

IEEE Region 2



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- *Hot Topics of the Month IEEE-USA, IEEE, and Region 2*



Mr. Barry Tilton



IEEE Day 2022 - Leveraging Technology for a Better Tomorrow

While the world benefits from what's new, IEEE focuses on what's next. In honoring [IEEE Day 2022](#), we look at all of the unique ways IEEE OUs are harnessing innovation and building stronger community. In Region 2 our held and planned October events are doing that in spades, including Picnics (Northern VA, and Washington), with Lima, Erie, and

Lehigh Valley holding theirs in September. Events across a wide swath of our Sections, Chapters, and affinity groups engage and educate -- brunches, IEEE Day networking events, senior membership drives, factory tours, student events, and technical topics, including AI, electronics, microwaves, smart entities, sensors, energy and data.

INDIVIDUALS & FAMILIES

See Yourself taking action to stay safe online. That means enabling basic cyber hygiene practices: update your software, think before you click, have good strong passwords or a password keeper, and enable multi-factor authentication (meaning you need "More Than A Password!") on all your sensitive accounts.

CONSIDERING JOINING CYBER

See Yourself joining the cyber workforce. [CISA](#) will be talking with leaders from across the country about how we can build a cybersecurity workforce that is bigger, more diverse and dedicated to solving the problems that will help keep the American people safe.

PARTNERS IN INDUSTRY

See Yourself as part of the solution. That means putting operational collaboration into practice, working together to share information in real-time, and reducing risk and build resilience from the start to protect America's critical infrastructure and the systems that Americans rely on every day.

KEY THINGS TO DO

- Think Before You Click
- Update Your Software
- Use Strong Passwords
- Enable Multi-Factor Authentication



IEEE Historic Look at Cybersecurity

FIRST BREAKING OF ENIGMA CODES

Polish Cipher Bureau mathematicians Marian Rejewski, Jerzy Różycki and Henryk Zygalski broke the German Enigma cipher machine codes. Working with engineers from the AVA Radio Manufacturing Company, they built the 'bomba' – the first cryptanalytic machine to break Enigma codes. 1932 - 1939 ([IEEE Poland](#))

CODE BREAKING BLETCHLEY PARK

On this site during World War II, 12,000 men and women broke the German Lorenz and Enigma ciphers, as well as Japanese and Italian codes and ciphers. They used innovative mathematical analysis and were assisted by two computing machines developed here by teams led by Alan Turing, saving many lives. 1939 - 1945 ([IEEE UK and Ireland](#))

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US NAVAL COMPUTING MACHINE LABORATORY

In 1942, the United States Navy joined with the National Cash Register Company to design and manufacture a series of code-breaking machines. This project was located at the U.S. Naval Computing Machine Laboratory in Building 26, near this site. The machines built here, including the American "Bombes", incorporated advanced electronics and significantly influenced the course of World War II. 1942 - 1945 ([IEEE Dayton](#))

ENIAC

A major advance in the history of computing occurred at the University of Pennsylvania in 1946 when engineers put the Electronic Numerical Integrator and Computer (ENIAC) into operation. Designed and constructed at the Moore School of Electrical Engineering under a U. S. Army contract during World War II, the ENIAC established the practicality of large scale, electronic digital computers and strongly influenced the development of the modern, stored-program, general-purpose computer. 1946 ([IEEE Philadelphia](#))

SAGE

In 1951 the Massachusetts Institute of Technology undertook the development of an air defense system for the United States. The centerpiece of this defense system was a large digital computer originally developed

at MIT. The MIT Lincoln Laboratory was formed to carry out the initial development of this system and the first of some 23 SAGE control centers was completed in 1958. SAGE was the forerunner of today's digital computer networks. 1951-1958 ([IEEE Boston](#))

APOLLO GUIDANCE COMPUTER

The Apollo Guidance Computer provided spacecraft guidance, navigation, and control during all of NASA's Apollo Moon missions. It was developed under the leadership of Dr. Charles Stark Draper at the MIT Instrumentation Lab - now Draper Laboratory. This pioneering digital flight computer was the first real-time embedded computing system to collect data automatically and provide mission-critical calculations for the Apollo Command Module and Lunar Module. 1962 - 1972 ([IEEE Boston](#))

PUBLIC KEY CRYPTOGRAPHY

At Great Britain's Government Communications Headquarters (GCHQ), by 1975 James Ellis had proved that a symmetric secret-key system is unnecessary and Clifford Cocks with Malcolm Williamson showed how such 'public-key cryptography' could be achieved. Until then it was believed that secure communication was impossible without exchange of a secret key, with key distribution a major impediment. With these discoveries the essential principles were known but were kept secret until 1997. 1969 - 1975 ([IEEE UK & Ireland](#))

IEEE – USA Special Resources

New Government Fellowship Opportunities Support Entrepreneurism and Defense Innovation

Two new government fellowship programs from NSF and DARPA create more opportunities for recent science and engineering grads. And don't forget to check out the IEEE-USA Government Fellowship program too, where you could work in Congress, the State Department, or USAID!



MAKING YOUR IEEE EVENTS MORE SUSTAINABLE



Improving the sustainability of your local IEEE events doesn't have to be complicated or expensive, if done thoughtfully. Here's how.

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THREE TIPS FOR FINISHING THE YEAR STRONG



Fall is a season of change. Let's take a moment to consider what changes we might want to make in our lives to finish the year on a high note.

FREE WEBINAR: STEP INTO YOUR ZONE & THRIVE - NOV. 2, 2-3PM ET

Join executive leadership coach Erin Urban as she shares how to leverage your "zone of genius" to unlock your potential and discover how to align your core authentic self with your professional and personal path. Register for free today!

IEEE★USA
Livestream Webinar

Step Into Your Zone & Thrive!

Wednesday, 2 November 2022 - 2 PM ET
Presenter: Erin Urban

Free Webinar Series - Elevate Your Impact: More Influence, Less Stress

IEEE – USA Special Resources



IEEE-USA's New October E-Book for Members Fosters Creativity in the Classroom

"Creativity is contagious. Pass it on." ~Albert Einstein

Prolific writer and educator about all things engineering, Harry T. Roman, continues with his new e-book series on creativity in the classroom. Creativity--Our Valuable Lifelong Skill--Volume 2: Spurring Creativity in the Classroom, is the second in his three book series on creativity. In this second book, Roman draws on his extensive experience teaching and interacting with educators to present what he describes as "a variety of strategies to help teachers organize classrooms for creative thinking."

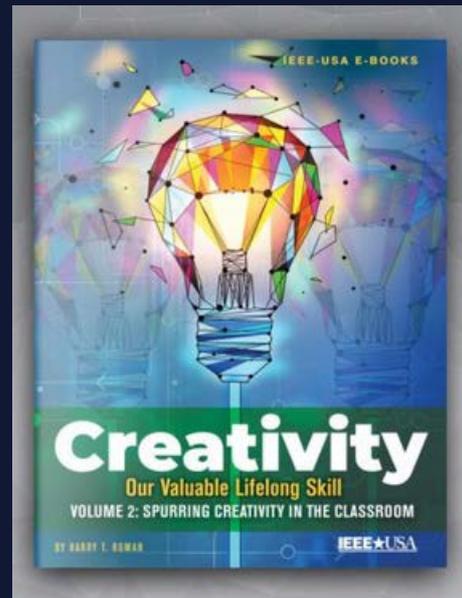
Roman starts off Volume 2 by stressing the value of teams. He stresses teams are ideal for brainstorming; and that brainstorming, "is a great preparation for life after graduation, no matter what profession, or occupation, team participants select."

The author also makes the case that teachers need to foster divergent, convergent and lateral thinking, growing someone else's original idea to another level.

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In addition, he advises teachers to create an environment where mistakes and failures are expected and celebrated.

"When new ideas and creativity are in progress, there will be misfires, dead-ends and non-starters. Mistakes are the portals to discovery." ~Harry T. Roman



IEEE-USA Washington Update

In this bi-weekly webinar, IEEE-USA Senior Legislative Representative [Aline McNaul](#) discusses what Congress is doing for, and to the profession.



REGISTER TODAY!

IEEE Women in Engineering Forum USA 2022



Join Us for **IEEE Women in Engineering Forum USA 2022** in Providence, Rhode Island on 3-5 November, 2022 for our first post COVID-19 in person Forum. **Register TODAY!**

The conference program is posted and early registration is extended to **October 17th!** We also welcome all to our in-person career fair (which is free to job seekers) and will feature more than 20 companies who are actively hiring. Additional information [here](#).

IEEE WIE Forum USA East focuses on developing and improving leadership skills for individuals at all stages of their careers. Attendees will have the opportunity to hear inspirational and empowering talks presented by successful leaders from IEEE Northeast. Emerging technologies will also be demonstrated, engaging attendees to facilitate discussion and potential advancement of STEM outreach class ideas.

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IEEE Region 2 OU Analytics



Vera Sharoff began working at IEEE in 1985 as a Cobol programmer. She and her team were responsible for bringing email and the ieee.org domain to IEEE! She has been the **Director of Information Management** in IEEE Member and Geographic Activities (MGA) since 2009. Along with her Information Management team and IEEE IT, she has launched many volunteer solutions such as **IEEE OU Analytics, vTools** (eNotice, Events, Voting, Officer Reporting, etc.) and **EWB Web Hosting**. These tools are used by thousands of IEEE volunteers from many different organizational units, including Regions, Councils, Sections, Chapters, Affinity Groups, Student Branches, Student Branch Chapters, Societies, Technical Councils, and Local Groups.

Vera, and her team, support the **MGA Information Technology Coordination and Oversight Committee** (ITCO), chaired by Ron Jensen, MGA Vice Chair, Information Management and the vTools Committee chaired by Martin Schulman.

She is an experienced user of *IEEE OU Analytics* and can provide many insights and best practices for data query, usage and GDPR requirements and concerns. Her deck [here](#).

IEEE ERIE SECTION PICNIC



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B
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Tajmilur Rahman, PhD, IEEE Region 2 Erie Section Chair, who is an Assistant Professor in the Department of Computer & Information Science at Gannon University held a phenomenal September picnic, engaging over 45 members and students, building stronger community and recruiting new members all while having BBQ fun and giving away prizes. Way to go to our newest IEEE Region 2 Chair (and to his wife who was his right-hand planning and prep person).



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IEEE LEHIGH VALLEY SECTION PICNIC



Continuing the IEEE Region 2 Picnic Theme, we highlight **IEEE Lehigh Valley Section's** picnic, led by veteran Chair, **Mr. Richard Jessop**. They were honored to have as an attendee **Mr. Don Talhelm** (far right), the first winner of the Section's first annual **Walter B. Morton Student Paper Contest** in 1959. He became an IEEE Member in 1957 and is still active with the LHV Section today.



**IEEE LHV
SINCE
1921**



As the new IEEE **R2 Young Professionals** representative, I aim to focus on building community to create a strong peer network of YPs in R2. The first step toward this goal is the formation of a new R2 YP committee to coordinate efforts across the region. We will address the unique needs of YPs in R2 through activities guided by the technical and professional interests of the membership. We as YPs arguably have the most to benefit from involvement with IEEE, from gaining practical knowledge and skills, to building professional networks. We can best capitalize on this opportunity by creating a collaborative space for R2 YPs that celebrates the diversity of our demographic in identity, experience, and expertise. I am excited to serve alongside the R2 Leadership in working toward this aim.

Tory Welsch is a PhD candidate in Materials Science and Engineering at the University of Delaware. She received her BS in Chemistry at SUNY Geneseo in 2018. Her research focuses on developing colloidal quantum dot-based nanostructures for photon upconversion applications. She also serves with the ASM Brandywine Valley Chapter as secretary and the IEEE Nanotechnology Council as a Young Professionals representative and MENED program mentee.

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IEEE REGION 2 Student Representative



Meet IEEE Region 2's newest **Student Representative, Mr. Xavier Smith**, is a senior Computer Engineering major at the University of Maryland, Baltimore County (UMBC) focusing on the communications / signals & systems track. His future academic plans are to earn a Masters in Electrical Engineering and a Ph.D. in Biomedical Engineering, focusing on developing a novel neuromodulation technique using electromagnetics and genetic engineering for patients with neurodegenerative diseases. My future career plans are to use my PhD thesis to start a biotechnology company that focuses on making this technology accessible, affordable, and reliable.

My goal for this current academic year is to convey the importance of understanding technical concepts by helping students develop relevant skills that are applicable in their respective fields. More often than not, some students believe that previous experience is required to participate in any technical-related opportunity, and I'm focused on giving students the confidence in using relevant technologies in their fields. We have a series of events planned that reflect this goal, that are centered around exposing students to industry applications of machine learning and cyber security, connecting students with professors embarking on research opportunities, and practical hardware workshops that teach the basics behind circuitry and the applications of microcontrollers. We envision that our involvement rate will increase for students with technical and non-technical backgrounds, getting students excited about technology, and propelling them towards the future of their respective fields.

IEEE Students

Take the Next Step Together

Accelerate your growth by associating with like-minded people and take advantage of all benefits the [IEEE Student Membership](#) offers.

For non-students, you can continue to help build out IEEE's organizational pipeline by recruiting new student and faculty sponsors for **Student Branches** and affinity groups, volunteering for the SAC committee, being an Ambassador, or becoming a program **Sponsor**. Use the [FUTURE50](#) code to save 50% for new or renewing student memberships.

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Central Area

The Central Area covers the following IEEE R2 Sections:

- Central Pennsylvania
- Erie
- Johnstown
- Pittsburgh
- West Virginia
- Susquehanna

Chair: James A. Beck



IEEE Susquehanna Section is hosting the following special Fall event

- 10/12: Susquehanna Section Computer Branch Presentation: The Smart Shoe Project

IEEE Erie Section Chair, Tajmilur Rahman, Ph.D, and leadership team is happy to announce a students' research competition this Fall

- Student Research Competition (11/11)
- Awards Dinner 12/01



IEEE Pittsburgh Section is hosting several don't miss events this fall:

- 10/26: PA Turnpike Update: Conversion to Open Road Tolling
- 10/27: Multiple Learnings from the Challenger Space Shuttle Disaster



Members of the Susquehanna Section and friends are invited to the Section's first in person event since the start of COVID. Tyler Rupp a recent graduate from Penn State Harrisburg will present his Susquehanna Section Capstone award winning project "Smart Shoes". This project was rated as the best 2022 Capstone project in the central PA area from our 6 local universities and colleges.

Smart Shoes can electronically track in real time a person's weight on each shoe, the number of steps taken and the distance traveled. The shoes present real time data to the user's cell phone. Actual prototype shoes will be available for attends to see. The smart shoes performance will be compared against other competitive shoes on the market or planned to be on the market.

Tyler will go step by step as to how these smart shoes were defined and how the prototypes were actually built and tested. This is a must see presentation. Register today!

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East Area



IEEE Philadelphia Section has the following upcoming events:

- 10/18: Making Decisions with an Incomplete Information Set
- 10/25: Lunch & Learn: IEEE Smart Village
- 10/25: Senior Membership Workshop
- 11/17: 2022 Awards Banquet

The East Area covers the following IEEE R2 Sections

- Philadelphia
- Southern New Jersey
- Lehigh Valley
- Delaware Bay

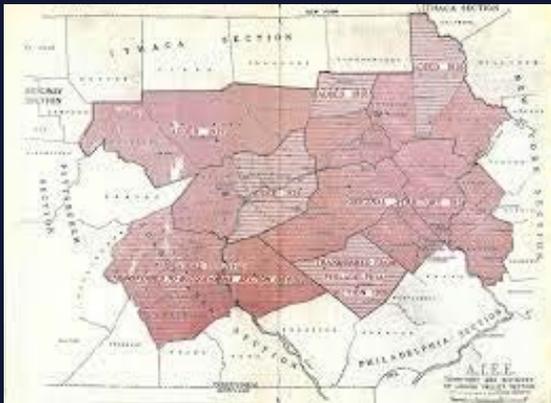


Chair : Joseph Burns

2023 IEEE GLOBAL HUMANITARIAN TECHNOLOGY CONFERENCE (GHTC)

12 - 15 OCTOBER 2023
RADNOR, PENNSYLVANIA,
USA

EVENT FORMAT: IN-PERSON



IEEE Lehigh Valley Section has the following events for you to attend and engage in:

- 10/13: Emotional Intelligence & The Workspace
- 11/07: Lehigh Valley WIE Planning Meeting



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South Area

The South Area covers the following IEEE R2 Sections

- Baltimore
- Northern Virginia
- Washington D.C.

Area Chair: Don Herres



Baltimore

IEEE Baltimore Section has the following events for you to attend and engage in:

- 10/20: How Bitcoin Mining can solve energy problems
- 10/24: Big Health Data with Wearables: Sensing, Processing and Outcomes
- 10/27: Sustainable Computing - IEEE Society on Social Implications of Technology Chapter Meeting
- 11/07: 2022 5th IEEE 5G Workshop on First Responder and Tactical Networks
- 11/28-12/2: IEEE Military Communications Conference (MILCOM)

NOVA

IEEE Northern VA Section has the following events for you to attend and engage in:

- 10/20: New Rules Defining "Consultants" Could Affect Technology Contractors Nationwide
- 10/27: Sustainable Computing - IEEE Society on Social Implications of Technology Chapter Meeting

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NOVA

Additional **NOVA Section** events include:

- 10/20-21: IEEE Cloud Summit
- 11/17-19: IEEE/ACM Conference on Connected Health: Applications, Systems, and Engineering Technologies

Latest **IEEE Northern VA Section Newsletter** [here](#).

Washington DC

IEEE Washington DC Section has the following events for you to attend and engage in:

- 10/12-14: IEEE 16th Intl Conference on Application of Information and Communications Technologies (AICT)
- 10/27: Sustainable Computing - IEEE Society on Social Implications of Technology Chapter Meeting
- 1/15-20/2023: IEEE Power & Energy Society Innovative Smart Grid Technologies Conference (ISGT)



West Area

The West Area covers the following IEEE R2 Sections

- Akron
- Cincinnati
- Cleveland
- Columbus
- Dayton
- Lima
- Youngstown



Area Chair: Chang Liu

IEEE Cincinnati Section has the following events for you to attend and engage in:

- 10/27: October 2022 Section Meeting - EMI Diagnostics – A Tool for Measuring Capacitor Health

The Cincinnati Section of the IEEE has awarded **three scholarships** (\$1,000) for the Fall Semester 2022 to the following students:

- Dana Elizabeth Clark from Miami University
- Katy G. Hildebrant from the University of Cincinnati
- Nathan Z Rolfes from the University of Cincinnati

Scholarships are open to IEEE student members from the University of Cincinnati, Northern Kentucky University, and Miami University. Announcement of 2023 application period and applications/eligibility criteria will be released in the Spring 2023.

IEEE Cleveland Section has the following events for you to attend and engage in:

- 04/23-25/2023: IEEE Rural Electric Power Conference (REPC)



IEEE Columbus Section has the following events for you to attend and engage in:

- 10/11: Burn-in-testing (BIT) in electronic manufacturing: to BIT or not to BIT?
- 10/13: IEEE-Columbus WIE, YP, and PES Networking-IEEE Day Celebration
- 10/26: Senior Member Info Night



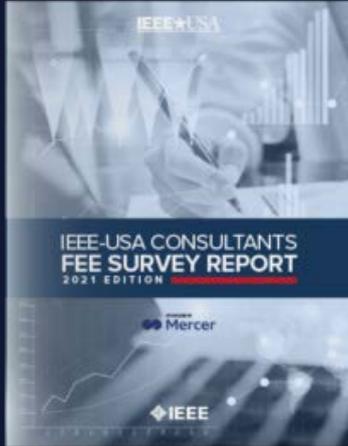
IEEE Lima Section has the following events for you to attend and engage in:

- 10/26: Designing Electronics for DoD, Challenges and Lessons Learned by Bill Hoyt

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JOIN AN AFFINITY GROUP

JOIN A COMMUNITY



Collaborate, Engage, and Follow Us in 2022



SUPPORT OUR STUDENTS & ENTREPRENEURS

ATTEND AN R2 EVENT



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