IEEE: Your Home for.....

- Students
- Industry and Professionals
- Academia
IEEE: Your Home for.....

- **Students:**
  - Pre-University
  - Undergraduate
  - Graduate

- **EPICS (Engineering Projects in Community Service)** [https://epics.ieee.org/](https://epics.ieee.org/)


- **IEEE Extreme**, [https://ieeextreme.org/](https://ieeextreme.org/)


IEEE: Your Home for.....

- **Industry:**
  - *Individual Contributor*
  - *Industry Researcher*
  - *Managerial Path*

- **IEEE Collabratec,** [https://ieeecollabratec.ieee.org/](https://ieeecollabratec.ieee.org/)
- **IEEE Center for Leadership Excellence,** [https://ieee-elearning.org/CLE/](https://ieee-elearning.org/CLE/)
- **IEEE Standards Association,** [https://standards.ieee.org/](https://standards.ieee.org/)
- **IEEE Job Site,** [https://jobs.ieee.org/](https://jobs.ieee.org/)
IEEE: Your Home for.....

- Faculty:
  - Junior Faculty
  - Established Faculty
  - Retired Faculty

- IEEE Job Site, https://jobs.ieee.org/
- IEEE Conferences, https://www.ieee.org/conferences/
IEEE: Your Home ..... 

The world is divided into 10 geographic areas called Regions. More than 474,336 members in more than 190 countries; slightly more than 60% of whom are from outside the United States.
IEEE Membership by Region (2023 data)

**TOTAL MEMBERSHIP:** 427,780 (as of 2023-03-13)

- **R7:** 14,205
- **R8:** 80,727
- **R1 ~ R6:** 153,689
- **R10:** 161,371
- **R9:** 17,788
IEEE Sections by Region

- **Region 1**
  - NE USA: 22 sections
    - New England areas (MA, VT, NH, VT, RI), NY, and parts of NJ
  - Eastern USA: 20 sections
    - PA, VA, Washington DC, Parts of OH, South NJ, DE
  - Southern USA: 41 sections
    - NC, parts of VA, GA, SC, FL, KY, TN, MS, AL, and Jamaica
  - Central USA: 26 sections
    - MI, IL, Parts of OH, IN, MN, IA, SD, ND, and NE
  - SW USA: 22 sections
    - TX, LA, AR, MO, KS, OK, CO, Parts of NM & WY & SD & NE
  - Western USA: 37 sections
    - WA, OR, CA, NV, ID, MT, UT, AZ, parts of NM & WY

- **Region 2**
  - Canada: 21 sections
    - BC, AB, SK, ON, QC, NB, NL, NS, MB, and PE
  - Africa, Europe, Middle East: 66 sections
    - See map

- **Region 3**
  - Latin America: 35 sections
    - See map

- **Region 4**
  - Asia, Pacific: 78 sections
    - See map

*as of 2023-03-13*
IEEE-USA Sections by Region (1~6)
IEEE: Quick facts.....(2024-03-01)

- Sponsors or Co-sponsors more than 2000 conferences & meetings world-wide each year (106 countries)
  - Society/Council Conferences, Workshops, etc
  - Regional Meetings
  - Local Section and Chapter Meetings

- More than 5 million documents in the IEEE Xplore® Electronic Library

- 4 million total conference papers in Xplore® since 1936, approx. 200,000 added annually

- Publishes 200 Transactions, Journals and Magazines/Newsletters

- More than 1032 active IEEE standards, with 400-1035 in development

- 39 Technical Societies

- IEEE publishes nearly a third of the world’s technical literature in electrical engineering, computer science, and electronics
IEEE: Quick facts.....(2024-03-01)

- More than 474,336 members in more than 190 countries (64% non-USA)
- More than 181,612 student members
- 344 Sections and 38 Sub-Sections in ten geographic Regions worldwide (each section can have 1 or more technical chapters)
- 2,702 Technical Chapters that unite local members with similar technical interests
- 338 Affinity Groups { Consultants/WiE/Life Members (LM)/Young Professionals (YP) }
- 3,700 Student Branches in 100 countries
- 3,625 Student Branch Chapters (IEEE technical societies)*
- 634 Affinity Groups
- Grew 8% a lot this year 😊
IEEE: Recap of IEEE taxonomy.....(2024-04-21)

▶ Structure

▶ IEEE is organized into:
Local sections within geographic regions
• Chapters comprised of local members with similar technical interests
• Societies and technical councils that compose technical divisions
• Student branches at colleges and universities around the world
• Student branch chapters; affinity groups and special interest groups; as well as IEEE-Eta Kappa Nu (IEEE-HKN), the honor society of IEEE

• For more on these and other statistics go to IEEE at a Glance
• Download a chart containing a Summary of the IEEE Organization (PDF, 19 KB)

https://www.ieee.org/about/organization/index.html
IEEE Southeastern Michigan (SEM) Section

The IEEE SEM Section is part of Region 4

http://r4.ieee.org/sem/
The IEEE SEM Section is part of Region 4 and covers only the Southeastern portion of the state of Michigan.

The IEEE SE Michigan Section was founded on June 1, 1963.

Number of members ≈ 2839

Total Population of Michigan ≈ 10.07 million
Super Quick Summary
The Southeastern Michigan Section has:
• 18 Technical Chapters (CH)
• 4 Affinity Groups (AG)
• 8 Student Branches (SB)
• 8 Student Honors Society (HKN)
• 4 Student Technical Chapters (SBC)

https://r4.ieee.org/sem/
IEEE Southeastern Michigan (SEM) Section History

IEEE SEM section has a rich and storied history. It began life as an amalgamation of the Detroit Sections of AIEE (American Institute of Electrical Engineers) and IRE (Institute of Radio Engineers).

The Detroit Sections of IRE and AIEE were recognized by the national organizations as being among the more active sections. Each section had hosted several national conventions and many smaller technical conferences in Detroit. Several local officers went on to leadership roles at the national levels in AIEE and IRE.

Following the 1961 AIEE Fall General Meeting, the officers of the Detroit Sections of AIEE and IRE held several discussions to iron out many potential problems in order to make the new union a success. The two sections merged to form the Southeastern Michigan Section of the IEEE (IEEE/SEM) on June 1, 1963.

Read the fascinating narrative at https://r4.ieee.org/sem/about-sem/section-history/
IEEE Southeastern Michigan (SEM) Section History

The activism of IEEE SEM Section has extended to involvement in the broader engineering, professional and scientific community. We publish every month a Newsletter called Wavelengths (more on that later).

Past issues of Wavelengths illustrate the involvement of IEEE/SEM and its members in programs with the Engineering Society of Detroit (ESD), and especially the ESD Affiliate Council, the Michigan Society of Professional Engineers, National Engineers Week, and the Science and Engineering Fair of Metropolitan Detroit. We also collaborate with numerous sister professional organizations such as INCOSE, NSBE, etc.

In addition, our numerous section chapters, student branches, etc. (all called Organization Units or OUs) are actively involved in technical meetings, events, professional development, conferences, etc.

Read the fascinating narrative at https://r4.ieee.org/sem/about-sem/section-history/
IEEE Southeastern Michigan (SEM) Current 2024 Leadership

Chair: Sharan Kalwani
Vice-Chair: Aneesh Mathai
Secretary: Christopher Johnson
Treasurer: Ramesh Sethu
Advisor: Mohamad Berri

How can I contact the Executive Committee/Admin members of the Section?

Use any of the following:

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

More details can be found at https://r4.ieee.org/sem/excom-officers/
IEEE Southeastern Michigan Section has the following Technical Society Chapters

- Chapter: 01 (Joint) Signal Processing, Circuits & Systems + Information Theory Society
- Chapter: 02 Vehicular Technology Society
- Chapter: 03 (Joint) Aerospace & Electronic Systems Society w/ Communications Society
- Chapter: 04 (Joint) Antennas & Propagation, Electron Devices w/Microwave Theory and Techniques “Trident”
- Chapter: 05 Computer Society
- Chapter: 06 Geosciences and Remote Sensing Society
- Chapter: 07 (Joint) Power Engineering w/ Industrial Applications Society
- Chapter: 08 Electromagnetic Compatibility Society “EMC”
- Chapter: 09 (Joint) Industrial Electronics w/ Power Electronics Society
- Chapter: 10 Technology and Engineering Management Society
- Chapter: 11 Engineering in Medicine & Biology Society
- Chapter: 12 Control Systems Society
- Chapter: 13 Education Society
- Chapter: 14 Robotics And Automation Society
- Chapter: 15 Nuclear Plasma Sciences Society
- Chapter: 16 (Joint) Computational Intelligence with Systems, Man and Cybernetics Society
- Chapter: 17 Nanotechnology Council
- Chapter: 18 Magnetics Society (NEW in the SECTION)
IEEE Southeastern Michigan Section has the following **Affinity Groups**

- Affinity Groups:
  - Consultants Network (aka CN)
  - Women in Engineering (aka WiE)
  - Life Members (aka LMAG)
  - Young Professionals (recent graduates aka YP, called GOLD in the distant past....)
IEEE Southeastern Michigan Section has the following Student Branches

- University of Michigan, Ann Arbor
- University of Michigan, Dearborn
- Eastern Michigan University, Ypsilanti
- Wayne State University, Detroit
- Lawrence Tech University, Southfield
- Oakland University, Rochester
- Michigan State University, East Lansing
IEEE Southeastern Michigan Section Organization

- Section engages in a lot of outreach
- Holds regular STEM sessions on a variety of EE/Physics/Science topics
- Focus is on building value for members via:
  - Technical Development/Educational Sessions
  - Professional Development thru complimentary skills (Proj Mgmnt, etc)
  - Soft Skills/Leadership/Time Mgmnt seminars
- Section Technical Meetings:
  - Variety of topics and subjects, both online & in person

A current list can always be found at http://bit.ly/sem-upcoming
IEEE Southeastern Michigan Section Organization (2023)

A current list can always be found at http://bit.ly/sem-upcoming
IEEE Southeastern Michigan Section (2024 YTD) *04/15/2024

IEEE Southeastern Michigan Section Past Laurels

- Innovations:
  - Police Radio (Belle Isle)

Milestones: One-Way Police Radio Communication, 1928

At this site on April 7, 1928 the Detroit Police Department commenced regular one-way radio communication with its patrol cars. Developed by personnel of the department’s radio bureau, the system was the product of seven years of experimentation under the direction of police commissioner William P. Bolbridge. Their work proved the practicability of land-mobile radio for police work and led to its adoption throughout the country.

The plaque can be viewed on Belle Island of Detroit, Michigan, U.S.A. at the front south-west corner near the main entrance to the police building.

In the 1920s gangsters, bank robbers and bootleggers made their getaway time after time, to the great consternation of police.

But in 1928, a dedicated Detroit patrolmen and an electronics buff devised the first successful one-way radio link between police headquarters and officers. Critical news of crimes in progress could now be transmitted from the stations house to police cars as they drove.

Electronics was a fledgling science when Detroit Fireman Kennerst (Cox and Robert) Staff, an engineering student, built a stable radio receiver and antenna system. Their successful one-way radio, coming after years of trial and error, was installed in April 1928. The Detroit Police Department made history as the first to dispatch patrol cars regularly by radio. Many other police departments shortly followed suit with their own systems.

Between 1921 and 1927, radio buffs Kenneth R. Cox, William Virgin and Bernard Zigler, all Detroit police officers, experimented with radio sets they had installed in the back seat of a Model T Ford police patrol car. The receivers picked up signals, but not very consistently.

Frequently, broadcasts would fade out as the car passed large buildings or under railroad bridges. Also, police had no designated band on which to broadcast, so the system operated like any radio station. The station was appropriately called KOP and listed locally as an entertainment station.

To meet FCC (Federal Radio Commission) predecessor of the FCC) licensing requirements, police officers broadcast recorded music in between lists of stolen vehicles and descriptions of missing children.

Informal work by Cox and Robert Staff led to the development of an improved receiver in 1927. A broadcasting station, WPS, was set up on Belle Island and regular broadcasts began in 1928.

(Source: Detroit Free Press)
IEEE Southeastern Michigan Section Recent Laurels (2022)

REGION 4
OUTSTANDING SECTION AWARD
PRESENTED TO
SOUTHEASTERN MICHIGAN SECTION
In recognition of exemplary leadership and service to their members.

IEEE

REGION 4
MEMBERSHIP RETENTION AWARD
PRESENTED TO
SOUTHEASTERN MICHIGAN SECTION
In recognition of exceeding 2022 membership retention goals.

IEEE
IEEE Southeastern Michigan Section Appreciation (2023)

Award of Appreciation

Bronze Sponsor
IEEE
Southeastern Michigan Section

This award is presented at the Robofest Online World Championship Award Ceremony to express our sincere appreciation for sponsoring Robofest 2021-2022 programs that promote STEaM and Computer Science education through autonomous robotics.

May 21, 2022

Dr. Tarek Sobh  
President and CEO  
Lawrence Technological University

Dr. Shiri Kambhamettu  
Dean, College of Arts and Sciences  
Lawrence Technological University
IEEE Southeastern Michigan Section’s: Technical Chapter Recent Laurels (2021)

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2021 Outstanding Chapter Award

presented to the

IEEE Computer Society Southeastern Michigan Section Chapter

“For the Computer Society Professional Chapter providing the best overall set of programs and activities for its local members.”

Melissa Russell, Executive Director
Dec 2021

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2021 Outstanding Chapter Award for Industry Engagement

presented to the

IEEE Computer Society Southeastern Michigan Section Chapter

“For the Computer Society Professional Chapter providing the best programs and activities to encourage industry engagement”

Melissa Russell, Executive Director
Dec 2021
IEEE Electromagnetic Compatibility Society
takes pleasure in presenting the
2023 Chapter-of-the-Year Award
to
Southeast Michigan
EMC Chapter

Vignesh Rajamani
President
EMC Society

Flavia Grassi
Chair
EMC Awards Committee
IEEE Southeastern Michigan Section Laurels (2018)
IEEE Southeastern Michigan Membership: Birds Eye View

Count by Technology Focus Area

- Computing and Processing (Hardware/Software)
- Robotics and Control Systems
- Power, Energy and Industry Applications
- Unknown
- Components, Circuits, Devices and Systems
- Transportation
- Other
- Engineering Profession
- Fields, Waves and Electromagnetics
- Communication, Networking and Broadcasting
- Signal Processing and Analysis

Count by Grade and Gender

- Member
- Graduate Student Member
- Senior Member
- Life Member
- Student Member
- Life Senior
- Life Fellow
- Fellow
- Affiliate
- Associate Member
- SA Member
Wavelengths – Section’s Monthly Newsletter
Once in a Lifetime!

100th Anniversary Event
Tuesday, October 11, 2011 6pm The Henry Ford Museum
Early Registration through August 1, 2011

In honor of the 100th Anniversary Event for IEEE Southeastern Michigan Section, there will be at The Henry Ford Museum, Tuesday, October 11, 2011 starting at 6pm. You and your spouse / companion will enjoy the following at the event:

- Reception and networking with the keynote speaker, the 2011 IEEE USA President, and others in Lovett Hall Lobby
- RoboFest Sumo Robot competition demonstration, organized by Prof. C.J. Chung from Lawrence Tech
- Lecture on the history of electricity and electronics during the past 100 years
- Dinner in the Lovett Hall Ballroom
- A night of private viewing of the Museum (a $15 value)

The keynote speaker will be Dr. Michael Geselowitz from the IEEE History Center at Rutgers. The title of the talk is “From Startups to Startups: 100 Years of IEEE & Southeastern Michigan.” We will present a non-technical history of the last 100 years of electronics and electricity—perfect for members as well as spouses / companions!

Members who attended the Spring Section Conference already registered early (see photo of members lining up to register!).

IEEE members get special discount early registration online price of $80 per couple. Hurry! Early registration is open through August 1, 2011. All of the information is on the web site at http://www.ieee-sem.org/conference/100.

We are seeking event sponsors and supporters. See the event web site for details.

Members line up for 100th Anniversary registration at the April Spring Conference.
60th Anniversary Southeastern Michigan SECTION Celebration

Once in a lifetime!

Section 60th Anniversary

Saturday Afternoon Tour, Light Show with an evening dinner: 3 to 8 pm
November 4, 2023

Sloan Planetarium & Flint Institute of Art
Flint, Michigan

IEEE Southeastern Michigan

Electrical and Electronic Engineers Creating Our Future
IEEE Southeastern Michigan – Industry Presence

• SE Michigan is heavily dominated by its famous Automotive Industry
  • General Motors (GM)
  • Ford
  • Stellantis [ was FCA (Fiat Chrysler Automotive)/DaimlerChrysler/Chrysler ]
• Numerous Tier-1 and Tier-2 Automotive manufacturing suppliers
• Current hot activity is all about:
  • BEV (Battery Electric Vehicles)
  • ADAS (Advanced Driver Assistance Systems)
  • IoT (Internet of Things)
  • Industry 4.0 (Smart Everything)
• Power/Energy Industry (DTE Energy/Consumers Power/Commonwealth Energy/etc)
• Industrial Electronics
• Life Sciences/Medicine/Pharma
• AgriBusiness
• Aerospace (More than 600 related companies)
IEEE Southeastern Michigan Section *Technical Society Chapters*

- Chapter: 01 *(Joint)* Signal Processing, Circuits & Systems + Information Theory Society
- Chapter: 02 Vehicular Technology Society
- Chapter: 03 *(Joint)* Aerospace & Electronic Systems Society w/ Communications Society
- Chapter: 04 *(Joint)* Antennas & Propagation, Electron Devices w/Microwave Theory and Techniques “Trident”
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- Chapter: 12 Control Systems Society
- Chapter: 13 Education Society
- Chapter: 14 Robotics And Automation Society
- Chapter: 15 Nuclear Plasma Sciences Society
- Chapter: 16 *(Joint)* Computational Intelligence with Systems, Man and Cybernetics Society
- Chapter: 17 Nanotechnology Council
- **Chapter: 18 Magnetics Society (NEW in the SECTION)**
Southeastern Michigan Section ExCom (admin) meetings:
- In person once every Quarter (March, June, September and December)
- Other months it is held virtual using Webex
- Training on IEEE tools, resources and Chapter expectations – ONLINE training available
- Constantly updated versions of past events
- History Activity
- New volunteers
- Numerous technical events (highest in R4), thanks to the technical chapters!
http://bit.ly/sem-upcoming  (all activities)

https://r4.ieee.org/sem/sem-calendar/
Southeastern Michigan Section Website: https://r4.ieee.org/sem/
SEM Facebook Page: https://www.facebook.com/groups/ieeesemich
SEM LinkedIn Page: https://www.linkedin.com/groups/1766687/
SEM X (formerly Twitter) Account: https://www.twitter.com/ieeesemich
SEM Collabratec Workspace (new)
https://ieee-collabratec.ieee.org/app/workspaces/5979/IEEE-Southeastern-Michigan-Section/activities
SEM Collabratec Community (new)
https://ieee-collabratec.ieee.org/app/section/R40035/IEEE-Southeastern-Michigan-Section
SEM Instagram (under development): https://www.instagram.com/ieeesemich/