

Wavelengths



Section Chair's Message

Volume 65 – Issue 03

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A look forward to 2025!

What to look forward to this month of March:

- We have several documentaries:
- The Section wide ExCom meeting in March is Face to Face , all new members and re-elected and newly elected chapter officers are invited to attend.
- Several point online events with other chapters nationwide, wo of them on “Careers in Technology”, aimed at many of our young/new members.
- Kicking off vtools training for all of our volunteers, look for announcements!

The wrap up elections are over and results shared.

In this edition we have an interesting article on Dance and Music from CJ Chung. Also a recent volunteer – Ajay Prasad has contributed ar article on AI and Product Lifecycle Management.

I want to encourage all of our members to share their ideas, In 2025, we would like to do many more in person events.

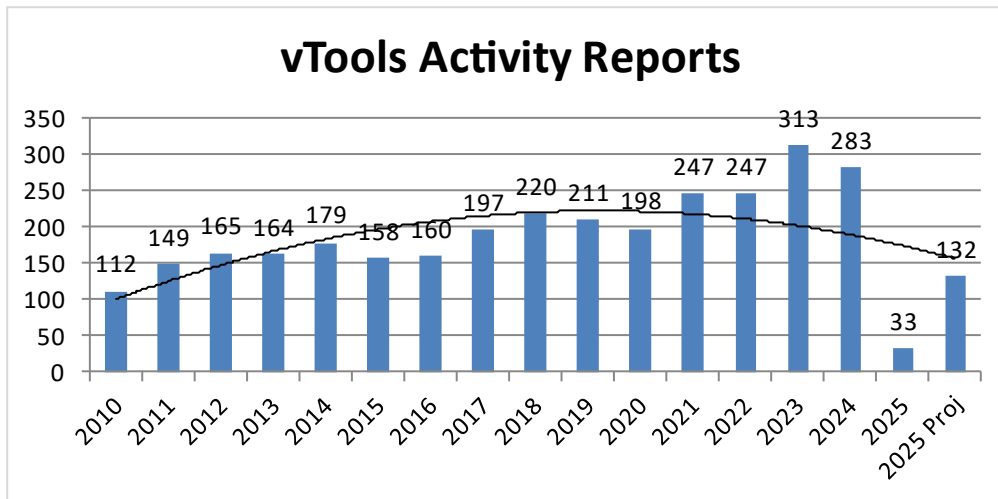
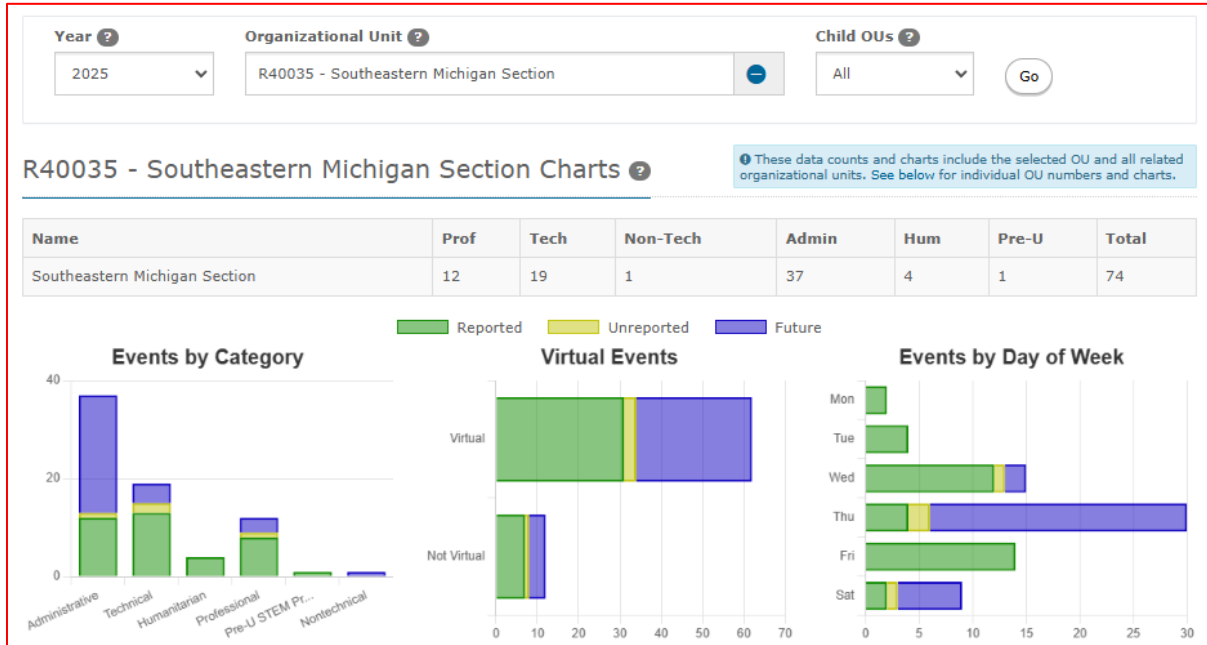
Volunteering:

✓ 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 past newsletters.

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](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 |

Make up Elections

Here is a summary of early 2025 election results:

Ch #	Geo-unit ID: Society Alignment	# Cand
1	CH04049 - SEM Jt., SP01/CAS04/IT12	3
3	CH04053 - SEM , AES10/COM19	1
4	CH04050 - SEM , AP03/ED15/MTT17/PHO36	2
9	CH04087 - SEM Jt., IE13/PEL35	2
11	CH04099 - SEM , EMB18	1
12	CH04103 - SEM ,CS23	1
13	CH04113 - SEM , E25	1
14	CH04115 - SEM , RA24	
15	CH04144 - SEM , NPS05	
17	CH04128 - SEM , NANO42	4

This chart shows Chapters which Chapters missed the MGA mandated 2024 self election process and were moved into early 2025.

The last column shows the number of candidates who volunteered to run for office. The lack of many candidates is not uncommon.

Also notice in the individual ballot results the ‘Voter Turnout’ in each Chapter ballot. Then read the ‘If you can keep it’ article also in this copy of the newsletter.

Ch 1

Ballot 2025 Southeastern Michigan Jt.Chap,SP01/CAS04/IT12 Election				
Start Date	6-Feb-25			
End Date	20-Feb-25			
Position	Candidate	Votes	Percent	Confirm
Chair	Sharan Kalwani	5	100	Y
Chair	I abstain	0		
Vice-Chair	Jeffrey Dulzo	5	100	Y
Vice-Chair	I abstain	0		
Secretary	william osipoff	1	100	
Secretary	I abstain	4		
Treasurer	There were no candidates and no write-in votes			
Voter turnout		3% (5 of 133)		

Ch 4

Ballot 2025 Southeastern Michigan Chap, AP03/ED15/MTT17/PHO36 Election				
Start Date	9-Feb-25			
End Date	22-Feb-25			
Position	Candidate	Votes	Percent	Confirm
Chair	Aline Eid	10	100	Y
Chair	I abstain	0		
Vice-Chair	Steve Young	10	100	Y
Vice-Chair	I abstain	0		
Secretary	Kimball Williams	9	100	Y
Secretary	I abstain	1		
Treasurer	Nathanael Bewick	1	100	Y
Treasurer	I abstain	9		
Voter turnout		5% (10 of 179)		

Ch 3

Ballot 2025-1 Southeastern Michigan Sec,AES10/COM19 Make-up Election				
Start Date	1-Feb-25			
End Date	16-Feb-25			
Position	Candidate	Votes	Percent	Confirm
Chair	Ann Kruse 08219529	1	100	No
Chair	I abstain	2		
Vice-Chair	Robert Williams 40254640	1	100	?
Vice-Chair	I abstain	2		
Secretary	Kimball Williams - 02937225	1	50	
Secretary	william osipoff	1	50	?
Secretary	I abstain	1		
Treasurer	Nathanael Bewick	3	100	Y
Treasurer	I abstain	0		
Voter turnout		2% (3 of 117)		

Ch 9

Ballot 2025 Southeastern Michigan Sec,IE13/PEL35 Election			
Start Date	2-Feb-25		
End Date	16-Feb-25		
Position	Candidate	Votes	Percent
Chair	Sharan Kalwani	5	100
Chair	I abstain	0	
Vice-Chair	There were no candidates and no write-in votes		
Secretary	Agasthya Ayachit	5	100
Secretary	I abstain	0	
Treasurer	There were no candidates and no write-in votes		
Voter turnout		3% (5 of 143)	

More on the next page:

Ch 11

Ballot	2025 Southeastern Michigan Section Chapter, EMB18 Election			
Start Date	3-Feb-25			Confirm
End Date	17-Feb-25			
Position	Candidate	Votes	Percent	
Chair	James Hamilton	2	100	?
Chair	I abstain	0		
Vice-Chair	James Hamilton	1	50	
Vice-Chair	Maurice Snyder	1	50	?
Vice-Chair	I abstain	0		
Secretary	There were no candidates and no write-in votes			
	Voter turnout	2% (2 of 72)		

Ch 12

Ballot	2025 Southeastern Michigan (Chap 12), CS23 Election			
Start Date	4-Feb-25			
End Date	19-Feb-25			
Position	Candidate	Votes	Percent	Confirm
Chair	Imad Makki	4	100	Y
Chair	I abstain	0		
Vice-Chair	Mohamad Berri	1	100	?
Vice-Chair	I abstain	3		
Secretary	william osipoff	1	100	?
Secretary	I abstain	3		
Treasurer	There were no candidates and no write-in votes			
	Voter turnout	2% (4 of 161)		

Ch 13

Ballot	2025 Southeastern Michigan Section Chapter, E25 Election			
Start Date	9-Feb-25			
End Date	23-Feb-25			
Position	Candidate	Votes	Percent	Confirm
Chair	Sharan Kalwani	2	100	
Chair	I abstain	0		
Vice-Chair	There were no candidates and no write-in votes			
Secretary	There were no candidates and no write-in votes			
Treasurer	There were no candidates and no write-in votes			
	Voter turnout	6% (2 of 30)		

Ch 14

Ballot	2025 Southeastern Michigan Section Chapter 14, RA24 Election			
Start Date	5-Feb-25			
End Date	19-Feb-25			
Position	Candidate	Votes	Percent	Confirm
Chair	Victor Manske	5	100	In Arrears
Chair	I abstain	1		
Vice-Chair	Kevin Taylor	2	100	Y
Vice-Chair	I abstain	4		
Secretary	Robert Gregg	1	50	N
Secretary	Devson Butani	1	50	Y
Secretary	I abstain	4		
Treasurer	Chan-Jin Chung	5	100	Y
Treasurer	I abstain	1		
	Voter turnout	3% (6 of 165)		

Ch 15

Ballot	2025 Southeastern Michigan Section Chapter, NPS05 Election			
Start Date	10-Feb-25			
End Date	24-Feb-25			
Position	Candidate	Votes		
Chair	There were no candidates and no write-in votes			
Vice-Chair	There were no candidates and no write-in votes			
Secretary	There were no candidates and no write-in votes			
Treasurer	There were no candidates and no write-in votes			
	Voter turnout	0.0% (0 of 49)		

Ch 17

Ballot	2025 Southeastern Michigan Section Chapter, NANO42 Election			
Start Date	10-Feb-25			
End Date	25-Feb-25			
Position	Candidate	Votes	Percent	Confirm
Chair	Sharan Kalwani	1	100	Y
Chair	I abstain	1		
Vice-Chair	Gordon Burkhead	1	100	?
Vice-Chair	I abstain	1		
Secretary	There were no candidates and no write-in votes			
Treasurer	There were no candidates and no write-in votes			
	Voter turnout	3% (2 of 57)		

Section Focus

The IEEE SEM Executive Committee Officers have reaffirmed the Mission and Goals of the section with the guidance of the Region 4 leadership. The Mission and Goals conform to those of IEEE worldwide.

You have probably seen the Mission and Goals before. However, it is important to keep these clearly in mind and remind ourselves often that this is what we are about and what we are trying to accomplish.

Section Mission

Inspire – Enable – Empower and Engage Members of IEEE at the local level.

For the purpose of:

- Fulfilling the mission of IEEE to foster technological innovation and excellence for the benefit of humanity,
- Enhancing the members' growth and development throughout their life cycle, and
- Providing a professional home.

Section Goals

- Increase member engagement,
- Improve relationships with and among members,
- Increase operational efficiency and effectiveness, within the section and its interfaces,
- Enhance collaboration – serve as the local face of IEEE to the community,
- Increase membership, and
- Ensure the collection of appropriate information necessary to assist the IEEE to become a data driven organization.

It is now the task of the section leadership to guide and coach all section officers and elements to focus their activities on achieving those goals.

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 <https://bit.ly/sem-upcoming>

Event	Date	Time
IEEE Officer Training (part 1 of 5) VTOOLS	2025-03-01	0900 Hours
Careers in Technology Spring Series: Elizabeth Alves	2025-03-04	2000 Hours
IEEE SSIT Lecture: Climate Change, from Fundamentals to Smart Solutions	2025-03-06	1800 Hours
IEEE Officer Training (part 2 of 5) COLLABRATEC	2025-03-08	0830 Hours
Senior Member Elevation (Hybrid)	2025-03-08	1030 Hours
Ch8: AdCom Teleconference	2025-03-13	1100 Hours
SE Michigan Section ExCom monthly Meeting (IN PERSON)	2025-03-13	1830 Hours
IEEE Officer Training (part 3 of 5) Chair & Vice Chair Roles	2025-03-15	0900 Hours
IEEE Officer Training (part 4 of 5) Treasurer & Secretary Roles	2025-03-22	0900 Hours
IEEE Officer Training (part 5 of 5) Code of Ethics	2025-03-29	0900 Hours

Tech Activities Report

As of February 2025

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	0	0	0	1	1	1	Consultants Network	0	3
LIFE	0	0	0	0	0	0	Life Members	0	0
WIE	0	0	0	2	0	0	Women In Engineering	0	2
YP	0	0	0	1	0	0	Young Professionals	0	1
1	0	0	0	0	0	0	Circuits & Systems, Signal Proc., Info Th.	0	0
2	0	0	0	0	0	0	Vehicular Technology	0	0
3	0	0	0	0	0	0	Aerospace & Elec. Sys., Communications	0	0
4	0	0	0	0	0	0	Trident (Ant, Elect Dev., uWave, Photo)	0	0
5	35	1	5	3	6	2	Computers	2	16
6	0	0	0	0	0	0	Geoscience & Remote Sensing	0	0
7	0	0	0	2	0	1	Power Engineering, Industrial App.	0	3
8	29	14	2	1	0	0	Electromagnetic Compatibility (EMC)	1	3
9	0	0	0	0	0	0	Power Electronics, Industrial Electronics	0	0
10	0	0	0	0	0	0	Engineering Management	0	0
11	14	0	1	0	0	0	Eng. in Medicine & Biology	0	1
12	0	0	0	0	0	0	Control Systems	0	0
13	0	0	0	0	0	0	Education	0	0
14	0	0	0	0	0	0	Robotics & Automation	0	0
15	0	0	0	0	0	0	Nuclear Plasma Science Society	0	0
16	0	0	0	0	0	0	Computational Intelligence / Sys.Man.Cyber.	0	0
17	0	0	0	0	0	0	Nano Technology Council	0	0
18	0	0	0	0	0	0	Magnetics Society	0	0
									0
SEM	21	1	1	1	1	1	SEM (Section)	1	4
Tot	99	16	9	11	8	5	NOTE: Highlight Green = Active	4	33
		16%					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 in the coming year for assistance. It's still early in the year and our Section continues to exceed our projections for technical meetings hosted for our membership. Thanks to all GAs working to engage their membership.

Jeff Mosley, TAcOm Chair

CIS CH 16 Chair (SEM Section, Region 4)

New IEEE Officers – Suggestions

There are several actions that can & should be taken by officers when taking command of their organization. While one alone will not guarantee eventual success, leaving one out can seriously inhibit the long-term success of any team. The suggestions given here are my own understanding of what has worked well in the past. The specific sequence can be varied, so don't be concerned as long as all, or most, eventually come about.

1st: Establish regular and consistent Officer meeting days and times.

- This should first be applied to your organization's administrative committee (Chair / Vice-Chair / Secretary / Treasurer) if this is a traditional IEEE Geo-unit. If the organization is a standing committee, the titles will be more diverse.
- My personal experience has been that a first time 'face-to-face' meeting helps establish a rapport among the members. This is more effective when combined with refreshments or a meal.
(*There is a reason why every culture on our planet greets newcomers with offers of something to eat and or drink, or both.*)
- Follow that first meeting with virtual meetings to minimize member travel and time but schedule other face-to-face gatherings at least 3 or 4 times each year to maintain the interpersonal gestalt established in the first event.
- Hold a 'non-working' social meeting near the end of the year to celebrate the successes and achievements of your team. This is the team's 'thank you' for a job well done.

2nd: Set up a communications method to remain 'in contact' with your general membership.

- Introduce your Officers and Volunteers to your general membership.
- Ask your members for their ideas on what activities and presentations they would like to see.
- Keep them informed about activities as they are planned.
- Seek additional officers and volunteers from among your members. An active meeting schedule may require more hands than just your four elected officers.
- Communications methods may include: Geo-unit website, eNotice, group meetings (ZOOM), picnic's, local site visit outings, etc.. Use your imagination. If one doesn't work, try something else.

3rd: Maintain contact with your Section Executive committee.

- Attend as many of the Executive Committee meetings as possible.
- Have your entire Administrative Committee attend and / or rotate that function among your officers and volunteers.
- Report on your Geo-unit activities to the Executive Committee, and...
- Document your activities with photos and articles contributed to the monthly Wavelengths newsletter.

4th: Use the 'vTools' to plan and document all your activities.

- vTools Survey tools
- vTools Engage
- vTools eNotice
- vTools Events
- vTools Local Groups
- vTools Officer Reporting
- vTools Student Branch Reporting
- vTools Voting

5th: Establish contact with the other Geo-units in your Section.

- Cooperate with them to expand the opportunities for both your, and their, membership.
- Share the work and costs of organizing a major event.
- Increase attendance at events with both memberships
- Share information about both Geo-units for the benefit of both memberships.
- Have more fun!

“If you can keep it!”

Outside Independence Hall when the Constitutional Convention of 1787 ended, a certain lady, ‘Mrs. Powel of Philadelphia’ asked Benjamin Franklin, “Well, Doctor, what have we got, a republic or a monarchy?” With no hesitation whatsoever, Franklin responded, “A republic, if you can keep it.”

Ben Franklin was not being snippy or sarcastic. Down through the years that simple phrase has been a reminder that a democracy, and especially a republic democracy (i.e. a ‘representative’ government whose representatives’ are elected by the governed people.) can easily devolve into an autocratic state if the ‘people’ fail to take part in selecting their ‘elected’ leaders (voting) and follow and monitor what their government does once those leaders take office.

IEEE Elections:

I have spent entirely too much of my personal time in the past few months working with our Geo-units coaxing and arranging elections of our officers who will be responsible for leading our IEEE Section into 2025. Almost all of my January and February has been devoted to ‘make-up’ elections for 10 of our Geo-units that completely failed to even reach out to their membership for candidates in 2024.

When I made ‘calls’ for volunteers, I received dismal responses.

From one ‘unit’ with 394 members, I had only one (1) volunteer to run for election.

Also, when I compiled the ballot, the IEEE system told me that there were only 328 registered voters. What that means was, $(394 - 328 = 66$ or 16% have ‘opted out’ of participating in any local IEEE activities – such as elections.)

After the election for the Geo-unit above was concluded, the tracking software told me that only 4% of eligible voters exercised their franchise – i.e. ‘voted’!

That is disgraceful!

In order for a democratic republic to function, in other words, be ‘of the people, by the people and for the people’, ‘the people’ must take an active part in selecting their representatives, and take an active part in monitoring their activities. If they don’t, the ‘representatives’ will either slack off and not do their jobs on behalf of ‘the people’ or only do those things that benefit themselves.

That is how we can ‘lose’ a republic and find ourselves under a dictatorship.

The saying ‘Price of Liberty is eternal vigilance’ is generally attributed to Thomas Jefferson. And when a people, any people, cease to watch what their ‘representatives’ are doing. That is when they will fulfil Ben Franklin’s caution of ‘...If you can keep it!’.

In the delightful movie ‘Dave’, the lead tells his audience; “I forgot that I was hired to do a job for you and that it was just a temp job at that.”

If someone does not vote in elections, or follow what their leadership is doing, or comment when they see something their leadership should not be doing, or they don’t agree with and are looking for someone to blame for why things are going wrong, there is a simple action they can take to see who is responsible if things are not going right:

1. Go into the bathroom,
2. Grab both sides of the bathroom sink,
3. Look straight ahead.

Senior Elevation!

**IEEE Southeastern Michigan Section
Presents
“Senior Membership Elevation 1st Round Up”**



IEEE Southeastern Michigan Section will reprise its Senior Member Round up event, on March 8th, between 10 AM and 12 noon. Senior Member Reviewers will assist interested member candidates with significant years of experience in their profession.

The way it works is:

- At least 10 years of significant experience with bachelor’s degree needs be established to initiate the senior membership elevation.
- If you have a Master’s, that is equivalent to 2 years of significant experience. So, you will need 8 additional years to qualify.
- If you have a PhD degree - that is 5 years of significant experience, so you need 5 additional years of experience beyond that.

There is no cost to becoming a Senior Member, and this step is a necessary prelude to seeking the IEEE ‘Fellow’ level. Also certain positions with IEEE also require that a member have achieved senior status. For a complete description of the Senior Member process and its benefits, see the link: https://www.ieee.org/membership_services/membership/grade_elevation.html

Potential senior members, please register on this site for the event and be ready with copies of your resume, and relevant supporting materials (list of papers, books, patents, etc.), to share with reviewers.

Existing Senior Members are requested to also register and assist potential new members with their application processing.

At A Glance

- **When:**
Date: March 8th 2025
Time: 10 - 11:30 AM (EST/EDT)
- **Where:**
Oakland University, EC 550
- **Audience:** All Eligible/Potential Members and Senior Members (references)

Sponsored by
IEEE

Southeastern Michigan Section
Membership Development
<https://r4.ieee.org/sem/>

Pre-Registration Required!

<https://events.vtools.ieee.org/m/461460>

IEEE Southeastern Michigan Section



AI and PLM

Artificial Intelligence (AI) Powered Experiences in Product Lifecycle Management (PLM)

The introduction of Artificial Intelligence (AI) technology has revolutionized user experiences and exponentially increased the value delivered by software to customers. This is akin to the invention of the mobile phone that democratized global communication but then the game changer was the smart phone that literally brought the world to your fingertips. One could suddenly do so much more with a phone than just make a call or send a text message. Mainstream software vendors are aiming to do just that by leveraging AI powered experiences in lieu of a traditional user experience that has been the norm till date. Product Lifecycle Management (PLM) solutions are no exception to the AI tidal wave.

What is Product Lifecycle Management (PLM)?

Think of everything that needs to happen before a product can be launched in a market - from the time an idea is sketched on a piece of paper, to defining product requirements, design, prototyping, testing, validation, simulation, manufacturing, project management, supplier development and sourcing, quality, sustainability ultimately leading up to the start of production (SOP) and culminating in the end of life of the product. Several teams need to work hand in glove with each other to make this happen on time, on quality and on budget. A PLM solution serves as the single source of truth for all these globally dispersed teams throughout the product development process by helping them speak a common language to foster collaboration, eliminate non-value added activities and increase the product development velocity of an organization.

The PLM Data Goldmine

AI technologies such as machine learning, large language models (LLMs), small language models (SLMs), natural language processing (NLP) are all having widespread use and application in mainstream software. These technologies in turn are able to deliver sublime user experiences by learning off large datasets. The dataset is critical – a great dataset allows for exceptional outcomes from the AI models and on the same note if the dataset isn't great then it is garbage in – garbage out.

Companies using PLM software for their product development process author and manage a large amount of data through the various phases of product development from requirements definition through end of life of the product. This data is both unstructured and structured data with latter containing product data from the virtual and learnings from the real world.

With PLM data in a platform based PLM system, the data is all managed in a single database connected with a business process. Couple this with modeling, simulation using science embedded in the datamodel then you have the ingredients of a great dataset that allows for AI technologies to learn and deliver intelligent outcomes resulting in shorter product development cycles.

Some of the data sources for AI in PLM are:

- **External sources in the public domain** – government, 3rd party technical organizations in specific industries are examples of data sources in the public domain that contain a large dataset for learning by the AI models
- **Internal sources within the PLM solution provider** – best practices, lessons learnt from customer implementations that are replicable especially for the same set of use cases that the PLM solution addresses across customers
- **Customer datasets** – this is by far the most important data source that contributes to the learning of the AI model. However, the learnings from this dataset might not be easily shareable across other customers i.e., the learnings may be applicable only for that customer keeping in mind intellectual property (IP) rights.

AI in PLM – The Opportunity

The use of AI in PLM across all stages of the product development process provides for limitless opportunities to deliver exceptional value to end users. To illustrate here are some examples:

- **Requirements Management:** Process requirements documents to create detailed requirements specifications indicating conflicting requirements, those which have been addressed before and by which product/product configuration/system, relevant test cases, overall timeline and cost to deliver the requirement not only reduces the time taken to define product requirements, it can also help companies respond faster with more accurate quotes in response to an RFP.
- **Diversity and Configuration Management:** Understand existing product configurations, feature option rules and matrices and then automatically coming up with newer product configurations at much faster speed, indicating if a configuration has already been built, updating configuration rules based on product requirements and evolution of product data can all help in managing product diversity especially in industries where the products are highly configurable.
- **Project Management:** Learn from historical project data and be able to apply the learnings to on-going and new projects and be able to suggest appropriate project templates and predict project risks, issues and opportunities.
- **Change Management:** Using AI to understand the impact of a change to a product for e.g., revising a product and changing the material of the product might lower the weight but using this material has caused several issues in the product in the real world. Optimizing the change management process by automatically combining multiple changes into a single change umbrella. This can greatly increase change management efficiency in organizations with complex change processes.
- **Generative Design Experiences:** Using Generative AI to build generative design experiences allowing for more productive and shorter design cycles. This can be greatly helpful in helping new designers come up to speed, finding design alternates that are easier to source and manufacture.
- **Bill of Materials Management:** Being able to automatically generate bill of materials based on product configurations with associated 3D designs, manufacturing intent, service bills of materials all related in context and managing the change and updates across these different views of the bills of materials with zero errors.
- **AI Powered Virtual Twin Experiences:** Using AI in virtual twins to bring the virtual and real world together by understanding feedback of the product in the real world and applying it to virtual twin models and predict the future behavior of the product.
- **Supplier Management:** Using AI to monitor and predict supplier risk, determining overall cost of working with a supplier based on supplier scorecards and past performance.
- **Strategic Sourcing:** Identifying market trends to predict price variations and recommend intelligent sourcing strategies to keep product cost down, identifying opportunities to combine sourcing needs across plants and take advantage of volume based pricing.
- **Workforce Management:** Using Machine Learning for workforce optimization to understand past, current and future resource assignments and perform automated resource levelling and predicting future resource needs. Suggest best fit resources for project activity assignment.
- **Quality Management:** Using AI to suggest recommendations to on-going issues based on historical data, defining a CAPA workflow for issue resolution, making recommendations on material use to adhere to latest materials compliance regulations.
- **Workflow Management:** Using AI to process historical workflow data – steps, timelines etc. and then automatically define new and optimize existing workflows to speed up product development processes.
- **IP Security and Classification:** Using AI to automatically classify data for reuse and apply relevant IP security rules to protect the data will go a long way in securing the data and preventing unauthorized access to data in PLM systems used by internal and external users such as suppliers etc.
- **Collaboration:** Virtual assistants learning from unstructured and structured data, conversations, social media posts to make intelligent suggestions to end users and aid their use of the PLM solution.

Summary

While the future of AI in PLM is exciting and full of promise, PLM solution providers need to come up with a clear and well defined strategy on how they plan to adopt AI in their solution. Lack of such a strategy and a short term view on the application of AI could be disastrous as customers today already expect AI powered experiences in their PLM solution beyond just a simple automation of existing capabilities.

While there is value in using AI to automate, the larger value is coming up with AI offers that democratizes AI for all users and not just benefits a subset of users. PLM solution providers need to identify the datasets for their AI models, come up with a value proposition that will encourage customers to share their dataset – the PLM goldmine, while respecting their IP rights and security. Providing AI powered experiences will also be a catalyst for PLM customers to move from an on-premise to a SaaS solution. A PLM system embedded with AI at its core should learn from itself, be generative beyond just the 3D world and become an IP management and knowledge and know how hub for product development.



About the Author:

Ajay Prasad is a Product Lifecycle Management (PLM) professional based out of the Metro Detroit area with over 21 years of global experience and expertise in the design, architecture, development, implementation and technical sales of ENOVIA PLM systems across various industries. Ajay has a Bachelor of Engineering degree in Industrial Engineering and Management and Master of Science in Computer Science. Currently he works as an ENOVIA Worldwide Industry Process Expert at Dassault Systemes Americas Corp. with responsibilities that include technical sales of ENOVIA PLM, technical sales teams' enablement and being a liaison between field teams working with customers and R&D in pre and post sales situations to foster customer success and adoption of ENOVIA PLM software. He is the focal on the team for ENOVIA Project and Workforce Management suite of applications and for Knowledge and Know How related to the application of AI in PLM.

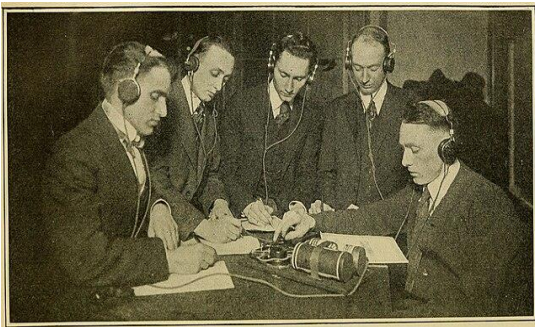
Ditch 'X', Morse Code is Back

For almost 20 years, **Steve Galchutt**, a retired graphic trekked up Colorado mountains accompanied by his pack of strangers around the world using a language that is almost and that many people have given up for dead. On his climbs, herd scared away a bear grazing on raspberries, escaped forest fires, camped in subfreezing temperatures and rickety cable bridge over a swift-moving river where one of fell into the drink and then swam ashore and shook himself know it sounds crazy, risking my life and my goats' lives, but blood," he tells me by phone from his home in the town of Colorado. Sending Morse code from a mountaintop—radios greater range—"is like being a clandestine spy and secret language."



designer, has goats to contact two centuries old, Galchutt and his from fast-moving teetered across a his goats, Peanut, dry like a dog. "I it gets in your Monument, altitude offers ham having your own

Worldwide, Galchutt is one of three million amateur radio operators, called "hams," who have government-issued licenses allowing them to transmit radio signals on specifically allocated frequencies. While most hams have moved on to more advanced communications modes, like digital messages, a hard-core group is sticking with Morse code, a telecommunications language that dates back to the early 1800s—and that offers a distinct pleasure and even relief to modern devotees.



The number of ham operators is growing in the United States, as is Morse code, by all accounts. [ARRL](#) (formerly the American Radio Relay League), based in Newington, Connecticut, the largest membership association of amateur radio enthusiasts in the world, reports that a recent worldwide ham radio contest—wherein hams garner points based on how many conversations they complete over the airwaves within a tight time frame—showed Morse code participants up 10 percent in 2021 over the year before.

This jump is remarkable, given that in the early 1990s, the Federal Communications Commission, which licenses all U.S. hams, dropped its requirement that beginner operators be proficient in Morse code; it's also

no longer regularly employed by military and maritime users, who had relied on Morse code as their main communications method since the very beginning of radio. Equipment sellers have noticed this trend, too. "The majority of our sales are [equipment for] Morse code," says Scott Robbins, owner of ham radio equipment maker Vibroplex, founded in 1905, which touts itself as the oldest continuously operating business in amateur radio. "In 2021, we had the best year we've ever had ... and I can't see how the interest in Morse code tails off."

Practitioners say they're attracted by the simplicity of Morse code—it's just dots and dashes, and it recalls a low-tech era when conversations moved more slowly. For hams like Thomas Witherspoon of North Carolina, using Morse code transmissions—sometimes abbreviated as CW, for "continuous wave"—offers a rare opportunity to accomplish tasks without high-tech help, like learning a foreign language instead of using a smartphone translator. "A lot of people now look only to tools. They want to purchase their way out of a situation."

Morse code, on the other hand, requires you to use "the filter between your ears," Witherspoon says. "I think a lot of people these days value that." Indeed, some hams say that sending and receiving Morse code builds up neural connections that may not have existed before, much in the way that math or music exercises do. A 2017 study led by researchers from Ruhr University in Bochum, Germany, and from University Medical Center Utrecht in the Netherlands supports the notion that studying Morse code and languages alike boosts neuroplasticity in similar ways.



Morse code emerged during a time of tinkering, at the start of the electrical age. In the 1830s, Samuel F.B. Morse, who had made a national name for himself as a painter with portraits of such luminaries as John Adams and the Marquis de Lafayette, began working with colleagues, including the inventor Alfred Vail, to experiment with how an electrical impulse initiated in one place and transmitted over a distance through wires could activate an electromagnet somewhere else. Operators would push down on a button attached to a small slab of brass that made an electrical connection between two wires. The connection sent electricity through these wires to a remote electromagnet, which then attracted a metal strip that made a clicking sound.

Though British inventors William Cooke and Charles Wheatstone had used an electromagnet to create the first telegraph receiver, patented in 1837, Morse's chief innovation was the simplicity of his code: A short press made a short click, or a dot, and a longer press, three times the length of a dot, made a dash; various combinations form the 26 letters of the alphabet. Within a few years, the utility of Morse's new language became clear to governments and businesses around the globe. Morse formalized this language as American Morse code in 1838, and in 1851 countries standardized it into international Morse code, which has remained largely unchanged since.

After Guglielmo Marconi sent the first intercontinental Morse message by radio in 1901—a simple “S,” from England to Newfoundland—Morse code became the de facto method for critical telecommunications and maintained that standing for nearly a century, despite the emergence of voice communication, because it offered clearer and more reliable communication for the military and maritime users.



That dominance broke in the mid-20th century, when digital data sent over satellites and fiber-optic cables took hold. Most historians agree that the death knell for Morse came in 1999 when the Global Maritime Distress and Safety System, which generates an automated digital emergency signal for ships in danger, replaced Morse code's SOS—the familiar dot-dot-dot / dash-dash-dash / dot-dot-dot. Military use disappeared except in extremely rare instances, other ship use became almost nonexistent and the last holdout users were hams who were still required to learn code for their licenses. That changed in the early to mid-2000s, when most countries no longer required hams to be proficient in Morse.

Although Morse remains the purview of hams, its presence still seeps into wider culture. The Apple Watch can silently buzz out the time in Morse when you put two fingers on the face. Since its opening in 1956, the Capitol Records building in Los Angeles, shaped like a stack of vinyl records, has sported a light on the roof blinking the word “Hollywood” in Morse code.

One of the main shortcomings of Morse code identified nowadays is its slow pace in an age of instant messaging. The average English speaker talks at about 150 words per minute, while most experienced hams send and receive at only 12 to 25 words per minute (although some high-speed operators can hit 35 or 55 words), says Howard Bernstein, who teaches Morse code at the [Long Island CW Club](#). Another drawback is the difficulty in learning the code—tantamount to learning a foreign language. It can take months or years of hard work to become proficient in a skill that offers diminishing returns for anyone but an avid hobbyist.



Part of Morse code's enduring appeal for hams isn't going away soon: Its simplicity and easy detection on airwaves make it more reliable than voice communication—and allow a ham to break through atmospheric noise and other weather conditions, even at extremely low transmitting power. “When you can't get through with your own voice, Morse code gets you through,” says Bob Inderbitzen, director of marketing and innovation at ARRL.

Radios that send and receive Morse code are lightweight and technically simple, and they need only small batteries. These advantages have spurred several sub-hobbies within the ham community. Thousands of hams worldwide participate in programs such as Parks on the Air and Summits on the Air, in which operators take their rigs into parks or mountaintops to see how many contacts they can make and how far they can reach.

Dan KB6NU braves the rain to continue operating POTA in a park near Ann Arbor, Michigan where he lives and writes books about Morse Code.

Adam Kimmerly of Ramona, California, is a regular at these events. “This is an ideal combination of my favorite hobbies: rock climbing, mountaineering, hiking and amateur radio.” And while some might imagine Morse code to be less intimate than actually hearing someone’s voice, veteran hams can often recognize one another based on their “fist,” or the rhythm and pacing of a strip of code. “You may think of dots and dashes as not having the same personality or character as voice communication, but they actually do,” Kimmerly says. “One of the really cool things I never expected is that people have their own inflections.” One Morse code enthusiast, Anne Fanelli, even saved a fellow ham’s life when she noticed his “fist” was off; after he stopped responding entirely, she called 911, and he was taken to the hospital, where he spent three days recuperating from an adverse drug reaction.

Doug Tombaugh, a history re-enactor from Kansas City, Missouri (he plays a mid-19th-century woodcutter), is president of the [Straight Key Century Club](#), whose thousands of members use simple up-and-down keys like those used by the first Morse code operators, instead of modern keys that form dots and dashes electromechanically, or those that employ computer software.

“I just like the mechanicalness of using a brass key,” Tombaugh says. “It’s real. It’s authentic. It’s tactile.”

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Officer Training:

We encourage members who are considering running for an officer position to take advantage of the 'Training Materials' available on the IEEE SEM Website at: <https://r4.ieee.org/sem/aboutsem/training/>

FREE Voice over Power Point Training: On-line virtual training modules are available through the SEM Website Training page. These videos will play directly and immediately from Google Chrome browser. They may not work well using Internet Explorer.

Turn OFF your pop up blocker if you don't see it load or download.

Blank Titles (Links) are still in development.

(If you wish to rewind sections and play again, we suggest you download the module to your computer and play it using your systems 'media player'.)

Note: If you are beginning training, we recommend starting with Module # 46: Virtual Training Plan, and follow its recommendations for the training sequence. Send Questions about these Training Modules to: k.williams@ieee.org

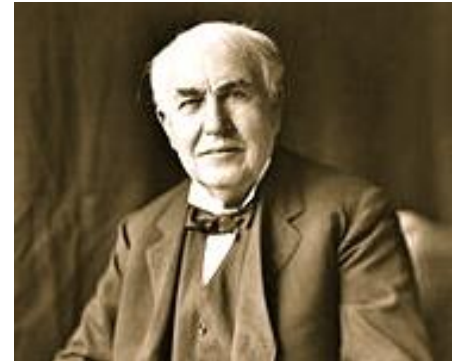
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Last Month in February

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

February 5th, 1840 – John Boyd Dunlop is born. Dunlop was a Scottish inventor and veterinary surgeon who spent most of his career in Ireland. Familiar with making rubber devices, he re-invented pneumatic tires for his child's tricycle and developed them for use in cycle racing. He sold his rights to the pneumatic tires to a company he formed with the president of the Irish Cyclists' Association, Harvey Du Cross, for a small cash sum and a small shareholding in their pneumatic tire business. Dunlop withdrew in 1896. The company that bore his name, Dunlop Pneumatic Tyre Company, was not incorporated until later using the name well known to the public, but it was Du Cros's creation.

February 11th, 1847 – Thomas Edison is born. He was an American inventor and businessman, who has been described as America's greatest inventor. He developed many devices that greatly influenced life around the world, including the phonograph, the motion picture camera, and the long-lasting, practical electric light bulb. Dubbed "The Wizard of Menlo Park", Edison was a prolific inventor, holding 1,093 US patents in his name, as well as many patents in the United Kingdom, France, and Germany. More significant than the number of Edison's patents was the widespread impact of his inventions: electric light and power utilities, sound recording, and motion pictures all established major new industries worldwide. These included a stock ticker, a mechanical vote recorder, a battery for an electric car, electrical power, recorded music and motion pictures. Edison developed a system of electric-power generation and distribution to homes, businesses, and factories – a crucial development in the modern industrialized world. His first power station was on Pearl Street in Manhattan, New York



February 13th, 1910 – Birthday of William Shockley, an American physicist and inventor. Shockley was the manager of a research group at Bell Labs that included John Bardeen and Walter Brattain. The three scientists were jointly awarded the 1956 Nobel Prize in Physics for "their research on semiconductors and their discovery of the transistor effect." Shockley's attempts to commercialize a new transistor design in the 1950s and 1960s led to California's "Silicon Valley" becoming a hotbed of electronics innovation. In his later life, Shockley was a professor of electrical engineering at Stanford University and became a proponent of eugenics.

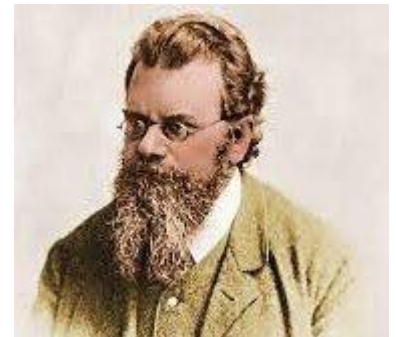


February 15th, 1564 – Galileo is born. An Italian polymath, Galileo is a central figure in the transition from natural philosophy to modern science and in the transformation of the scientific Renaissance into a scientific revolution. Known for his work as astronomer, physicist, engineer, philosopher, and mathematician, Galileo has been called the "father of observational astronomy", the "father of modern physics", the "father of the scientific method", and even the "father of science!"

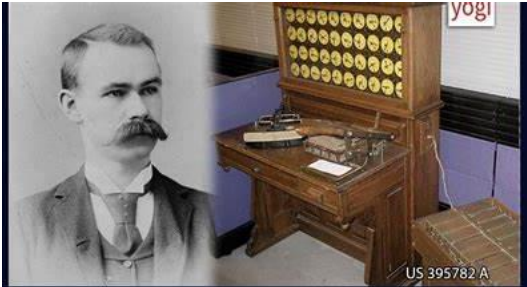


February 18th, 1836 – Ernst Mach is born. Mach was an Austrian physicist and philosopher, noted for his contributions to physics such as study of shock waves. The ratio of one's speed to that of sound is named the Mach number in his honor.

February 20th, 1844 – The day celebrated as the birthday of Ludwig Boltzmann. Ludwig Eduard Boltzmann was an Austrian physicist and philosopher whose greatest achievement was in the development of statistical mechanics, which explains and predicts how the properties of atoms (such as mass, charge, and structure) determine the physical properties of matter (such as viscosity, thermal conductivity, and diffusion).



February 22nd, 1857 – A Day all engineers must be able to remember, for it is the birthday of Heinrich Hertz, a German physicist who first conclusively proved the existence of the electromagnetic waves theorized by James Clerk Maxwell's electromagnetic theory of light. The unit of frequency — cycle per second — was named the "hertz" or "Hz" in his honor.



On January 8, 1889, Herman Hollerith received an initial patent for his electromechanical punched card tabulator to assist in summarizing information and accounting.

February 29th, 1860 – Herman Hollerith is born. An American inventor who developed an electromechanical punched card tabulator to assist in summarizing information and, later, accounting. He was the founder of the Tabulating Machine Company that was amalgamated (via stock acquisition) in 1911 later renamed IBM.

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
 2022-2025 Chair, Southeastern Michigan Section,
 Passionate Engineering History Buff/Aficionado

This Month In March

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

March 1st, 1880 – date of birth for Sir Isaac Shoenberg. Russian-Born British electrical engineer and principal inventor of the first high-definition television system, as used by the British Broadcasting Corporation (BBC) for the world's first public high-definition telecast (from London, 1936). He had installed the first radio stations in Russia before moving to England in 1914. He was head of a research group for Electrical and Musical Industries (EMI) that developed (1931-35) an advanced kind of camera tube (the Emitron) and a relatively efficient hard-vacuum cathode-ray tube for the television receiver. Until 1964 the BBC used his technical standard proposal - 405 scanning lines and 25 pictures a second. He was director of EMI from 1955. His youngest son, David Shoenberg, became a noted physicist.



March 3^d, 1847– Alexander Graham Bell is born. He was a scientist, inventor, and engineer. He is credited with inventing the first functional telephone. He is also credited with co-founding America's major telephone company AT&T, which has been going strong since 1885. Bell's later life was marked by his groundbreaking work in aeronautics, hydrofoils, and optical telecommunications. **{{We are featuring a special screening of a documentary on him. Look for the link on the web site OR search on vtools }}**

March 7th, 1958 – Alan Hale is born. He is an American astronomer and writer who co-discovered the Comet Hale-Bopp (1995). After service in the navy, he worked at the Jet Propulsion Laboratory (1983-86) as an engineering contractor on several projects, including Voyager II. After earning a Ph.D. in astronomy, he founded the Southwest Institute for Space Research (now named the Earthrise Institute). His interests include near-Earth objects and their possible impact on Earth, and the search for planets outside our solar system. He advocates for improved science literacy in society, and better career opportunities for graduating scientists. Hale is also active in developing international collaboration for observational projects.

March 11th, 1890 – Vannevar Bush is born. American electrical engineer who oversaw the massive government mobilization of scientific research during World War II. At the age of 35, in 1925, he developed the differential analyzer, the world's first analog computer. It was capable of solving differential equations. The modern day NSF (National Science Foundation) was a direct result of the lineage established by him. During the war, numerous history changing projects were championed and guided by him such as the proximity fuse and the Manhattan project. Apart from teaching and working as an electrical engineer, Vannevar Bush had also been the dean of the MIT School of Engineering. Working with the government, he initiated military funding of research projects, later known as the military-industrial complex. He also penned books such as *Modern Arms* and *Free Men*. **{{We are featuring a special screening of a documentary on him. Look for the link on the web site OR search on vtools }}**



March 13th, 1916 – Jacque Fresco was an American futurist who lectured and wrote his views on various subjects, such as energy efficiency, sustainable cities, cybernetic technology, natural-resource management, and automation. His life and career inspired the 2006 semi-biographical film *Future by Design*. In 2016, Jacques Fresco was honored with a Novus Summit award for his work. **{{We are featuring a special screening of a documentary on him. Look for the link on the web site OR search on vtools }}**

March 23^d, 1912 – Wernher Von Braun is born. He was German-born American aerospace engineer and space architect, and initially worked in Nazi Germany's rocket development program as a young man. After World War II, he moved to the United States where he became a pioneer of rocket and space technology in the nation. In his later career, he became director of the newly formed Marshall Space Flight Center. **{{We are featuring a special screening of a documentary on him. Look for the link on the web site OR search on vtools }}**



March 25th, 1883 – (Henry Charles) later Fleeming Jenkin is born. He was a British engineer noted for his work in establishing units of electrical measurement. After earning an M.A. (1851), he worked for the next 10 years with engineering firms engaged in the design and manufacture of submarine telegraph cables and equipment for laying them. In 1861 his friend William Thomson (later Lord Kelvin) procured Jenkin's appointment as reporter for the Committee of Electrical Standards of the British Association for the Advancement of Science. He helped compile and publish reports that established the ohm as the absolute unit of electrical resistance and described methods for precise resistance measurements.

March 27th, 1845 – Wilhelm Rontgen was a German physicist and mechanical engineer. He is best remembered for producing and detecting X-rays for which he was honored with the first Nobel Prize in Physics in 1901. His discovery of X-rays remains one of the greatest achievements in the field of medical science.



March 27th, 1855 – Sir Alfred Ewing's official date of birth. He was a Scottish physicist who discovered and named hysteresis (1881), the resistance of magnetic materials to change in magnetic force. Ewing was born and educated in Dundee and studied engineering on a scholarship at Edinburgh University. He helped Sir William Thomson, later Lord Kelvin in a cable laying project. In 1878 he became professor of Mechanical Engineering and Physics at Tokyo University, where he devised instruments for measuring earthquakes. In 1903 he moved to the Admiralty as head of education and training, where during WW I, he and his staff took on the task of deciphering coded messages.



March 29th, 1853 – Elihu Thomson, an English-American engineer and inventor whose discoveries in the field of alternating current phenomena led to the development of successful alternating current motors. Thomson invented electric welding and other important inventions in electric lighting and power among his lifetime total of about 700 patents. Thomson was also a cofounder of the General Electric Company (in 1892, in a merger with the Edison Company) industry.

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.

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Here is a [link](#) which lists all of the documentaries featuring several of the folks mentioned in the past 12 months of “This month....” Series. Enjoy!

Member News!



The [IEEE Southeastern Michigan Section](#) is extremely proud and happy to welcome many senior members, who got upgraded (or elevated as we like to call it) 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 way possible. Congratulations to all – Dan Shangraw, Shakti Chavan, Bill Schmidt and Vicky Singh. Do feel free to contact them for follow up.

Mohamad Berri & Sharan Kalwani,
Membership Development Committee

**Vicky Ranveer Singh**

Vicky Ranveer Singh is a highly accomplished engineering professional with over 13 years of experience driving innovation in computer vision and its applications across diverse industries, including augmented reality, aerospace, and automotive. His career has been defined by a pursuit of cutting-edge solutions, from developing a high-accuracy image recognition engine early on to leading the development of advanced driver-assistance systems (ADAS) at Robert Bosch. As a Senior Software Engineer and Team Lead for Mobility Solutions at Robert Bosch LLC, he leads the development and implementation of cutting-edge automotive technologies. His expertise spans image processing, machine learning, multi-sensor fusion, and stereo vision. He has consistently demonstrated leadership in both technical development and product management, leading cross-functional teams to deliver

market-leading solutions for major automotive OEMs.

Throughout his career, Vicky has focused on translating complex technical challenges into real-world applications. His contributions include enhancing depth estimation accuracy with innovative stereo vision algorithms and developing crucial components for autonomous driving, such as free space estimation and lane keeping. At Robert Bosch LLC, he is pioneering groundbreaking innovations in surround view technology, including mitigating the "Manhattan effect" and developing a cost-effective single-camera system for trailers, slated for demonstration at CES 2025. Vicky's dedication to advancing computer vision technology continues to shape the future of the automotive industry

William Schmidt

William received a B.S. in Electrical Engineering from Michigan State University in 1999. He has worked the past 34 years at Lansing Board of Water & Light and is currently a Principal Engineer for their Project Engineering Department. Lansing Board of Water & Light is a municipal utility that provides electricity, drinking water, chilled water, and steam to the greater Lansing, Michigan, area. He has a variety of experiences in the electric power and control industries.

He has been instrumental in creating and maintaining various cable and equipment standards and developing his company Arc Flash and Safety Hazard Program. He is also a subject matter expert for cathodic protection systems, substation grounding and bonding, substation yard equipment, switchgear, motor control centers, battery systems, and many other power and control systems. Working amongst the various utilities, he has gained exposure to many different types of systems from 1910 vintage hydroelectric generators, coal-fired electric generation, coal stoker boilers, and recently expanded into natural gas and PV systems as well as control systems for electric generation, drinking water, and chilled water production facilities.

Shakti Chavan

With over 15 years of experience in automotive product development, specializing in vehicle safety, Shakti has a proven track record of leading safety development for electric, hybrid, and ICE vehicles. His expertise encompasses advanced simulation and modeling techniques, including transient dynamic non-linear finite element solvers and autonomous driving simulators, crucial for developing and testing cutting-edge automotive technologies. His doctoral research at Wayne State University focused on safety and comfort in Level 3 autonomous vehicles, culminating in a dissertation exploring a novel takeover framework designed to enhance both safety and the driving experience.

Currently, as a Project Performance Engineer at Stellantis NV, he lead complex crash safety projects, managing all phases from conception to completion, ensuring compliance with global safety regulations, and spearheading cross-functional collaboration to design and develop safe vehicles.

Dan Shangraw

Dan Shangraw, P.E. is a LabVIEW software engineer located in East Lansing, MI. Dan has over 28 years of experience developing custom LabVIEW programs for test and measurement applications. Dan received his Bachelor of Engineering in Mechanical Engineering from Western Michigan University in 1998. He is a Licensed Professional Engineer in the state of Michigan. Dan has earned Certified LabVIEW Architect certification, Certified LabVIEW Instructor, and LabVIEW Champion from NI. Dan has owned his own company, Automated Software Technology, since 2002.

AST develops custom software to communicate with test and measurement hardware. The software AST develops can acquire data from sensors or stand-alone instruments i.e. thermocouples, pressure sensors, LVDTs, DMMs, and oscilloscopes. The software can also control connected hardware such as motor drives, power supplies, function generators, PLCs and more. The software can perform analysis on the acquired data i.e., FFT, averaging, filtering, minimum, maximum, etc. The application can display the acquired and analyzed data with a custom user interface that can include interactive graphs, numeric displays, and interactive controls. Data acquired from the hardware can be saved in any format i.e., csv file, excel, database etc. Data can also be sent to the cloud for storage and analysis. To learn more visit www.autosofttech.net

Dan can be found at www.linkedin.com/in/dan-shangraw-p-e-8a1a167

Move Your Body!

Move Your Body, Animate it, and Learn Coding

CJ Chung, IEEE Senior member

When I was young, my father taught me [fun dance moves](#) that teach body's synchronization skills. It is hard to forget learned physical activities like the dance moves. According to a WebMD article, exercise is really for the brain, not the body. A report by Harvard medical school, regular body movements (exercise) [changes the brain to improve memory, thinking skills](#). [Another article](#) talks about moving body to grow your brain. Huffington Post had an article entitled, "[Dance Lessons Could Keep You Two Steps Ahead of Memory Loss](#)." This also suggests that dancing may boost brain functions.

This article is about my experience in incorporating physical activities such as dance moves into STEM+CS curriculum to provide an effective learning environment for students.

In order to promote Computer Science and coding, I launched an annual autonomous robotics competition called Robofest (www.robofest.net) in 1999. While teaching robotics workshops, I learned that young students was interested in making physical objects move by programming, however, teaching classes with multiple moving robots was costly and complex to manage.

How about asking students to follow a black line as if they are robots, and then teach how to animate their movements by writing programs in a simulated environment? That's how the idea of [CS+PA2](#) (learning Computer Science with Physical Activities and Animation) started. It extends the embodied learning approaches that emphasize the use of action to support pedagogical goals, by adding animation component.


CS+PA2 is also based on an integrated curriculum framework where integrated lessons help students make connections and see the relevance between subjects. In CS+PA2 students first learn various physical activities, and then illustrate and animate the activities by writing code, while learning concepts of computer science. Examples of physical activities include dance, Zumba, Yoga, Tai-chi, martial arts training, fitness boot camps, and cheerleading.

MathDance - The 1st Experiment


As an instance of CS+PA2, we introduced "Mathematical Dance (MathDance)" then taught to animate photographs of themselves dancing using SCRATCH.

We worked with the University Prep Science & Math Middle School in Detroit. 7th grade students came for the first experiment. We set up a room for them, and had them pair off into teams of two, with one laptop computer assigned to each team. Then, we gave them a pre-assessment test. For math questions, the students were shown simple graphs ($y = x^2$, for example), and asked to identify the correct equations for each graph. For computer science questions, the students were given simple decision problems with a variable and nested loop questions. They were also asked two additional questions to gauge their interest in STEM fields. Once all the pre-assessments were complete, we taught them about graphs of some equations. After that, we walked them through basic coding concepts such as variables, operators, loops, nested loops, conditional loops, and decisions using the Scratch Cat as a Sprite (a character on the screen that the code manipulates). To play dance music, the concept of multi-tasking was also introduced. These were designed to prepare the students for creating their own MathDance animations in the program.


After the initial tasks, we sent them to another "station" to have their pictures taken in 9 different poses. Each pose represented a mathematical function as shown in the following Figure. For example, a pose in a "T" shape represented the function $y = 0$. After that, we taught them how to remove the background of the photos, then import the 9 photos into Scratch as Sprites.




$y = 0$




$c = x^2 + (y - a)^2$




$y = a^x$




$y = |x|$




$y = -|x|$




$y = -x$



$y = x$



$y = x^2$



$y = -x^2$

```

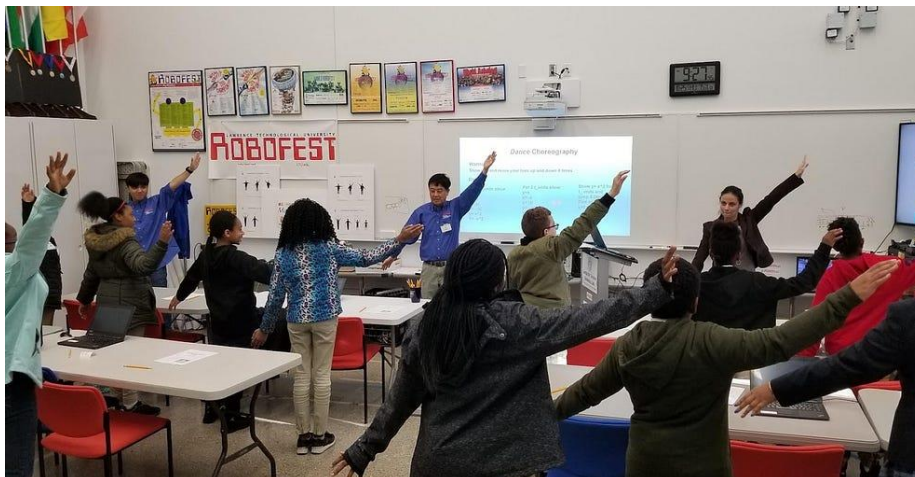
Play music concurrently;
Set delay as 0.495; // t_unit
Up-down moves using y = 0 for 4 times;

Set counter = 4;
Repeat until counter < 2
  Repeat twice the following
    Show y = x;
    Wait delay*counter seconds;
    Show y = -x;
    Wait delay*counter seconds;
    Show y = |x|;
    Wait delay*counter seconds;
    Show y = -|x|;
    Wait delay*counter seconds;
    Show y = x^2;
    Wait delay*counter seconds;
    Show y = -x^2;
    Wait delay*counter seconds;
  End of Loop;
  Decrease counter by 2;
End of Loop;

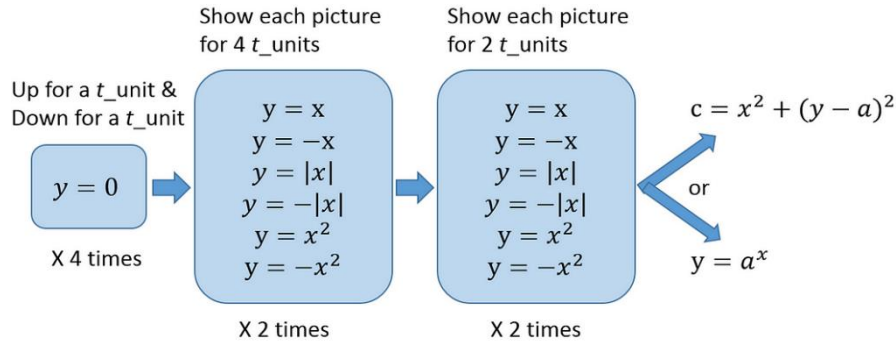
Choose a number (either 1 or 2) randomly;
If the number is 1
  Show "circle";
Else
  Show y=a^x;
Play cheering and clapping sound;
Stop all;
        
```

After explaining a segment of pseudo code shown above Figure for the complete MathDance, we showed & assisted them with the first steps in creating the MathDance code with a pre-recorded music loop, called “drum_jam”. Then, we let them continue on their own to complete the MathDance. At the end of the event, we gave them a post-assessment with a similar difficulty level and similar questions to the first and the common STEM interest questions.

For the second group, a different group of 7th grade students came from the same school. They were given the same setup as the 1st group. The 2nd group followed the same agenda explained in previous section. In addition, they performed the actual MathDance as shown below pictures around total of 9 minutes.



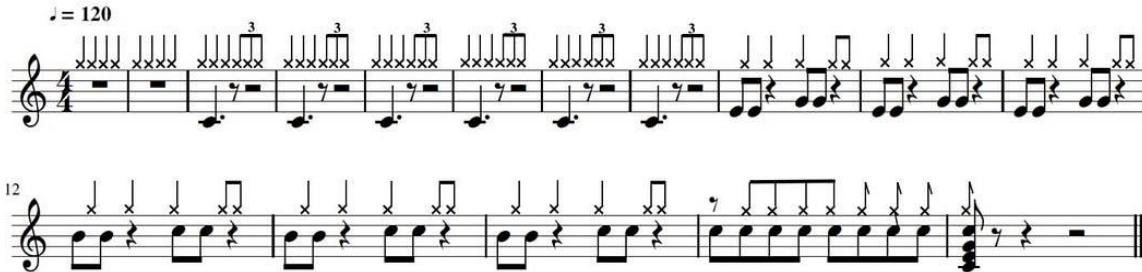
When they danced, we first projected our pre-made dance animation as well as choreography note on the screen as shown below.



The following 3 selected videos exhibit and summarize what students learned from the workshops: <https://youtu.be/abqRCTdFwUg> , <https://youtu.be/goYiHV6Ojvw> , <https://youtu.be/McrjzC6mU8>

MathDance with My Music

How about asking them to dance to their own music instead of using pre-recorded music? Our next program had a new learning component was to create their own music instead of using a pre-recorded music loop. Suggested simple music composed by me to create using Scratch is shown below.



Scratch programming language provided a nice mechanism to play notes and drum beats concurrently to play the above music and it was obvious that students had a quite fun while they were creating the music with different instruments and drum sounds. Please watch the following 2 animations and music created by students: <https://youtu.be/lpkw9OAD0ZQ>, https://youtu.be/lpj1L_K-IRA .

Summary and Epilog

MathDance as an example of CS+PA2 is an integrated, interdisciplinary, and synergistic approach to integrate math, computer science, technology, music, arts, and physical education. The assessment results show that the MathDance program improved students’ knowledge in math and computer science significantly. It also increased students’ confidence in STEM classes and interest in STEM careers.

We think the improvement was possible because the body movement can be an effective cognitive strategy to strengthen learning, improve memory and retrieval, and enhance learner motivation and morale. While they are working on animation, the math learning was reinforced through visual information they created. Music component reinforcing math concepts generated more fun to the program. In addition, we know that physical activity before, during and after school is a goody for students’ heart, brain, and whole body. By incorporating physical activity, arts (music), and STEM+CS classes into the school curricular, we can provide an effective learning environment for students’ well-being in general. Since some school districts have done or may be considering cutting back on physical education to add more STEM related classes with the aim of improving academic performance, a compromised solution could be adopting programs like CS+PA2 approach such as MathDance.

Move your body to learn math, animate the movement to learn coding and reinforce the math learning.

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 <https://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 WORK space for online chat, discussions, connecting with SECTION specific IEEE activities, besides geared/focused towards our local Southeastern Michigan officers.

vTools Meetings:

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

Select “Events” on the right hand side and then “manage Events” and then “Schedule” 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

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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/eea/eea-chapters/find-an-eea-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.

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)

And of course our Section OU # is : R40035!

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!

Curated & Maintained By

Sharan Kalwani,

Chair, IEEE Southeastern Michigan Section (2022-2025)

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.

Lady with a Torch:

The New Colossus

Not like the brazen giant of Greek fame,
 With conquering limbs astride from land to land;
 Here at our sea-washed, sunset gates shall stand
 A mighty woman with a torch, whose flames
 the imprisoned lightning, and her name
 Mother of Exiles.
 From her beacon-hand
 Glows world-wide welcome; her mild eyes command
 The air-bridged harbor that twin cities frame.
 "Keep, ancient lands, your storied pomp!" cries she
 With silent lips. "Give me your tired, your poor,
 Your huddled masses yearning to breathe free,
 The wretched refuse of your teeming shore.
 Send these, the homeless, tempest-tost to me,
 I lift my lamp beside the golden door!"

Emma Lazarus
 November 2, 1883

I have trouble reading those words of Emma Lazarus without sheading a silent tear.

When I first read this poem in grade school, and learned its significance, and its location, and understood that every new immigrant to our country was greeted with this poem on the base of the Statue of Liberty in New York harbor.

To me this was the essence of America. The land of immigrants. The "Melting Pot" as it was often referred to in those days. Then, as now, people come from all over this planet to a place where we espouse the ideals of democracy and freedom. Yet we still struggle to honor those ideals in our everyday life.

We are still learning that lesson every day. We did no better in our treatment of the Native American Indian tribes with forced removal from the lands they had occupied for thousands of years. Many times, this was 'justified' when it was learned that valuable minerals were present on those lands, or when political pressure to provide land for new 'non-Indian' settlers prompted the US Army to 'clear the land'.

We did not seem to learn any lessons then and repeated the mistake during WWII when we unjustly imprisoned many Japanese American citizens in camps like Manzanar War Relocation Center where two thirds of those held there were American citizens by birth, often with their Japanese relatives serving in the US military in the European and African theaters of the war.

During the build up to the Nazi Party takeover of their own country, Germany, the Nazis sought a scape goat to blame for any and all social and economic problems. In that case it was the Jewish people living and working in Germany that were used explain anything that was wrong with the society or government.

This is not a new political tactic. It was used during biblical times when the Samaritans were signaled out for similar abuse. Recently some of our political leaders have pointed to our immigrant population in a similar attempt to blame one smaller group of people for anything and everything they point to as a social or economic problem. (Sound familiar?)

One of the foundation stones of our democracy, that used to be stressed along with freedom, is responsibility. If you are free to choose for yourself, you must also accept responsibility for your actions and its consequences.

The childish excuse of 'The devil made me do it.' makes as much sense as blaming our actions on someone else or blaming some social or economic condition on some other group of people.

America has always stood as a 'land of opportunity' and welcomed new immigrants. Once we called America the 'Melting Pot'. I like the view expressed by the Russian American folk singer and actor Theodore Bikel who likened America to a kaleidoscope in which each different culture retained its collective identity and added its own 'color' to the blend without losing its 'roots'. Here in Southeastern Michigan we enjoy a wonderful mix of cultures due to the opportunities afforded by our industry and educational institutions.

Over the years we have been host to new enclaves from almost every other country on the planet, and we reap the rewards of that wonderful mixture. Any day of the week we can choose to dine out in authentic restaurants from all over the world. A couple of years ago Delta Airlines noted that Detroit (not New York) has the best choices in America.

Try to greet your new neighbors in their birth language, if you are able.

Make them welcome.

Non-IEEE Events**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/ea/ea-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: <https://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.

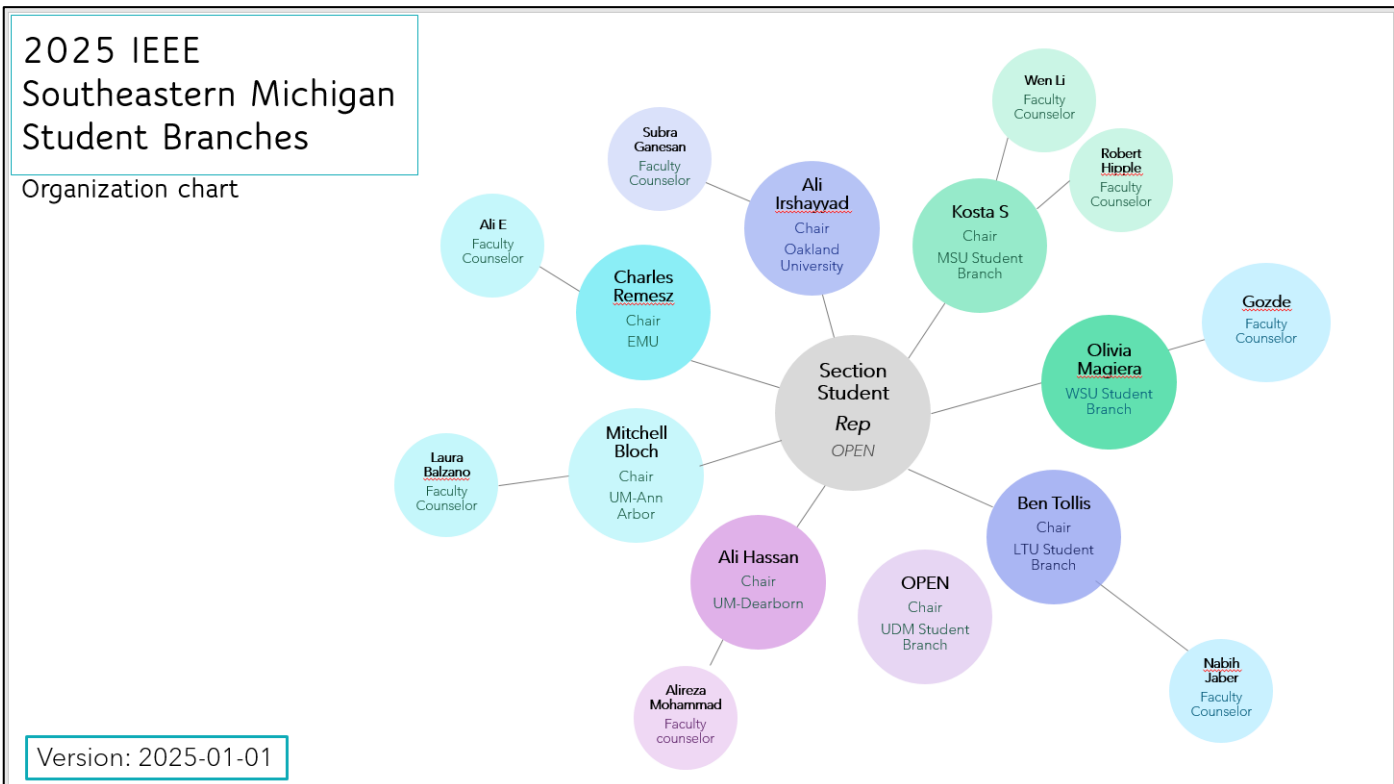
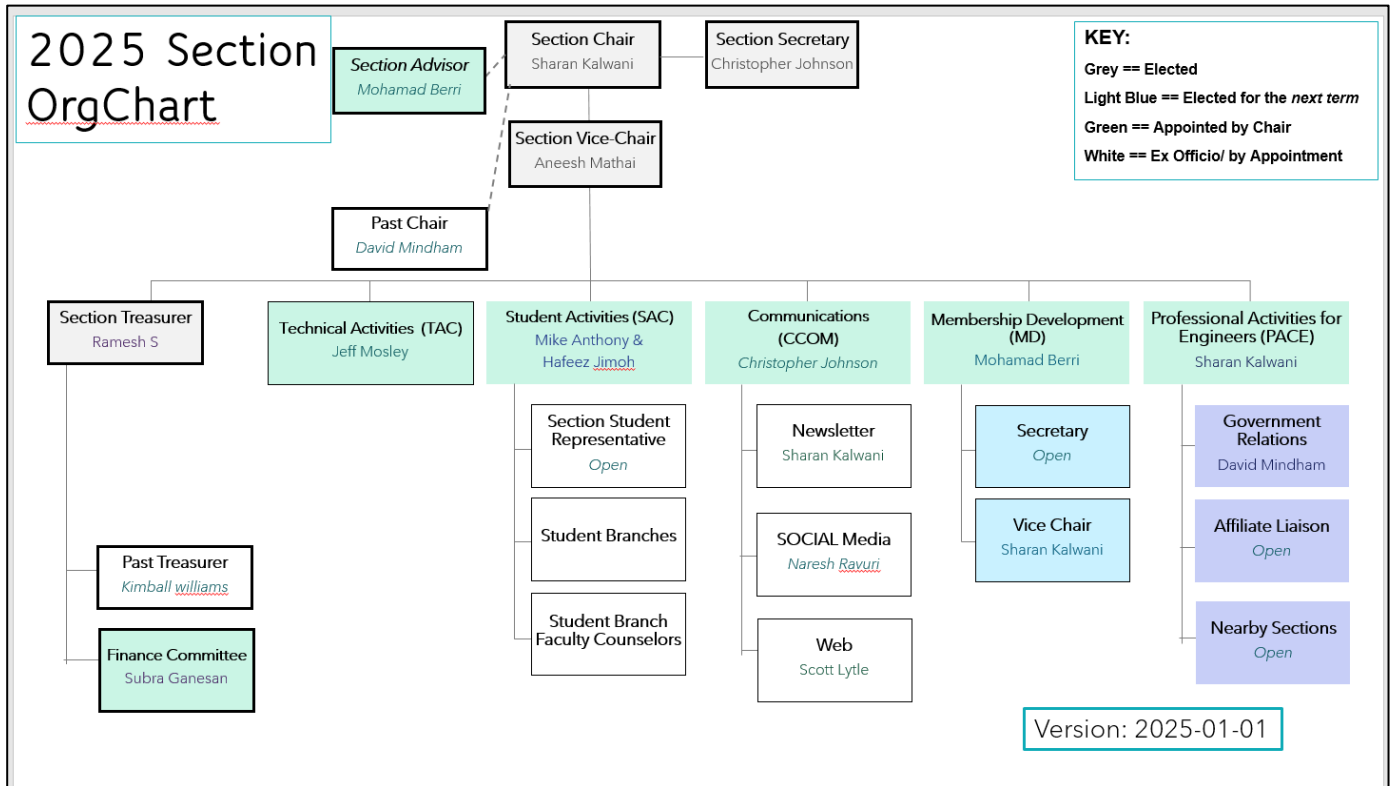
However, members of the section may have multiple technical interests and would like to have meeting information of other chapters. In order to communicate the meeting dates of all the chapters, affinity groups etc., to our members to facilitate their attendance, leaders of the groups are requested to 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: <https://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 available soon at <https://r4.ieee.org/sem/> . In the meantime, you may use the diagram below (recently refreshed!)



ExCom 2025 Schedule

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

Below is the 2025 schedule for the Section ExCom meetings with links to add the events to your calendar. It is important that **at least one person** from each Chapter/Affinity Group attends each scheduled ExCom meeting. Please mark your calendars for the 2025 meetings. Or link your personal calendar to the SEM Web calendar.

Section Administrative Committee (ExCom) Meeting Schedule for 2025: (clickable links, SO YOU CAN EASILY REGISTER)

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.

<i>ExCom Meeting (all clickable links)</i>	<i>Date & Start Time, Duration</i>
SEM Section ExCom Monthly Meeting (IN PERSON) For MARCH 2025	2025-03-13; 6:30 PM; 2 hours
SEM Section ExCom Monthly Meeting (virtual) For APRIL 2025	2025-04-10; 6:30 PM; 1 hour
SEM Section ExCom Monthly Meeting (virtual) For MAY 2025	2025-05-08; 6:30 PM; 1 hour
SEM Section ExCom Monthly Meeting (IN PERSON) For JUNE 2025	2025-06-12; 6:30 PM; 2 hours
SEM Section ExCom Monthly Meeting (virtual) For JULY 2025	2025-07-10; 6:30 PM; 1 hour
SEM Section ExCom Monthly Meeting (virtual) For AUGUST 2025	2025-08-14; 6:30 PM; 1 hour
SEM Section ExCom Monthly Meeting (IN PERSON) For SEPTEMBER 2025	2025-09-11; 6:30 PM; 2 hours
SEM Section ExCom Monthly Meeting (virtual) For OCTOBER 2025	2025-10-09; 6:30 PM; 1 hour
SEM Section ExCom Monthly Meeting (virtual) For NOVEMBER 2025	2025-11-13; 6:30 PM; 1 hour

Christopher Johnson (Secretary)

Email: secretary@ieee-sem.org

ExCom 2025 Calendar

Section Administrative Committee (ExCom) Meeting Schedule for 2025 (At a Glance), you can print this page and pin it up anywhere easily visible.....

SEARCH EVENTS

[Learn how to integrate Event notices with your website](#)
[Hey! I want the old Search page.](#)

Search Options
Advanced Search
Clear Search

Search Term ?

Organizational Unit ?

Date Range ?

Search
Download

Showing 11 of 11 upcoming events, based on search criteria.

Title	Date	Host	Location	Reported On	Options
<input checked="" type="checkbox"/> SEM Section ExCom Monthly Meeting (virtual) For JANUARY 2025	09 Jan 2025 06:30 PM	R40035			View Manage
<input checked="" type="checkbox"/> SEM Section ExCom Monthly Meeting (virtual) For FEBRUARY 2025	13 Feb 2025 06:30 PM	R40035			View Manage
<input checked="" type="checkbox"/> SEM Section ExCom Monthly Meeting (IN PERSON) For MARCH 2025	13 Mar 2025 06:30 PM	R40035			View Manage
<input checked="" type="checkbox"/> SEM Section ExCom Monthly Meeting (virtual) For APRIL 2025	10 Apr 2025 06:30 PM	R40035			View Manage
<input checked="" type="checkbox"/> SEM Section ExCom Monthly Meeting (virtual) For MAY 2025	08 May 2025 06:30 PM	R40035			View Manage
<input checked="" type="checkbox"/> SEM Section ExCom Monthly Meeting (IN PERSON) For JUNE 2025	12 Jun 2025 06:30 PM	R40035			View Manage
<input checked="" type="checkbox"/> SEM Section ExCom Monthly Meeting (virtual) For JULY 2025	10 Jul 2025 06:30 PM	R40035			View Manage
<input checked="" type="checkbox"/> SEM Section ExCom Monthly Meeting (virtual) For AUGUST 2025	14 Aug 2025 06:30 PM	R40035			View Manage
<input checked="" type="checkbox"/> SEM Section ExCom Monthly Meeting (IN PERSON) For SEPTEMBER 2025	11 Sep 2025 06:30 PM	R40035			View Manage
<input checked="" type="checkbox"/> SEM Section ExCom Monthly Meeting (virtual) For OCTOBER 2025	09 Oct 2025 06:30 AM	R40035			View Manage
<input checked="" type="checkbox"/> SEM Section ExCom Monthly Meeting (virtual) For NOVEMBER 2025	13 Nov 2025 06:30 PM	R40035			View Manage

Editor's Corner

Previous editions in this series may be found on the IEEE SEM website at: <https://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](mailto:cjohnson@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,
2018~2019~2020~2021~2022-2023-2025

Wavelengths Annual Publication Plan for Articles

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

Wavelengths Annual Publication Plan for Personal Profiles

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



Web & Social Sites

Southeastern Michigan Section Website

<https://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)

Section Officers

Section Chair
Sharan Kalwani

Section Vice-Chair
Aneesh Mathai

Section Secretary
Christopher Johnson

Section Treasurer
Ramesh Sethu

Standing Committees:

Section Adviser
Mohamad Berri

Wavelengths Editor
Sharan Kalwani

Educational Committee
Anthony Will (Chair)

Finance Committee
Subra Ganesan (Chair)

Membership Development
Mohamad Berri (Chair)

Awards & Nominations
Jerry Song (Chair)

PACE
Sharan Kalwani (Chair)

Student Activities
Michael Anthony & Hafeez
Jimoh (Co-Chairs)

Student Mentors
OPEN

SECTION Student Rep
OPEN

Technical Activities
Jeffery Mosley

Information Mgmt. Coordinator
Kimball Williams



IEEE Southeastern Michigan

Visit Us on the Web at:
<https://r4.ieee.org/sem>

Where do bad rainbows go?

To prism. It's a light sentence, but it gives them time to reflect.

Advertising Rates

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

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

Please see the information listed on the site, and contact our editor of Wavelengths, wavelengths@ieee-sem.org, for further details.

Leadership Meetings

SEM Executive Committee Monthly Teleconferences:

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

SEM Executive Committee Face-to-Face Meetings:

- 1/Qtr. Find the location, and Registration at:
<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
<https://r4.ieee.org/sem/>
(Select the "SEM Calendar" button in the top row.)
- Registration for all at:
<https://bit.ly/sem-upcoming>