Wavelengths

Volume 61 – Issue 6

Contents

Upcoming Events

We have a number of events coming up this month. Be sure to check out the Section Website: **https://r4.ieee.org/sem**
As well as vtools:

IEEE Region 4 - SE Michigan Section Upcoming

Listed below are some of the events, FYI.

Event	Date	Time
Summertime MOVIE NIGHT=>Celebrating Nikola Tesla	07 Jun 2021	06:00 PM
Ch8: AdCom Teleconference	10 Jun 2021	11:00 AM
IEEE SEM Senior Member 'Roundup'	12 Jun 2021	10:00 AM
Summertime MOVIE NIGHT =>Predictions by the Numbers	14 Jun 2021	06:00 PM
SAE ARP958E Antenna Calibration	17 Jun 2021	05:30 PM
Summertime MOVIE NIGHT=>Divine Discontent: The Life of Charles Proteus Steinmetz	22 Jun 2021	06:00 PM
EV Battery Energy Storage Systems and EV Charging Systems	23 Jun 2021	06:00 PM
Summertime MOVIE NIGHT=>The Bit Player	29 Jun 2021	06:00 PM

Note: All times are EST/EDT unless otherwise marked. Accurate at the time of going to press. If any events are missed do kindly bring them to the attention of wavelengths@ieee-sem.org. Thank you!

IoT Paper from LTU

{Editor's Note: We welcome this IoT paper from LTU's Professor Lisa Anneberg and student Michael Dupuie II, on the dangers to privacy from the rise of IoT devices. We encourage all other student branches of IEEE at the various educational sites in SE Michigan to also consider publishing papers here in this forum.}

Technically Your Home

How Modern Privacy Standards and Advancements in IoT Devices May Dissolve Your Ownership of Your Life

By: Dr. Lisa Anneberg & Michael Dupuie II

Abstract - In this paper we will outline some of the modern-day invasive practices that companies use and how someone could circumvent them. Then we will showcase advancements in smart home technologies and the ethics that ought to be practiced in the development of the next generation of technology.

I. The Reasoning

Initially this article may seem redundant and futile. As of 2016 the average age of children getting their first smartphone was ten, that is down from 12 in 2012. This is according to a New York Times article reporting on the results of an Influence Central study. According to another study conducted by the American Academy of Pediatrics in January 2020 thirty-five percent (35%) of children between the ages of three and five already had their own phone or tablet. They also found the most used apps were YouTube, YouTube Kids and web browser, quick search (Siri / Google Assistant / Alexa) and other streaming service (Hulu / Netflix / Disney+)

We present these statistics not as a measure of parent's premature decision to give their children a device but as a measure of unwavering complex algorithms being used against us. Advancements in the past twenty years have been remarkable and the benefits it has gifted should not go unrealized. However, we must also not ignore the substantial risk of unchecked practices. Companies trying to manipulate the minds of young ones is not new but what is happening now is drastically more dangerous. For example, in the 1990s or early 2000s this manipulation would be in the form of a brightly colored advertisement possibly accompanied with a catchy tune. Today the manipulation tactics are not exclusively reserved for children but they are significantly more effected due to children being unaware. Companies now have an unprecedented reach that knows no limits with the exception of going completely off the grid. There are various levels that companies try to extend their reach, not every company does it the same way.

II. Current State

To showcase various levels of offense that different companies practice, we will weigh the proposed benefit to the quantity and importance of the data they demand. The least offensive example we want to represent is centered around Gmail. Google is notorious for absolute invasion of people's privacy but Gmail is unique. Gmail revolutionized the way we thought of email years ago, today other companies have caught up in usability but Google still offers some quality of life features that set them apart. Today the biggest features include a sophisticated algorithm that is easily a market leader in accuracy and lack of user interface required. The second feature is quality of life additions, for example if you include the phrase "attached below", "I will attach" or anything similar but you forgot to include your attachment Gmail will actually warn you before sending the email so that you don't forget to include the attachment. The third feature is the one that benefits the most people, that is simply the spread of Gmail. If you already have a Gmail account, then you have a YouTube account and google account. These additional accounts give you access to a large amount of web programs such as Google Docs and YouTube music. Now the privacy issues that Gmail presents in addition to Google's other privacy concerns is that they read your emails. Initially you may say this is needed for some of their features including the missing attached file one, that specific feature is true but their implementation is far more severe. They read every email you send and receive to accumulate key words which is utilized for targeted advertisements that can follow across the internet. They are the eavesdropper that is trying to listen to your conversation with your friend. The only difference here is that you cannot call them out or ask them to mind their own business. To Google your business is their business.

Arguably the most influential products in the smart home space is Amazon Alexa, the world was introduced to a new kind of virtual assistant. Before Alexa the world had Siri and the early versions of what would become Google Assistant. Amazon moved swiftly with the product family, initially launching with a large speaker named Echo was quickly followed by a much smaller and cheaper unit called the Echo Dot. The dot version made it possible for nearly everyone to have a capable assistant in their home, commonly people would buy more than one. Seemingly simultaneous to the launch of Alexa was a conspiracy that Amazon was spying on you and your family. This fear was minimized the same way Gmail is able to take people's data and that is by providing at least one feature that makes customers must have. All of the data

that Amazon collects through its Alexa lineup are not completely known but Amazon did send a letter to Senator Chris Coons when he asked about their privacy policy. Amazon admitted to a few troubling conspiracies, the main one is that even after a user deletes a voice or text transcript Amazon may choose to keep it. In addition to Amazon reserving the right to keep any files on you they extend that to any third party developer for Alexa that wants that information. There are many other examples of privacy concerns centered around this and other similar platforms. For this paper I would like to focus on these two however because it illustrates the dangerous narrative that Amazon and others are setting. Amazon is attempting to set the precedent that the customer acquires the hardware but Amazon own's the data. Consider this, you buy a new purse or wallet and while you own the physical object the company is collecting how much money you have or reading your driver's license. Too many households Alexa is a tool to help answer simple questions or follow basic commands, to Amazon Alexa is the next generation of targeted advertisement and data collection.

The final example of invasive companies is Oculus, more specifically Facebook. Oculus like a lot of technology startups was acquired by a large company, in this case Facebook, has now instilled policies that render Oculus an absolute privacy nightmare. Oculus became a popular virtual reality company, bringing a low cost option into the space. Like the other two examples I outlined it started as a revolutionary product that truly benefitted customers, but lost its roots along the way. Facebook has instantiated multiple policy and technical changes to the Oculus platform that users have no choice to get around. When they launched the latest device in 2020 Facebook also unveiled users will have to login with their Facebook account to use the device. Initially this may not seem like an issue, in fact it could be seen as a benefit because it would be easier to get started with your Oculus device. However, what Facebook has effectively done was restrict users to one way to use their device and if they do not currently have an account then they need to create an account for an entire different service that they don't want to be a part of. If you see this as a non-issue, we wouldn't blame you but we think you should consider the motives of the service. It has become very clear in the past few years just how far Facebook is willing to go to collect any amount of data from you. The addition of what games you play; how long you play them or even the titles you considered buying to their massive database of users would be millions possibly billions in revenue. This may seem unreasonable or possibly even fear mongering, but consider the fact that with this announcement it was revealed that since the acquisition Facebook has been doing IP address cross checking. Essentially they would search their user database across all of their services then check the Oculus database, if any of the IP addresses matched, they would link your accounts in the background without the user ever finding out. Functionally that is not complex to accomplish and not entirely unexpected but it also begs the question, what is Facebook doing behind closed doors without the user's permission? Facebook is an advertising company that happens to have the largest social media platforms and a virtual reality company.

III. IoT Application Risks

While not all the examples expressed in the previous section centered on smart home or IoT applications they all contribute to the future of user privacy. If we analyze the companies of the two examples that did not directly involve IoT we unwrap some disturbing discoveries. The first company in question is Google, essentially an advertising company that sells technology. It is well known that Google is in the business of knowing your business, hence why they track all the websites you visit and read your emails. Facebook, is willing to go link user's data across multiple platforms without consent. Facebooks' ambitions go far beyond determining what posts interest you but yet they don't have the infrastructure to keep their websites secure.

Large technology companies are continuously being attacked by hackers, mostly these attacks are futile and result in nothing. Occasionally these breaches do work and the results can be catastrophic. Let's go back to the comment "if you have nothing to hide you shouldn't worry" often this statement is made in response to someone supporting encryption and cyber security. Within the past month it was reported that a small group of hackers stole over 500 million user's phone numbers. Unfortunately, this breech will most likely follow the path of the breeches before it. There will be a news cycle about it then within one week, people will have completely forgotten about the issue. This is the important mentality that we need to change, and soon. Companies are facing virtually no retribution for their lack of security and these same companies are trying very diligently to find a place in your home. Facebook has launched a line of products called Portal, this product line is made of products that all have cameras and microphones. I mention this because if Facebook is unwilling or unable to keep your phone number safe why should they have access into your living room. More interesting is the fact that six months before the launch of Portal Mark Zuckerberg, the CEO of Facebook was asked how far Facebook would invade people's lives he responded with, "well we don't want a camera in every living room."

Unlike Facebook's Portal line up, Google's Nest products have been very successful and pose a greater threat because of that. While Google's security is generally more robust than Facebook's but they have issues of their own. While Google can keep more people out they also gather way more information, across multiple areas of your life. Basically every platform or product unveiled by Google follow a basic business model. Typically referred to as a "Freemium model" this

model encourages companies to give out a product or service for free in exchange you reserve higher quality features behind pay walls. This allows companies to make money off the few customers that pay for the higher end features while getting their platform in more hands because the base is free. Google's model is similar on the basis that most of their services and platforms are free to use, where they differ is that they monetize all their users regardless of their application. Knowing that each product has the goal of feeding into the algorithm that defines each of us in Google's backend it is important to consider the repercussions of getting a Nest product. In 2019 a YouTuber did a teardown video of a Nest thermostat and found a microphone was hidden inside. He then went and checked all the documentation on the product. Nowhere did Google state there was a microphone in the product. Google's official statement is along the line of "The Nest Thermostat was supposed to ship with Google Assistant, requiring a microphone but that hasn't been enabled yet."

IV. Owning Your Data

Imagine if auto manufactures were only required to follow regulations made in the 1970s, there would be no require airbags, crumple zones would be completely different, rules on making pedestrians more likely to survive accidents. That probably seems like an insane notion, we know there are better ways and safer technologies so why not use them. Well the way your data is handled by large technology companies was actually determined by a court case made in the 1970s. It is important to preface before we go through the examples that we do not necessarily agree or disagree with the case or the outcome, we are just focused on the potential repercussions. The Supreme Court decided in the 1970s that your fourth amendment was not relevant when a third party is involved. Your fourth amendment states that your property cannot be searched without a warrant. This ruling was in regards to a court case where police officers went to the phone company to get the call logs without a warrant. This was possible because the phone company voluntarily gave the information. Then the Supreme Court decided that if you share any data with a third party it is likely to be shared with more parties so your fourth amendment isn't applicable.

A more recent example of an invasion of our first and fourth amendments, are the events of January 6th 2021. On that day a large group of people stormed the United States Capitol building, the events of this day are not condemnable. A couple days following that event a group of people were able to gain access of all the smartphone data of the people that were there. That boasts some dramatic concerns, none of the people that were there that day were not given a warrant for their data. Regardless on your stance on those events on January 6th you can probably notice how that sets a dangerous narrative.

Having ownership of our data is crucial for retaining our personal lifestyles as technology advances. It is important that technology is continually moving forward. However, it is equally important that these advancements do you act as a catalyst towards a world where we do not own the very data that defines our lives.

V. What Actions to Take

Our world is drowning in data mining practices, ranging from startups that are trying to make a profit all the way to companies' worth over a trillion dollars like Amazon and Google. It may seem that it is impossible for us to revert back to owning our data. However, if everyone focuses on a few key aspects a normal user can already see benefits in their privacy and owning their data.

The first action that everyone even if you do not particularly care about your privacy, switch your web browser if you are using Chrome. Firefox or Brave are great privacy focused full feature browsers. Chrome is notorious for tracking every website you visit and selling that information. Using Firefox or Brave will still give you all features you are used to but your online activity will not be tracked.

The second goal that people should follow is being concise of the products you purchase, this one may take a little more work than normal but it is important. The way these large companies work is they acquire new companies continually all for the purpose of gathering more information about you at different angles. If you invest a little extra time when buying a new device and finding who owns it that could help tremendously. Consider this, instead of sticking solely with one company, if your devices are spread across four or five companies then no one company has all of your data. Granting one company your life's data gives them unlimited possibilities on how to manipulate you.

Finally, and arguably the most important stop creating new accounts for random websites that you are not familiar with. It is not uncommon for websites to get hacked or for them to sneakily sell your data. If you absolutely have to create an account, then try using a complex unique password and unique username. This will at least help try and retain some level of privacy, although not as effective as virtual private networks (VPNs). VPNs were not outlined in this paper only because it is out of scope for the average user but they are a great solution if you are willing to put in the time.

VI. Conclusion

As stated at the beginning of this paper, we support the advancements in technology and believe that generally technology has bettered our lives. However as corporate greed grows and our data is seen as the only way for companies to turn a profit we must all collectively ask ourselves, is it worth it. While some services may be convincing and possibly you determined the data they want is worth the product. However, we all must know our worth and understand that a decent amount of these programs are not worth it. Once a company has a taste of the potential profit off your activities it is unlikely to ever relinquish that control. That is the important take away, this is not about money and never has been. This is about being able to control a population, a user base, where that is to get them to buy a product or maybe it is to get the population to all agree that certain people shouldn't have access to the platform. Technology is moving at neck breaking speeds and if we are not careful we will lose all control.

References:

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Radesky, Jenny S., et al. "Young Children's Use of Smartphones and Tablets." American Academy of Pediatrics, American Academy of Pediatrics, 1 July 2020, https://pediatrics.aappublications.org/content/146/1/e20193518

Safstrom, Jennifer. "The Right to Keep Personal Data Private: Carpenter v. U.S." American Civil Liberties Union, American Civil Liberties Union, 28 Nov. 2017, www.aclu.org/blog/privacy-technology/location-tracking/right-keep-personal-data-private-carpenter-v-us

Author's Bios:

Michael Dupuie II:

An entrepreneur and recent graduate from Lawrence Technological University, Michael Dupuie II is passionate about privacy, smart home technology and user experiences. As he worked on completing his Graduate degree in Electrical Engineering he also started planning on how to take his dream of privacy focused smart home technologies to Market. He presented his latest idea at LTU's 2021 Spring Research Day and received first place in the entrepreneurial segment. He is currently working alongside a former professor and Hyundai-Kia motor company on a patent centered on an algorithm he developed in the Fall of 2020.

Lisa Anneberg, Associate Professor, ECE:

Anneberg received her BS in Industrial and Operations Engineering from the University of Michigan, her MS in Computer Engineering from Wayne State University, and a PhD in Computer Engineering from Wayne State University. She has previous industrial experience at General Motors, Daimler Chrysler, and US Army TACOM.

She is a SME-certified Enterprise Integrator, a licensed professional engineer in Michigan, and a Certified Quality Technician. Dr. Anneberg presently chairs the Engineering Faculty Senate and serves on the University-wide Faculty Senate. She is active in the Society for Women Engineers, Michigan Society for Professional Engineers, and the American Society for Engineering Education. She is also a senior member of the IEEE and a section chair of the Trident Section of the IEEE-Southeast Michigan. She is presently working on funded educational projects at Lawrence Tech through AT&T, the Jerome Bettis Foundation, the National Football League, the Environmental Protection Agency, and the Daimler Chrysler Foundation

Half Way Home

With June we are coming to the halfway point through the year, and it is time to assess how we are doing in meeting the annual requirements for Geo-unit (Chapters & Affinity Groups) activity prescribed by the MGA (Member Geographic Association). Those activity requirements are really rather minimal:

- Technical Chapters: 2 Technical Meetings each year.
- Affinity Groups: 2 Meetings of any type each year.

If you take a quick look at the "Technical Activities Report" a few pages further into this newsletter, you will see the graphical representation of the current level of reported activity by all of our 17 technical chapters and our four affinity groups.

(Notice I said, "reported activity".) I sometimes talk with some of our Geo-unit officers who tell me they have done this, or held that meeting but they have not reported it through the vTools system. It is a bit disconcerting to see how many of our Geo-units show no evidence of activity this far into the year.

The only way that IEEE MGA knows about any activity it if it is a reported activity. If it is not reported, as far as they know, it never happened.

I hear some officers complain that they "…don't know how to use the vTools suite of tools".

We have solutions:

- The SEM Website, **https://r4.ieee.org/sem/** under the "About SEM" TAB on the button (Training Material) we have a complete set of voice over power point audio/video training documents, and a suggested program of study that can take anyone through all the tools in a logical order in just a few weeks, with only 20-30 minutes a day for the study.
- The vTools website at: **https://vtools.ieee.org/** has a group of tutorials in voice over power point and pdf that can help you learn how to use most of their tools in a few hours of study.
- The IEEE Center for Leadership Excellence: **https://ieee-elearning.org/CLE/** offers training of all types for all members and officers within IEEE:

> *"The Center for Leadership Excellence (CLE) offers a 'one stop' training solution designed to serve the multiple and diverse range of IEEE user communities. From volunteers, non-volunteers to students, members, and conference organizers, the site offers a simpler and effective learning experience."*

If none of these will work for you, contact me. As the 'Section Information Management Coordinator' (Isn't that a mouthful?) one of my functions is to ensure that our officers and volunteers know what they are supposed to report, to whom and how. If you need help beyond the above, you may reach me at my email: **k.williams@ieee.org**

I am here to help officers learn to use the system, and guide them to the tools they need to use. **Note:** I am NOT here to do their reporting for them!

Senior Elevation Event!

Since the A&A committee meets several times a year, we found out that a future session is scheduled for mid-June 2021. So in anticipation of that, we have already scheduled June 12th for the next online SE Michigan Senior Round up! (see https://events.vtools.ieee.org/m/268968) and mark thy calendars!

IEEE SE Michigan Section
Presents
"Senior Membership Elevation Round Up: Part Deux"

IEEE Southeastern Michigan
Electrical and Electronic Engineers Creating Our Future

IEEE Southeastern Michigan Section will reprise its Senior Member Round up event, at Oakland University on June 12th 2021 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 a 10 years of significant experience with BS degree needs be established to initiate the senior membership elevation.
- If you have a PhD that is considered to be 5 years of significant experience, so you need 5 additional years beyond that.
- If you have a master's, that is considered to be 2 years of significant experience. So you will need 8 additional years to qualify.

There is no cost to becoming a Senior Member, and this step is a necessary prelude to seeking the IEEE 'Fellow' level. For a complete description of the Senior Member process and its benefits, see the link: http://www.ieee.org/membership_services/membership/grade_elevation.html

Potential senior members, please register on this site for the event and be ready with digital copies of your resume, and relevant supporting materials, to share with reviewers.

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

Pre-Registration Required!

https://events.vtools.ieee.org/m/268968

At Glance

- **When:**
  Date: June 12, 2021
  Time: 10 am to 12 noon
- **Where:**
  Online using Webex breakout rooms
- **Audience:** All Eligible Members, Senior members and Potential Members

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IEEE
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Membership Development

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Sharan Kalwani,
Chair, Membership Development Committee
Editor, Wavelengths,
2018~2019~2020~2021

Technical Activities Report

2021 IEEE SE Michigan Section Geo-unit Status (Till May 28)

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	3	1	0	Consultants Network	1	4
LIFE	0	0	0	0	0	0	Life Members	0	0
WIE	0	0	0	2	2	0	Women In Engineering	3	4
YP	0	0	0	0	0	0	Young Professionals	0	0
1	0	0	0	0	0	0	Circuits & Systems, Signal Proc., Info Th.	0	0
2	55	27	1	1	0	0	Vehicular Technology	0	2
3	103	37	3	0	0	0	Aerospace & Elec. Sys., Communications	2	3
4	29	9	2	0	0	0	Trident (Ant, Elect Dev., uWave, Photo)	0	2
5	33	1	22	2	5	2	Computers	1	31
6	0	0	0	0	0	0	Geoscience & Remote Sensing	0	0
7	40	5	6	1	0	0	Power Engineering, Industrial App.	0	7
8	96	44	8	5	0	0	Electromagnetic Compatibility (EMC)	0	13
9	55	27	1	1	0	0	Power Electronics, Industrial Electronics	0	2
10	4	0	2	1	0	0	Engineering Management	0	3
11	0	0	0	0	0	0	Eng. in Medicine & Biology	0	0
12	0	0	0	0	0	0	Control Systems	0	0
13	41	3	9	1	2	0	Education	1	12
14	0	0	0	0	0	0	Robotics & Automation	0	0
15	69	43	4	0	0	0	Nuclear Plasma Science Society	1	4
16	0	0	0	0	0	0	Computational Intelligence / Sys.Man.Cyber.	0	0
17	21	17	3	0	0	0	Nano Technology Council	0	3
SEM	7	0	1	4	2	1	SEM (Section)	6	8
Tot	552	212	62	21	12	3	NOTE: Highlight Green = Active	15	98
		38%					NOTE: Highlight clear = Concern		

From the desks of the Technical Activities Coordinating committee folks!

Circuits Symposium 2021

2021 IEEE 64th International Midwest Symposium on Circuits and Systems

~~Lansing, Michigan, USA~~ | Aug. 9-11, 2021

Now Fully Virtual & On-line!

Greetings from the IEEE CAS MWSCAS 2021,

We have extended the submission deadlines in response to numerous requests. See Important Dates below.

We warmly invite you to submit original contributions to the 2021 Symposium. *This year's theme is artificial intelligence (AI) and autonomous circuits and systems. Please visit the website mwscas2021.org for current information.*

MWSCAS2021 General Chair
Fathi M Salem
& the Organizing Committee of MWSCAS 2021

Important Dates (submission deadlines)

April 5, 2021 - Special Sessions Proposals

April 12, 2021 - Regular Paper (Lecture & Posters)

May 3, 2021 - Tutorial Session Proposals ((including Live Demos)

May 24, 2021 - Notice of Paper Acceptance

June 7, 2021 - Camera-Ready Paper Due

Circuits Symposium contd.

The IEEE International Midwest Symposium on Circuits and Systems (MWSCAS) is the oldest, and now the flagship, Circuits and Systems symposium. The 64th meeting of the MWSCAS is being hosted by Michigan State University, in East Lansing, Michigan, USA, and technically co-hosted with Wayne State University in Detroit, Michigan, from Aug 8-11, 2021. The MWSCAS 2021 has pivoted to fully virtual symposium to add a sense of certainty. Live presentations will be supported and managed by the convenient CONFlux virtual platform. It will include oral and poster sessions, a student paper contest, keynote addresses, regular and special sessions, and tutorials presented by world experts in wide range of circuits and systems topics.

Prospective authors are invited to submit a full paper (4 pages) describing original work through the on-line submission system for the conference through a link on the MWSCAS 2021 conference web- site. Papers should follow the formatting instructions given in the author's kit on the website. Papers will be accepted for either lecture or poster presentation. Review criteria for both lecture and poster presentation formats are identical; the presentation format will be chosen to facilitate topical session grouping and time constraints. Students are encouraged to participate in the Best Student Paper Award contest. Submissions of demos and proposals for tutorials and special sessions are also solicited. Accepted papers will be published in the MWSCAS 2021 Proceedings subject to advance registration of at least one of the authors at the author rate. All papers published in the MWSCAS 2021 Proceedings will be submitted for inclusion into IEEEXplore.

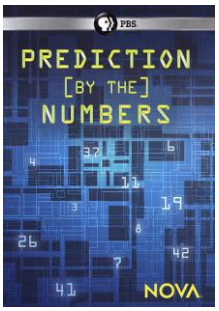
Moreover, three special issues will be streamlined from papers presented and appearing in the proceedings. Two cutting-edge special issues will be published in the IEEE transactions on circuits and systems (CAS_I and TBioCAS) based on extended versions of selected symposium papers; and a special issue will be published in the Springer Journal of Analog Integrated Circuits and Signal processing also based on extended versions of selected symposium papers.

IEEE Movie Month Ahead!

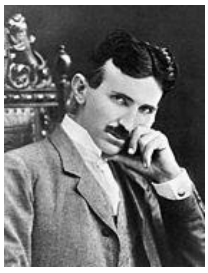
Following the successful and warm reception of the movie week during Spring Break (February 2021), Chapter 5 (aka Computer Society Chapter C16) is now planning a series of online viewing of movies for our section during the month of June 2021. The following titles are being scheduled (check the SEM calendar web page for vtools registration info!):

"Divine Discontent: The Life of Charles Proteus Steinmetz": This documentary/movie will look at the life and contributions of one of the most celebrated Engineers and inventors, Charles Proteus Steinmetz. Dr. Steinmetz was a legendary figure in his time inside and outside of GE. He was a Chief Consulting Engineer, a Professor at Union College, a Community Activist, and a family man. We will relive his path from a small town in Prussia to a small town in New York and his great accomplishments in Science, Engineering, Education, and contributions to Society. Running time approximately 55 minutes. This documentary is brought to you by the IEEE Foundation who partially funded this. This screens on **June 22nd**, 2021. To register for this viewing checkout out: https://events.vtools.ieee.org/m/272380. The trailer can be viewed at: https://vimeo.com/57064748.

One of Michigan's famous sons, but not many Michiganders know about him: ***"The Bit Player"*** - a documentary about Claude Shannon the creator of the "Information Theory". You will learn more about or get a refresher on the impact Claude Elmwood Shannon made on the world today. This documentary was made in 2018 and brought to you by the IEEE Foundation who partially funded this along with the IEEE Information Theory Society. This screens on **June 29th**, 2021. To register for this viewing checkout out: https://events.vtools.ieee.org/m/272381. The trailer for this 90 minute video is https://www.youtube.com/watch?v=E3OldEtfBrE&authuser=0



Prediction by the Numbers (PBS NOVA Special): first aired February 2018 running time 53 minutes. Predictions underlie nearly every aspect of our lives, from sports, politics, and medical decisions to the morning commute. With the explosion of digital technology, the internet, and "big data," the science of forecasting is flourishing. But why do some predictions succeed spectacularly while others fail abysmally? And how can we find meaningful patterns amidst chaos and uncertainty? From the glitz of casinos and TV game shows to the life-and-death stakes of storm forecasts and the flaws of opinion polls that can swing an election, "Prediction by the Numbers" explores stories of statistics in action. Yet advances in machine learning and big data models that increasingly rule our lives are also posing big, disturbing questions. How much should we trust predictions made by algorithms when we don't understand how they arrive at them? And how far ahead can we really forecast? This screens on **June 14th**, 2021. To register for this viewing checkout out: https://events.vtools.ieee.org/m/269288



Tesla: Visionary or madman? (PBS documentary, running time is 53 minutes, first aired in 2018) Meet Nikola Tesla, the genius engineer and tireless inventor whose technology revolutionized the electrical age of the 20th century. Regarded by many historians as an eccentric genius, Tesla gained international fame for his invention of a system of alternating current that made possible the distribution of electricity over vast distances and is the basis for the electrical grid that powers 21st century life. But the visionary Tesla imagined much more — robots, radio, radar, remote control, the wireless transmission of messages and pictures, and harnessing the wind and sun to provide free energy to all. A showman, he dazzled his scientific peers who flocked to see him demonstrate his inventions and send thousands of volts of electricity pulsing through his body. His fertile but undisciplined imagination was the source of his genius but also his downfall, as the image of Tesla as a "mad scientist" came to overshadow his reputation as a brilliant innovator. Even before his death in 1943, he was largely forgotten, his name obscured by Thomas Edison — his hero, one-time employer, and rival. But it is his exhilarating sense of the future that has inspired renewed interest in the man, as his once scoffed-at vision of a world connected by wireless technology has become a reality. This screens on **June 7th**, 2021. To register for this viewing checkout out: https://events.vtools.ieee.org/m/269287. The trailer may be previewed here: https://www.pbs.org/wgbh/americanexperience/films/tesla/#part01

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

RoboFest 2021

Robofest eNewsletter 05-13-21

(1) BottleSumo Day Camps for Beginners
(2) Qualifier Registration Open ~ New Video Qualifier Date Available
(3) Robofest Online World Championship Schedule Dates

Note: All times are listed in EDT
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(1) BottleSumo Day Camps for Beginners
We are hosting 2 one-day Beginner BottleSumo summer camps in our Computer Science Robotics Lab on LTU campus for teams of 1, 2 or 3 students (team of 2 is recommended) in 4th through 11th Grades as of May 2021.

Tue. June 8, 9 AM ~ 3:30 PM VEX IQ Robots with Robotmesh
Wed. Aug 11, 9 AM ~ 3:30 PM LEGO EV3 Robots with Scratch

$20 registration fee per team / Bring your own lunch. More information can be found under Get Involved/ Camps on the Robofest.net website. **https://robofest.net/index.php/current-competitions/camps0**

(2) Qualifier Registration Open ~ New Video Qualifier Date Available
Reminder: for the 2021 season, all teams must qualify to advance to the ROWC for all categories except for Unknown Mission Challenge:

Sat. Jun 12, 9:00 AM ~ Jr & Sr Game StackRolls
Sat. Jun 12, 2:00 PM ~ Jr & Sr BottleSumo Time Trial
NEW! Sun. July 18, 11:59 PM ~ US Video Qualifier 2 - Submissions Due (register by July 8).

To register for any event, click the *Registration* tab on **Robofest.net**

(3) Robofest Online World Championship Schedule
We will again be hosting the **2021 Robofest Online World Championship** (ROWC) events using the Zoom Platform. Reminder that US Teams in all categories except UMC must qualify to advance to the ROWC events.

Start time of each event is 12PM GMT (Greenwich Mean Time):

Fri, Aug 20	Sr. UMC	Fri, Sep 17	Sr. BottleSumo Time Trial, CL & UL
Sat, Aug 21	Jr. UMC	Sat, Sep 18	Jr. BottleSumo Time Trial
Fri, Aug 27	Sr. & College RoboMed	Fri, Sep 24	Sr. Game, StackRolls
Sat, Aug 28	Jr. & Sr. RoboArts	Sat, Sep 25	Jr. Game, StackRolls
Fri, Sep 10	Sr. Exhibition		
Sat, Sep 11	Jr. Exhibition	Sat, Oct 2	Award Ceremonies

Lawrence Technological University / Robofest / J-233 / 21000 W. Ten Mile Rd, Southfield, MI 48075
Dr. Christopher Cartwright, Director, **ccartwrig@ltu.edu**
Elmer Santos, Assistant Director, **esantos@ltu.edu**
Shannan Palonis, Coordinator, **spalonis@ltu.edu**
Pam Sparks, Coordinator, **psparks@ltu.edu**
Dr. CJ Chung, Advisory Board Chairperson, **cchung@ltu.edu**

https://www.robofest.net **https://facebook.com/robofest**

Chapter 9 Profile

The SEM Chapter 9 consists of two IEEE societies. The Power Electronics Society covers fundamental technologies used in the control and conversion of electric power. The Industrial Electronics Society encompasses the industrial applications of electronics, controls, communications, instrumentation, and computational intelligence.

Van Wagner is the new Chair of Chapter 9. He started his career at DTE (the utility) and worked in a variety of engineering positions. His initial job was at a fossil generating plant and then in nuclear plant design. Later, he was involved in distribution systems and customer technical support. He even worked with EV's. The second half of his career was with Schneider Electric, an electrical equipment manufacturer. There he worked with adjustable speed drives, switchgear applications, and power system simulations. The last few years he was primarily engaged in micro-grid design. He retired a year ago.

Shanelle N. Foster serves the new Secretary of Chapter 9. She is an Assistant Professor at Michigan State University in the Department of Electrical and Computer Engineering. Her research interests include analysis, control, reliability and manufacturability of electrical machines and drives.

Her research team is one of the groups in the MSU Electrical Machines and Power Electronics Research (EMPowER) Laboratory. She also currently serves as Finance Chair for the IEEE 2021 Energy Conversion Congress & Expo (ECCE).

Chapter 9 has been dormant for a while. Van and Shanelle took the positions as a challenge to try to revive it. However, to fully realize its potential, they still need a Treasurer and Vice-Chair to fill out the leadership. Please contact them if you are interested.

If you have any topics or programs you'd like offered, please share those with them as well. Van is planning a presentation this summer on "Power Systems for Non-Power System Engineers." This will explain some of the technical issues and subtleties associated with power systems that you might not be aware of or only have a vague idea about. They are also planning to send out a survey to gauge interest in various topics.

You can contact Van Wagner via email at wagnerv3 AT gmail.com
And Shanelle via email at hogansha AT egr.msu.edu

PHM Conference 2021

Photo Courtesy of Visit Detroit
Sponsored by the IEEE Reliability Society

2021 IEEE International Conference on Prognostics and Health Management (ICPHM 2021)

Enhancing Safety, Efficiency, Availability, and Effectiveness of Systems through PHM Technology and Application

ICPHM 2021 will be fully remote!

June 7-9, 2021
http://phmconf.org/index.html

The 2021 IEEE International PHM Conference will take place virtually on June 7-9, 2021. PHM is a wide-ranging interdisciplinary field that requires an energized exchange of ideas. This conference will match up world class expertise in the academic, engineering, and management disciplines to create synergistic exchanges of ideas and practices among academics and industry practitioners. Special attention has been paid to assure a sociable, professional environment to encourage networking, forge new relationships, and deepen existing ones.

Important Dates:

Final Manuscript Due: May 21, 2021
Conference Dates: June 7-9, 2021

2021 Technical Sponsors and Co-sponsors

STEM
SCIENCE • TECHNOLOGY
ENGINEERING • MATHEMATICS

EVOonCampus 1.0

Evolution of You on Campus (EVOnCampus 1.0), June 16, 2021 1:00 PM 4:00 pm Virtual

EVOnCampus 1.0 is a ***FREE virtual event*** and will bring thought leaders directly to recent grads and college students, giving them insights into the tech trends and pathways that lead to challenging and fulfilling careers.

EVO's three featured sessions will connect you with thought leaders in their field and focus on Technology Trends, Career Guidance and Future Perspectives. Even better, we'll do it all again with new speakers later this year at EVOnCampus 2.0 – so be sure to sign up to attend both events.

1-2 PM **Keynote: Announcement Coming Soon!**

Panel - Exploring Future Trends & Tech

Amy Peck, Founder & CEO EndeavorVR

2-3 PM

John Collins, Director of Engineering at Vinted | Inventor | Author | Ex-Microsoft, Apple, Snapchat

Keynote: Nate Ball, Mechanical Engineer & TV Host

3-4 PM **Nate Ball** is an inventor, entrepreneur, athlete, author, TV host, and musician. His inventive spirit led him to MIT, where he earned two degrees in mechanical engineering and helped develop and hosted WGBH's Emmy® and Peabody Award-winning PBS Kids TV series Design Squad

>> **Full Speaker Bio**

More sessions and presenters will be announced soon — stay tuned!

Featured speakers at past **EVO** events have included: Bran Ferrin (Applied Minds, Disney Imagineering); Vint Cerf (Google); Corey Doctorow (BoingBoing); Larry Hornbeck (DLP Inventor, Oscar Winner, Texas Instruments); Myles Kovacs (DUB Magazine); Monique Morrow (Cisco); Alton D. Romig, Jr (Lockheed Martin Skunkworks); Patty Hatter (Intel); Steve Sasson (Digital Camera Inventor, Kodak); Sonita Lontoh (HP); Samantha Snabes (re:3D); Maxim Jago (Filmmaker/Futurist); James Finlay (Adobe); Nancy Martin (GE) — and many more.

Now more than ever — changing times demand an ***Evolution of You™*** and **IEEE-USA's EVO Conferences** will help you navigate today's complex career landscape.

EVOnCampus 1.0 will take place **16 June 2021 from 1-4 pm EDT.**

REGISTER NOW FREE

Embedded Systems 2021

19th Annual Embedded Systems Workshop

October 23 & 30, 2021, 8:30 a.m. to 12:30 p.m. (Saturdays)
Virtual/Online Live Sessions, EST/EDT Time Zone

IEEE Computer Society & IEEE Education Society (South East Michigan Chapters) is offering a TWO half-day set of workshops on Embedded Systems on Saturday, October 23rd and 30th, 2021. This workshop is open to all industry professionals, both experienced and newly minted engineers, as well as students. This is the 19th year that the event is being held.

The aim is to disseminate knowledge, directly benefitting the IEEE members, at the same time **improve the technology skills pool, indirectly boosting the economy.** Speakers and experts from the embedded systems industry will be making presentations, and will also be available for discussions and networking throughout the day. In addition to the technical presentations, there will be industry interaction and potential recruitment sessions. Use this opportunity for virtual networking with engineers, industry experts and embedded enthusiasts.

Please confirm your participation by registering on the IEEE events web site
Deadline is 16th October 5 pm
https://bit.ly/embed2021

Venue: Virtual using Video Conferencing

Sponsors in the past: Beningo Embedded Group, Infineon, TeKnowledge, Intrepid CS and many others…

Attendees: There is a small one-time cost of $10 (IEEE members) and $5 (IEEE Students) to attend, this will help cover door prizes, video recording, storage, presentations, a dedicated website and other logistics. Several random raffles representing the embedded systems industry will also take place. All are welcome. Do post this flyer in your workplaces, share/inform your peers & colleagues about this event. It is a great way to learn not only what is going on, but also network (virtually) with other professionals as well.

Brought to you by the IEEE SE Michigan Computer & Education Society chapters. Do seriously consider joining the IEEE, boost your technical skills, broaden your awareness of compute-based engineering in the region, support numerous similar initiatives & learn other benefits this brings.

Open to all**, Pre-registration **is necessary prior to attending!** **The deadline to register is 16th October 5 PM

For Technical questions, contact the Program Committee **at:** esw2021@ieee-sem.org

A CEU/PDH Certificate will be made available for participants who Pre-register and attend both days!

ESW 2021 Organizing Committee: Subra Ganesan (Chair), Sharan Kalwani (Vice Chair), Ramesh S, Carla Gerst, Nilesh Dudhaia, Praveena Jakkula, Sreenivas Eeshwaroju and Ben Sweet

Amateur Radio

A few days ago I committed to doing an “Introduction to Amateur Radio” for the Engineering Society of Detroit. As I started doing some material gathering and background research I reached back to the telegraph and the origins of the Morse code (“Radio’s 1st language”). I came across the book, “Young Telegraphers of the Civil War” and could not put it down. What a great read. It reminded me that we often under-judge the focus and capabilities of young students.
One of the youngest was little Andrew Carnegie!

The industry, dedication, persistence and ingenuity of those young operators carried forward into the community of “wireless” operators as many of them gravitated to Radio and became the first ‘Amateur Radio Experimenters’. Among them was Hugo Gernsbak who published magazines with designs for early radio receivers and transmitters and encouraged many young boys and girls to build their own equipment and talk with each other ‘over the air’. Eventually a young inventor, Hiram Percy Maxim, (who created the first silencer - muffler) for internal combustion engines organized the American Radio Relay League, to facilitate passing messages across long distances from one station to another.

So, just what is an ‘Amateur’? Clearly someone engaged in an endeavor without financial remuneration. i.e. they do what they do without being paid for their efforts. Many young geniuses gravitated to this new and exciting method of communication. By that definition, Guglielmo Marconi was the ‘first’. Many early Amateur Radio inventors left their names associated with their inventions or circuits. Among them were Armstrong, Colpitts and Heaviside.

But, isn't this only to be expected? We give technology to a large extended group of educated, interested private citizens and turn them loose to 'play' with those tools, and we should expect interesting things to evolve. These experimenters can explore facets that no company would dare to invest its time and resources in 'playing around' with. Their stockholders would not stand for it. "Where is the expected return on our investment?" That is why so many advances in radio technology and its associated electronics, controls, software, and hardware have originated in the Amateur Radio community. We can 'play' to our hearts content and don't have to answer the question...'What is that good for, anyway?'. We answer back; 'What good is a baby?'.

Electronic instrumentation is seeing a continuing revolution pushed by the Amateur Radio community as evidenced by the new breed of 'Nano' measurement tools that recently came on the market. The Nano VNA (Vector Network Analyzer) has taken what was a multi-thousand dollar 'boat anchor' box to a package no larger than an old fashion pack of cigarettes with a jaw dropping frequency range beyond most existing commercial equipment.
Yes, and developed in and by the Amateur Radio community.

Hams have taken radio and run with solo communications and outdoors hiking and camping with the Parks on the Air (POTA) and Summits on the Air (SOTA), and along with that developed a remarkable array of light, effective transceivers, smaller more efficient battery packs, efficient antennas that fold into a pocket, and so much more. Including the development of worldwide contact and monitoring capabilities that rival the most sophisticated military systems. Speaking of military communications, I recently saw a blurb that announced conversion of shipboard signal lamps to LED lamps and computer linkages via those light beams. I remember the article years back on 'Popular Electronics' where hams were doing that back in the 1950’s. At least the military finally woke up!

Most Amateur Radio Operators just like to get on the air, reach out into the ionosphere and meet a new friend and have a conversation. Occasionally that conversation is with someone you might never have thought you would have a chance to speak with. In the past that might include; Marlon Brando, Arthur Godfry, King Hussein of Jordan, King Juan Carlos of Spain, Walter Cronkite, Joe Walsh, Chet Atkins

Don't want to listen or participate in on the air conversations? Try Radio Astronomy. There is a whole subculture there exploring the universe from their backyards, and pushing the boundaries on ultra-high frequency receivers and remote control systems and ultra-low-noise receivers all built on personal budgets. In the ‘Hobby of a thousand Hobbies’ there is always something for everyone.
kw N8FNC.

Productivity Tool

About 10 years ago, I began teaching a yearlong class in creative writing to college seniors. By the end of the course, each student was expected to produce a book of stories or poems. I formulated a mantra for them: “Write every day, and walk every day.” The specific instruction was to write 150 words and engage in mindful walking for 10 minutes.

It was a modest goal, because I wanted to be able to do it myself. I had a toddler and other classes to teach. I had recently come across that famous Annie Dillard line: “How we spend our days is, of course, how we spend our lives.” It made me realize that too often I spent my days wanting to write and not writing. Again and again, I would note in my journal, “I did not write today.” The idea that this was how I was going to spend my life filled me with despair.

So I took up the assignment I had given my students. I used a composition notebook, with those black-and-white marbled covers. Having written my daily quota, I would note the date on the notebook’s last page and make a small check mark next to it. Every few days, I would hold up my notebook to show my students the columns of black check marks.

I was writing about my hometown, Patna, India, where rats had stolen my mother’s dentures and, the police claimed, drunk all the confiscated liquor. I don’t think I skipped a day, and when the year ended, I had completed a short book. The method worked; I wasn’t going to give it up. In the minutes between classes, or on trains, or in the waiting room at the pediatrician’s, I would write my daily words and then count them to make sure I hit the target. Once I had done the work and drawn that small mark, it seemed OK to assume I would spend my life writing. In the back of my notebooks over the years, I see the columns of check marks that stand for an unknown number of hours of work, but also words (“rejected by,” “rejected by,” “rejected by,” “accepted by”), figures (“20K,” “30K,” “50K,” “90K” — total word counts) and dates (the signing of a contract on March 7, 2017; the death of my publisher on Dec. 30, 2019).

In late November 2010, a single word appears: “Ferber.” The sleep-training method. I read that and can immediately recall the bleary eyes and the exhaustion of trying to coax a difficult child into rest. On April 2 of the next year, three plain columns of check marks are followed by these three words: “World Cup win.” (India defeated Sri Lanka in the final in cricket.) But the facts of life are mostly absent from those journal pages. Even while looking at my record of the past year, I can find nothing to show that we have lived through a pandemic. Just word counts, project titles, notations about work sent to my agent and those check marks — the history of my struggle to remain faithful to my mantra; a record of my desire to stay sane and productive.

I admit that this is a plain, rather primitive form of record-keeping; its spine is the long column of check marks. I prefer this practice over the apps on our smartphones that serve as journals in the age of surveillance capitalism. These apps count each step we take, store our memories in the form of photographs, even record the places where we have parked our cars. They hoard such a surfeit of information as to render meaningless any painstaking individual action. The check mark is Gandhi in a world built by Bezos and Zuckerberg.

It has not escaped me that the Bezos and Zuckerberg types are trying to co-opt my beloved symbol. On social media, the check mark was initially a neutral verification, a way for users to know that public figures were who they said they were. Quickly, though, people began treating it as a signifier of status — proof that you mattered enough for others to care whether you were really you. Once a sign of ordinary achievement, an indicator of daily struggle and quiet success, the check mark has been corrupted. There are now two kinds of people: Those who have a blue check mark next to their name on Twitter or Instagram, and the rest of us — the unnoticed masses. I will not celebrate that blue symbol made of pixels, pretending to determine which human lives are most valuable; I’m here to reclaim the check mark in its basic form, etched by a human hand using ink or graphite. While learning to draw, a child will make a “V,” followed by another “V,” and then one more “V,” each joyously rising into the air above the flat horizon. “What’s that you have drawn?” a parent asks. The confident answer comes: “Birds are flying!” I remember being that child. I remember also seeing my primary-school teachers’ swift flourish on my submitted homework, which meant that I had gotten the answer right. I wasn’t a good student; the check mark was a pleasing celebration of my competence.

But now, in my late middle age, the check mark serves a different purpose: It is the visible symbol of my realization that who I am is defined by what I do. I am a writer, so I write every day. Maybe you are a writer, too. Maybe you are not. The point still stands. The check mark is more important than whatever comes of the daily work whose completion you’re marking. The first represents actual living; the second, merely a life.

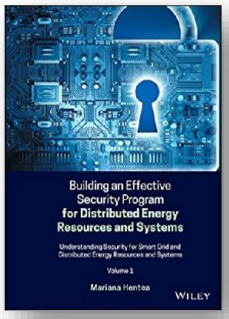
Amitava Kumar is the author of the forthcoming novel ‘‘A Time Outside This Time.’’ He teaches at Vassar College.
Reprinted from: https://www.nytimes.com/2021/05/04/magazine/the-oldest-productivity-trick-around.html

Building DER security

IEEE SE Michigan

Presents

"Building Effective Security for Distributed Energy Resources (DER)"



IEEE Southeastern Michigan
Electrical and Electronic Engineers Creating Our Future

Securing our energy grid is of the highest critical importance, as many recent events have demonstrated. In this session, Mariana Hentea will be introducing to energy professionals, engineers, etc., about the design, implementation, and maintenance of a security program for distributed energy resources (DERs), smart grid, and industrial control systems. Anyone who is involved with DERs and provides security, should be up to date and strive to maintain current understanding of the specific requirements of industrial control systems and real-time constrained applications for power systems. Mariana will touch upon many topics in this regard.

Speaker Bio:

Mariana Hentea earned her PhD and MS in Computer Science, MS in Computer Engineering, and BS in Electrical Engineering. Her research is focused on Smart Grid and DER systems, real-time systems security and performance, network security design and architecture, and use of AI techniques for information security management, security risk management, network management, and process control. A member of IEEE Standards Association, she promotes Security and Privacy awareness to Engineers, managers, regulators, and consumers. She is a member of IEEE Smart Grid, IEEE Power & Energy Society, IEEE Computer Society, ISC2 and ISSA organizations. Dr. Hentea holds a CISSP certification from ISC2.

At Glance

- **When:**
  Date: July 23rd, 2021
  Time: 4:00 – 6:00 PM (EST/EDT)
- **Where:**
  Online via Webex (to be shared only after you have a confirmed registration)
- **Audience: OPEN to ALL***

Sponsored by IEEE SE Michigan Computer Society, Education Society Chapters

***Pre-Registration Required!**

https://events.vtools.ieee.org/m/272810

IEEE COMPUTER SOCIETY

IEEE Advancing Technology for Humanity

InfraGard Great Lakes Conference

MICHIGAN MEMBER ALLIANCE PRESENTS:

InfraGard Great Lakes 25th Anniversary Conference

"Securing Our Critical Infrastructures for the Past 25 years"

THURSDAY, JUNE 10, 2021 – VIRTUAL EVENT

Member and non-Members Welcome

At this year's InfraGard Great Lakes Conference leaders in their respective industries will discuss trends related to risks to critical infrastructure with a focus on the intersection between efforts to protect these assets and the value various underground groups gain by attacking them. This daylong event will feature Keynote speakers, breakout sessions, and discussion panels involving numerous authorities from various sectors in the critical infrastructure realm.

- ★ Our membership of over a thousand, includes executive and professional representation from industry, government, and academia. This virtual event will be advertised to all of the nationwide chapters of InfraGard, as part of the 25th Anniversary celebration.
- ★ Our conference will virtually bring you together with expertise while connecting you to the resources of the FBI and Department of Homeland Security.
- ★ InfraGard was founded on the principle of connecting Public-Private professionals for networking and mutual aid. Nurturing these relationships at meetings and conferences so that during emergency situations you can reach out to your colleagues knowing what you each bring to the table.
- ★ Through the FBI, members have access to information that is not available to the public, from national and international intelligence sources.
- ★ Our Michigan chapter is a resource for education and awareness. Quarterly meetings with expert speakers provide an opportunity to identify cross-cutting issues about all critical infrastructures. Our leadership is convinced that secure business systems will come only from the balancing of physical, operational, and information security.
- ★ Attending our events complements and extends the reach of other, thriving private organizations like HTCIA, ASIS, CSA, ISSA, ISACA, ISC2, carrying their leadership and sound practices to a wider regional audience.
- ★ InfraGard Michigan Members Alliance is part of a secure, private reporting system. InfraGard members across the nation are linked to each other and to the FBI by the Bureau's secure "alert network." Companies can anonymously report incidents to all other members without fear of publicizing their vulnerability.
- ★ Exhibitors and Sponsors will have exclusive access to our ever-expanding membership, on our website, social media posts, and virtual booths as well as push announcements during our conference.

Please go to our website: www.michiganinfragard.org for more information on our sessions and to register.

Or email: program.coordinator@michiganinfragard.org or 734-707-8652

ORG UNITS cheat sheet

Section Unit Name or Affinity Group or Chapter Name (Organizational Unit is in parentheses)		
Consultants Network Affinity Group:	(CN40035)	
Life Members:	(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 "Trident"	(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

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

Curated & Maintained By

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

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 has changed to its new home, kindly make a note of it! The new home is located at http://r4.ieee.org/sem/ .** The old links will continue to work for some time, but will be changing permanently in the near future.

SEM Wavelengths:
https://r4.ieee.org/sem/about-sem/sem-history/wavelengths-magazine-archive/
This is our 'Active' event listing site where everyone should look first to see what events are scheduled for our Section in the near future.

SEM Web Calendar:
http://r4.ieee.org/sem/
Select "SEM Calendar" button in the top row of the website.

SEM Web Meetings:
http://r4.ieee.org/sem/
Select "SEM Meeting List" button in the left-hand column.

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

Other 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: You may need to copy the URL and paste it into your browser address bar.
Send details to: wavelengths@ieee-sem.org

Michigan Institute for Plasma Science and Engineering: Seminars for the 2018-2021 academic year:
http://mipse.umich.edu/seminars.php

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

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

Astronomy
http://www.go-astronomy.com/astro-clubs-state.php?State=MI

Experimental Aircraft Association
https://www.eaa.org/en/eaa/eaa-chapters/find-an-eaa-chapter

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

Science Fiction Conventions
https://2021.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/

Executive Committee

The SEM Executive Committee is the primary coordination unit for Southeastern Michigan (SEM) IEEE operations. The basic organization chart below shows the 2019/2020/2021 arrangement of communications links designed to provide inter-unit coordination and collaboration.

The SEM Executive Committee meets in a teleconference each month on either the first Wednesday or first Thursday at noon. The specific meeting days, times, phone or WebEx numbers and log in codes are published on the IEEE SEM Website calendar: **http://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 **Bhupinder Mavi**, the section secretary at: **bmavi@outlook.com,** and request to be placed on the distribution list for a monthly copy of the agenda and minutes. More meeting details are available on the next page of this newsletter.

Other Meetings:
About half of our members maintain memberships in one or more of the IEEE technical societies, which automatically makes them members of the local chapter which is affiliated with that society. As a result, they should receive notices of the local chapter meetings each month.

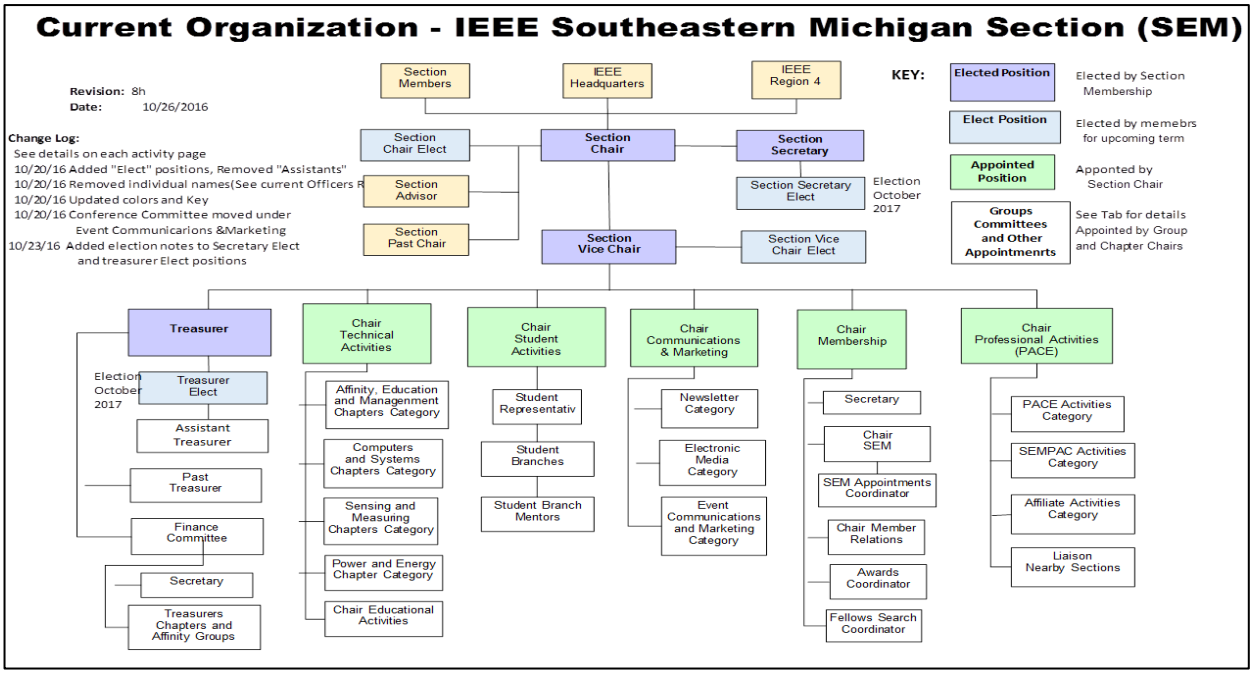
However, members of the section may have multiple technical interests and would like to have meeting information of other chapters. In order to communicate the meeting dates of all the chapters, affinity groups etc., to our members to facilitate their attendance, leaders of the groups are requested to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

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

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

Bhupinder Mavi - SEM Secretary 2021

Download the complete SEM Organization Chart, in PDF format, from our Website at: http://r4.ieee.org/sem/
Click on "About SEM" Tab and "Current Officers" ***(NOTE: this is now password protected)***



ExCom Meeting Schedule

NOTE: All SEM members are invited to attend ALL ExCom meetings:

Below is the 2021 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. Information on each Face-to-Face (in-person) Meeting will be sent out once the venue is confirmed.

Please mark your calendars for the 2021 meetings. Or, link your personal calendar to the SEM Web calendar.

Section Administrative Committee (ExCom) Meeting Schedule for 2021:

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

2021 Meeting Schedule:

ExCom Meeting	*Date & Time*
~~SEM Section ExCom Monthly Meeting (Teleconference) for June 2021~~ (CANCELLED)	~~6/2/2021 18:30~~
SEM Section ExCom Monthly Meeting (Face-Face) for July 2021	7/14/2021 18:30
SEM Section ExCom Monthly Meeting (Teleconference) for August 2021	8/5/2021 18:30
SEM Section ExCom Monthly Meeting (Teleconference) for September 2021	9/1/2021 18:30
SEM Section ExCom Monthly Meeting (Face-Face) for October 2021	10/7/2021 18:30
SEM Section ExCom Monthly Meeting (Teleconference) for November 2021	11/4/2021 18:30
SEM Section ExCom Monthly Meeting (Teleconference) for December 2021	12/1/2021 18:30

Bhupinder Mavi
SEM Secretary 2021
bmavi@outlook.com

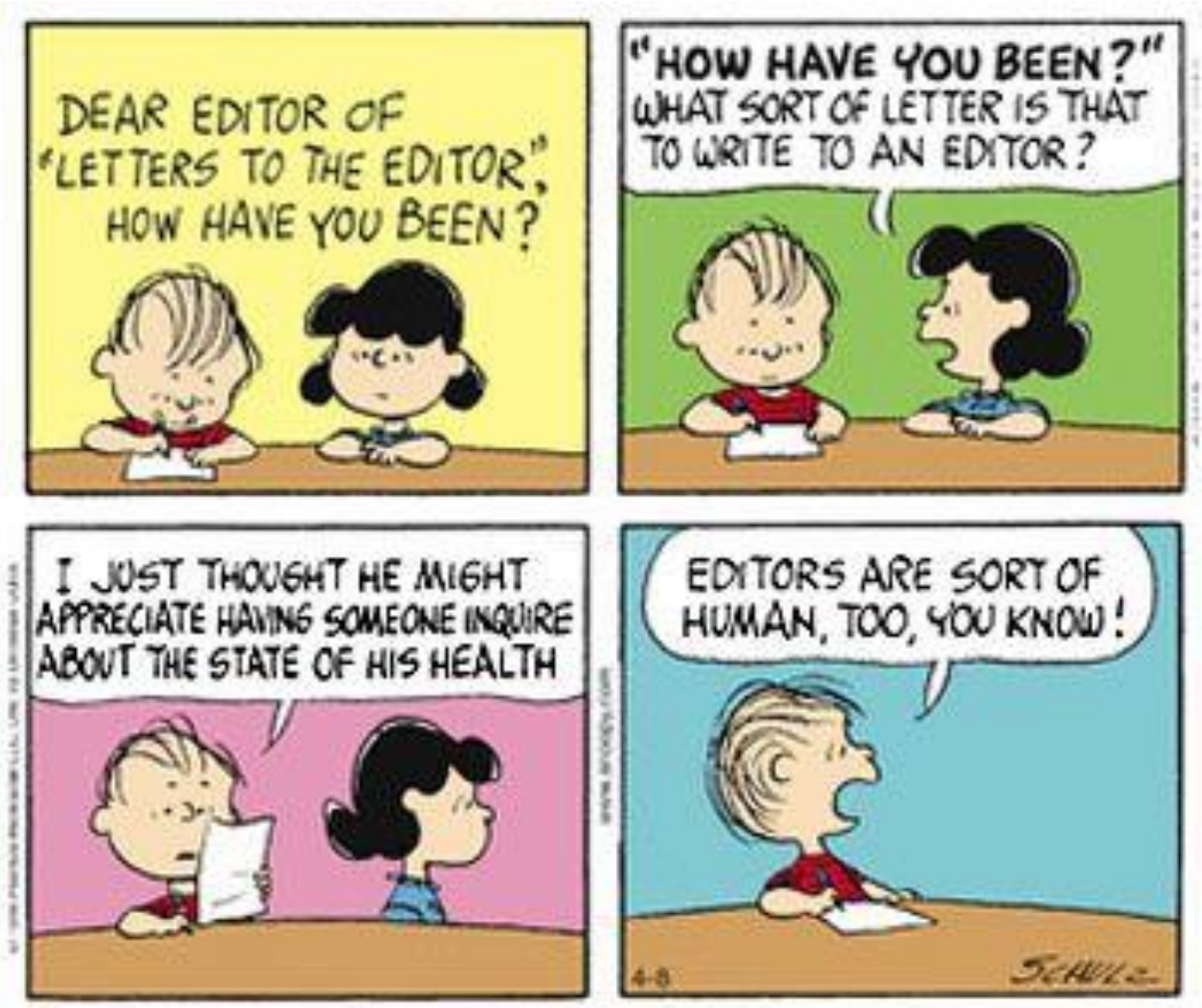
Letters to the Editor

As promised, we have now started a "Letters to the Editor" column. Letters, bouquets, brickbats, suggestions, advice, feedback, opinions may be sent to:

letters@ieee-sem.org

To the Editors of Wavelengths:

This month we got a contribution from a valued member of our IEEE community, who wishes to remain anonymous. Enjoy!



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

Comments and suggestions may be sent to the editorial team at wavelengths@ieee-sem.org
OR
sharan.kalwani@ieee.org
d.romanchik@ieee.org
nilesh.dudhaia@ieee.org
k.williams@ieee.org
cgjohnson@ieee.org
lunnmalcolm@me.com
akio@emcsociety.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 heard 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
Editor, Wavelengths,
2018~2019~2020~2021

Wavelengths Annual Publication Plan for Articles

Month	AG's	Ch's	Ch's	SB's	Special Notice	Reporting Events	Monthly Focus	Awards
Jan		*1*		*OU*	*New Year Officers*	*Officer's Welcome*	*The Year Ahead*	
Feb	*Cons*	*2*		*MSU*	*Science Fair Judges*	*National Engrs Wk.*	*Surviving Winter*	
Mar		*3*	*13*	*EMU*	*Elections - Prep*			
Apr		*4*		*U/M-D*		*ESD Gold Awards*	*Chapter Focus*	
May	*Life*	*5*	*14*			*Science Fair*		
Jun		*6*					*Leadership Skills*	
Jul		*7*	*15*				*Students Issues*	
Aug	*WIE*	*8*			*Nominations Call*		*Womens Issues*	
Sep		*9*	*16*	*LTU*	*Ballots*	*Engineers Day?*	*Professional Skills*	
Oct		*10*		*U/M-AA*	*Elections!*	*IEEE Day*		
Nov	*YP*	*11*	*17*	*WSU*	*Election Results*	*New Fellows*		
Dec		*12*		*U/D-M*	*IEEE-Com Apmts.*		*Happy Holidays*	*R4 Nom*

Wavelengths Annual Publication Plan for Personal Profiles

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

IEEE Southeastern Michigan
Electrical and Electronic Engineers Creating Our Future

Web & Social Sites

SEM Website
http://r4.ieee.org/sem/

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

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

SEM Facebook Page
(Select the "f" button under the top row)

SEM LinkedIn Page
(Select the "in" button under the top row)

SEM Twitter Account (new)
https://www.twitter.com/ieeesemich

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

Section Officers

Section Chair
David Mindham

Section Vice-Chair
Sharan Kalwani

Section Secretary
Bhupinder Mavi

Section Treasurer
Colleen Chmielewski

Standing Committees:

Section Adviser
Don Bramlett

Wavelengths Editor
Sharan Kalwani

Chair Educational Activities
Christopher Guirlanda

Chair Finance
Sharan Kalwani

Chair Membership Development
Sharan Kalwani

Chair Nominations & Appointments
Kimball Williams

Chair Professional Activities (PACE)
Sharan Kalwani

Chair Student Activities
Mel Chi

Student Communications Coordinator
Michael Anthony

Student Representative

Chair Technical Activities
Jeffery Mosley

IEEE Southeastern Michigan

Electrical and Electronic Engineers Creating Our Future

IEEE Southeastern Michigan

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

Leadership Meetings

SEM Executive Committee Monthly Teleconferences:

- 1st Wednesday or Thursday of Each Month @ Noon
- Check the Section Web Calendar at:
  http://r4.ieee.org/sem/sem-calendar/
  (Select the "SEM Calendar" button in the top row.)

SEM Executive Committee Face-to-Face Meetings:

- Once every 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
  http://r4.ieee.org/sem/
  (Select the "SEM Calendar" button in the top row.)

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