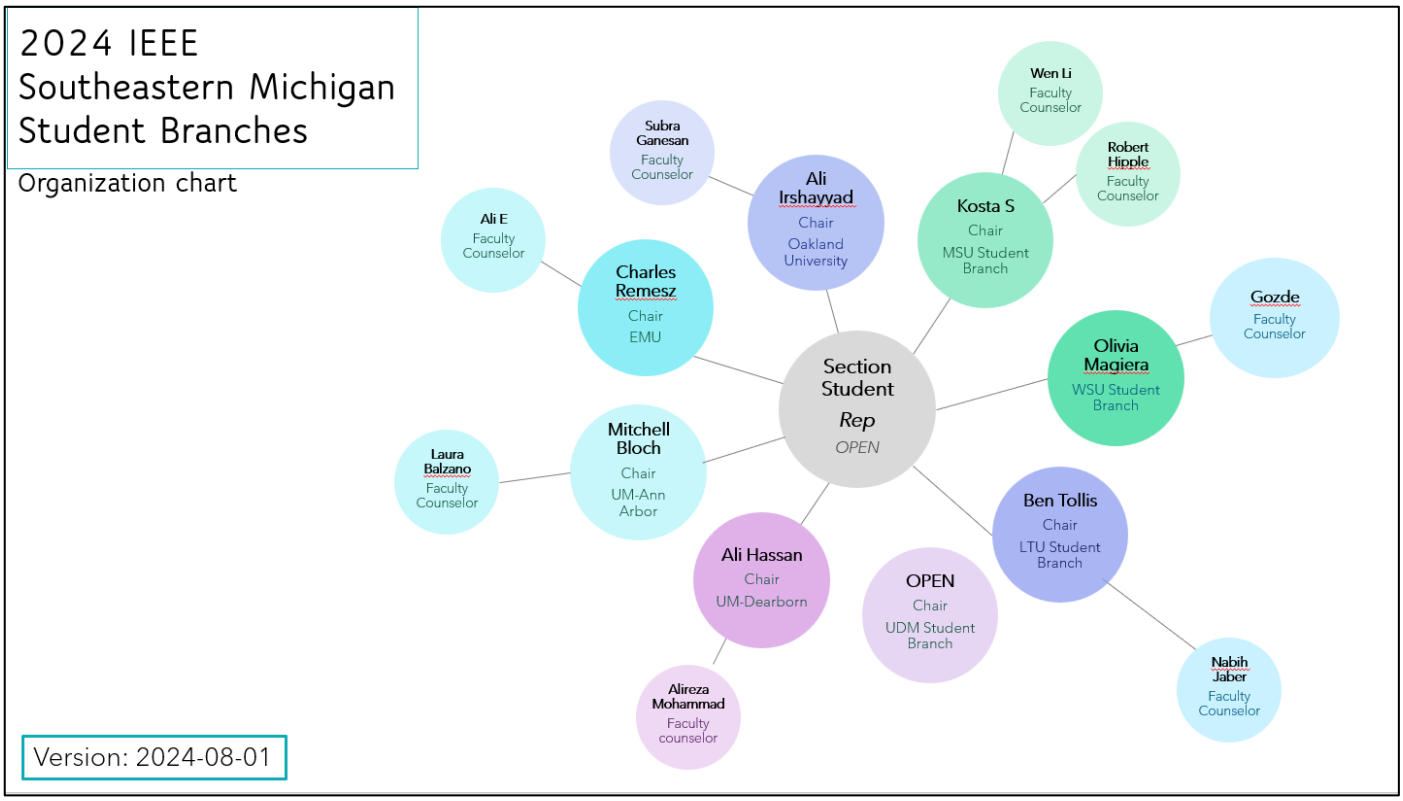
More detailed information on meetings may be found through the IEEE SEM Website: **http://r4.ieee.org/sem/** and clicking on the **SEM meetings list** button near the bottom of the left-hand banner.

Automatic e-mail notification of web updates may be received using the "**Email Notifications**" button at the top of the **SEM Tools/Links** side banner.

Christopher Johnson (Secretary)
Email: secretary@ieee-sem.org

If you wish to download the complete SEM Organization Chart, in PDF format, it will be made available soon at http://r4.ieee.org/sem/ . In the meantime, you may use the diagram below (recently refreshed!)





ExCom 2024 Meeting Schedule

NOTE: All SEM members are invited to attend ALL ExCom (Executive Committee) meetings:

Below is the 2024schedule 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 each scheduled ExCom meeting. Please mark your calendars for the 2024 meetings. Or link your personal calendar to the SEM Web calendar.

Section Administrative Committee (ExCom) Meeting Schedule for 2024: (clickable links)

Note: All IEEE Members are welcome at any IEEE meeting, at any time but please register so we can be sure to accommodate you. This month's meeting is highlighted in **Bold**.

ExCom Meeting (all clickable links)	*Date & Start Time, Duration*
Section ExCom Monthly Meeting (In Person) For DECEMBER	12 Dec 6:30 PM, 2 hours

Christopher Johnson (Secretary)
Email: secretary@ieee-sem.org

Planned ExCom 2025 Meeting Schedule

Section Administrative Committee (ExCom) Meeting Schedule for 2025

Title	Date	Hosts	Location	Virtual?
SEM Section ExCom Monthly Meeting (virtual) For JANUARY 2025 : Southeastern Michigan Section	09 Jan 2025 06:30 PM	R40035		Yes
SEM Section ExCom Monthly Meeting (virtual) For FEBRUARY 2025 : Southeastern Michigan Section	13 Feb 2025 06:30 PM	R40035		Yes
SEM Section ExCom Monthly Meeting (virtual) For MARCH 2025 : Southeastern Michigan Section	13 Mar 2025 06:30 PM	R40035		Yes
SEM Section ExCom Monthly Meeting (virtual) For APRIL 2025 : Southeastern Michigan Section	10 Apr 2025 06:30 PM	R40035		Yes
SEM Section ExCom Monthly Meeting (virtual) For MAY 2025 : Southeastern Michigan Section	08 May 2025 06:30 PM	R40035		Yes
SEM Section ExCom Monthly Meeting (virtual) For JUNE 2025 : Southeastern Michigan Section	12 Jun 2025 06:30 PM	R40035		Yes
SEM Section ExCom Monthly Meeting (virtual) For JULY 2025 : Southeastern Michigan Section	10 Jul 2025 06:30 PM	R40035		Yes
SEM Section ExCom Monthly Meeting (virtual) For AUGUST 2025 : Southeastern Michigan Section	14 Aug 2025 06:30 PM	R40035		Yes
SEM Section ExCom Monthly Meeting (virtual) For SEPTEMBER 2025 : Southeastern Michigan Section	11 Sep 2025 06:30 PM	R40035		Yes
SEM Section ExCom Monthly Meeting (virtual) For OCTOBER 2025 : Southeastern Michigan Section	09 Oct 2025 06:30 AM	R40035		Yes
SEM Section ExCom Monthly Meeting (virtual) For NOVEMBER 2025 : Southeastern Michigan Section	13 Nov 2025 06:30 PM	R40035		Yes

Editorial Corner

Previous editions in this series may be found on the IEEE SEM website at: http://r4.ieee.org/sem/. Click on the "Wavelengths" button in the top row of selections.

Comments and suggestions may be sent to the editorial team at wavelengths@ieee-sem.org
OR
sharan.kalwani@ieee.org
k.williams@ieee.org
cgjohnson@ieee.org

We rely on our officers and members to provide the 'copy' that we finally present to readers of the newsletter.
The **Wavelengths Focus Plan and Personal Profiles** plan shown in the matrix below is presented to ensure coverage of section activities and events.

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

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

We always encourage all chapters and student branches to share news of activities (both past and future) in their arenas. Please feel free to share any and all information so your peers, colleagues can hear about all the good work you do.

Quote*:*
"If a tree falls in a forest and no one hears it, how do you know it actually fell??"

So, publicize your work, one never knows when it can pay off!

Editors:

We are always looking for members interested in helping to edit the newsletter. The process is always more fun with more people to share the duties. Having more participants and contributors also helps us keep the newsletter interesting.

Join the Team:

If you feel you might like to join the team, or would like to train with us, please contact one of us at:
wavelengths@ieee-sem.org

Sharan Kalwani,
Chair, IEEE SE Michigan Education Society Chapter
Vice-Chair, IEEE SE Michigan Computer Society Chapter
Co-Editor, Wavelengths,
2018~2019~2020~2021~2022-2023-2024

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*	*New Year Officers*	*Officer's Welcome*	*The Year Ahead*	
Feb	*Cons*	*2*		*MSU*	*Science Fair Judges*	*National Engrs Wk.*	*Surviving Winter*	
Mar		*3*	*13*	*EMU*	*Elections - Prep*			
Apr		*4*		*U/M-D*		*ESD Gold Awards*	*Chapter Focus*	
May	*Life*	*5*	*14*			*Science Fair*		
Jun		*6*					*Leadership Skills*	
Jul		*7*	*15*				*Students Issues*	
Aug	*WIE*	*8*			*Nominations Call*		*Womens Issues*	
Sep		*9*	*16*	*LTU*	*Ballots*	*Engineers Day?*	*Professional Skills*	
Oct		*10*		*U/M-AA*	*Elections!*	*IEEE Day*		
Nov	*YP*	*11*	*17*	*WSU*	*Election Results*	*New Fellows*		
Dec		*12*		*U/D-M*	*IEEE-Com Apmts.*		*Happy Holidays*	*R4 Nom*

Wavelengths Annual Publication Plan for Personal Profiles

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

IEEE Southeastern Michigan
Electrical and Electronic Engineers Creating Our Future

Web & Social Sites

Southeastern Michigan Section Website
http://r4.ieee.org/sem/

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

Section Website Event Calendar
(Select the "SEM Calendar" button - top row)

SEM Facebook Page
(Select the "" button under the top row)
https://www.facebook.com/groups/ieeesemich

SEM LinkedIn Page
(Select the "" button under the top row)
https://www.linkedin.com/groups/1766687/

SEM Twitter Account (new)
(Select the "" button under the top row)
https://www.twitter.com/ieeesemich

SEM Collabratec *Community* Page
https://ieee-collabratec.ieee.org/app/section/R40035/IEEE-Southeastern-Michigan-Section

SEM Collabratec *Workspace* Page
https://ieee-collabratec.ieee.org/app/workspaces/5979/IEEE-Southeastern-Michigan-Section/activities

SEM Instagram (new)
https://www.instagram.com/ieeesemich/

SEM Officers:
For a complete listing of all - Section - Standing Committee - Affinity Group - Chapter and Student Branch SEM Officers Roster on the web page (top banner)

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IEEE Southeastern Michigan

Visit Us on the Web at:
http://r4.ieee.org/sem

Advertising Rates

SEM Website & Newsletter

Leadership Meetings

SEM Executive Committee Monthly Teleconferences:

- 2nd Thursday of Each Month @ 6:30 PM
- Check the Section Web Calendar at:
  http://r4.ieee.org/sem/sem-calendar/
  (Select the "SEM Calendar" button in the top row.)

OR

SEM Executive Committee Meetings:

- Find the location, and Registration at:
  http://bit.ly/sem-ieee

SEM Standing Committee Meetings:
SEM Affinity Group Meetings:
SEM Technical Society/Chapter Meetings:
SEM University Student Branch Meetings:

- Meeting schedules are announced on SEM Calendar
  http://r4.ieee.org/sem/
  (Select the "SEM Calendar" button in the top row.)

- Registration for all at:
  http://bit.ly/sem-upcoming