Pittsburgh Section

Bulletin

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Contents

Editor: Philip Cox, p.e.cox@ieee.org; Contributors: James Beck, Tom Dionise, Balaji Palanisamy, Jenna Price, Vishal Rastogi, Sarika Solanki and Kal Sen,

All announcements for publication in a particular month's bulletin are due to the Editor by the 20th of the previous month. The accuracy of the published material is not guaranteed. If there is any error, please bring it to the Editor's attention. The Section's web site, webinabox Pittsburgh., has recent issues of the bulletin and lots of other useful information.

- ***Chair's Corner***

Welcome to the February edition of the Pittsburgh Bulletin!

This month includes Engineers Week from Sunday, Feb. 16 to Saturday, Feb. 22. This tradition was started by the National Society of Professional Engineers (NSPE) in 1951 and this year's theme is "Welcome to the Future, focusing on today's achievements and paving the way for a brighter and more diverse future". The goal of this week is to increase interest in engineering and technology careers and to show appreciation to those who are working in these careers. Please celebrate and make our profession known! Whatever activities you are involved in, post them on social media using the hashtag #NationalEngineersWeek. You can also use this as an opportunity to engage students through Discover Engineering:
https://discovere.org/engage/engineers-week/

Engineers Week engages us all, including students - the future of the profession. As such, we are looking for a new Student Activities Chair. The Student Activities Committee and its committee chair acts as a liaison between the students and the section, working hand-in-hand with the student representative. Part of their work includes organizing student-focused events and representing the Pittsburgh Section for local universities. Some previous activities this committee sponsored was a joint University of Pittsburgh and Carnegie Mellon University Ice Skating get-together and various picnics between student IEEE members. We currently do not have a Chair for the Student Activities Committee and are actively searching for one. If you are interested, please reach out to me at jprice@ieee.org.

In addition to the call for a Student Activities Committee Chair, if you don't want to take on a chairship but still want to volunteer your time and are willing to present any technical seminars that you feel would be of interest to your fellow members, please reach out to me and I will put you in touch with a society chair who would be happy to host you. With hybrid and remote meeting possibilities, we have more opportunities than ever for meeting platforms.

Jenna Price
2025 Pittsburgh Chair

Section
Chair - Jenna Price, jprice@ieee.org

Vice Chair - Greg Price, gprice@ieee.org

Treasurer – Alexis Gorgacz, agorgacz@ieee.org

Asst. Treasurer – open

Secretary – Dr. Jianan (Leo) Jian, jij129@pitt.edu

Immediate Past Chair – Steve Mozelewski, Steve.Mozelewski@gmail.com

Special Events Chair – Dr. Kal Sen, senkk@ieee.org; Mey Sen, senml@ieee.org

Webmaster – Gerry Kumnik, g.kumnik@computer.org

UpperMon Subsection: Chair: Dr. Gianfranco Doretto, Gianfranco.Doretto@mail.wvu.edu

Chapters

Communications Society – Chair: Dr. Balaji Palanisamy, bpalan@pitt.edu; Vice Chair: Abdulrahman Alhaidari, ABA70@pitt.edu; Sec: Phil Cox

Computer Society – Chair: Vishal Rastogi, vishal.ras@gmail.com; Vice Chair: Ahmad P. Tafti, tafti.ahmad@pitt.edu

Education Society- Chair: Ahmed H Dallal, ahd12@pitt.edu

Electronics Packaging/Electron Devices Societies – Chair: John Mazurowski jsm23@arl.psu.edu

Engineering In Medicine & Biology Society
Chair: Steve Mozelewski, Steve.Mozelewski@gmail.com

Electromagnetic Compatibility Society - Chair: Mike Oliver

Magnetics Society – Chair: Dr. Simran Singh - simranjs@andrew.cmu.edu

Nanotechnology Society - Chair: Andrew Cochran, acochran@andrew.cmu.edu,

Power Electronics Society – Chair: Patrick Lewis, ptl7@ieee.org

Power & Energy & Industry Applications Societies
Chair: Martin London, mlondon@alumni.scu.edu; Vice Chair: Joe Kalasky, j.kalasky@ieee.org

Robotics Society – Chair: Ralph Sprang, rsprang@ieee.org

Signal Processing & Control Systems Societies – Chair: Danson Garcia P.E., dansongarcia@ieee.org; Vice Chair: Jesse Mahn, **jesse.mahn@outlook.com**

Society on Social Implications of Technology
Chair: open; Vice Chair: Joe Kalasky, P.E., j.kalasky@ieee.org
724-244-1609

Council of Electronic Design Automation Chair: Baris Taskin, taskin@coe.drexel.edu

Affinity Groups

Young Professionals (formerly GOLD) – Chair: Jesse Mahn, jesse.mahn@outlook.com

Women In Engineering – Chair: Alexis Gorgacz, agorgacz@ieee.org

Life Members: Joe Kalasky, P.E., j.kalasky@ieee.org

Committees

Consultant network: George Crawford, gwc2gwc2@gmail.com

Professional/Career Activities (PACE)
Chair: Joe Cioletti, P.E. jcioletti@ieee.org

Student Activities – Chair: Connor Watson, connor.watson@pitt.edu

Membership Development – Vishal Rastogi, vishal.ras@gmail.com

Publicity – Chair: Thomas Dionise, P.E.
ThomasJDionise@eaton.com

- ***Realizing Artificial Intelligence: Edge-to-Cloud-to-Exascale***

Date: Thursday, Feb. 6th 2025
Time: 8:00PM EST
Place: Virtual, register at: https://events.vtools.ieee.org/m/462458
Co-sponsors: Pittsburgh Chapter Communications Society and others

Abstract: Foundational models with trillions of parameters are being trained. Multi-modal GenAI and Inference Serving services are being deployed for a variety of use cases. To meet the computational demands of these AI workloads, we now have infrastructure with larger than ever GPUs and networks with ever increasing bandwidths. In this presentation, I will talk about challenges of running today's AI workloads on extreme scale infrastructure. Hewlett Packard Labs is pursuing different research directions for building resilient, scalable and sustainable AI infrastructures. I will discuss how we are tackling the complexities of orchestrating AI/ML workloads by leveraging AI Workload simulations, GPU virtualization, performant communication collectives and novel accelerators.

Speaker: Puneet Sharma is Director of Networking and Distributed Systems Lab at Hewlett Packard Labs where he leads research on Edge2Cloud Infrastructure for Multi-Cloud, Resource Orchestration, 5G, AI , Security and IoT. Prior to joining HP Labs, he received a Ph.D. in Computer Science from the University of Southern California and a B.Tech. in Computer Science & Engineering from the Indian Institute of Technology, Delhi.

Puneet has delivered Keynotes at various forums such as IEEE GHTC'22, IEEE 5G Startup Summit, NFV World Congress 2016 and IEEE LANMAN 2014. Puneet has also contributed to various Internet standardization efforts such as co-authoring UPnP's QoS Working Group's QoSv3 standard and the IETF RFCs on the multicast routing protocol PIM. He has published over 100 research articles in various prestigious networking conferences and journals (Transactions on Networking, ACM SIGCOMM, ACM HotNets, USENIX NSDI, IEEE INFOCOM, etc.). His work on Mobile Collaborative Communities was featured in the New Scientist Magazine. He has been granted 70+ US patents. Puneet was named Fellow of IEEE in 2014 for contributions to the design of scalable networking, software defined networks and energy efficiency in data centers. He was also recognized as a Distinguished Member of ACM for contributions to computing research. Puneet was listed twice in (for years 2021 and 2020) AI 2000 Most Influential Scholars list for last decade (2009-2020).

- ***Building a Secure 6G: What We Can Learn from 5G Vulnerabilities***

Speaker: Dr. Matthew Valenti
Professor, West Virginia University
Fellow, IEEE
Date: Monday, February 10, 2025
Time: 5:00 PM – 6:00 PM (EST)
Place: ESB 207
WVU Evansdale Campus, Morgantown, WV

Abstract: The security requirements of 6G mobile networks are expected to be significantly more complex than those of 5G, driven by the proliferation of massive machine-type communications (mMTC), the stringent demands of secure ultra-reliable low-latency communication (sURLLC), and the frequent handovers necessitated by small cells and non-terrestrial networks (NTN). However, because 6G is anticipated to be an extension of 5G, it is important to learn from vulnerabilities in 5G to inform how security should be integrated into 6G networks. This talk begins with a review of 5G security procedures, focusing on how security contexts are initiated and handed off, as these are particularly vulnerable operations. Several known exploits are reviewed, and possible solutions considered. Many of the vulnerabilities manifest themselves during the initial stages of establishing a connection, including cell and network acquisition, registration, and authentication and key agreement. As 6G is only now beginning to be standardized, it is our hope that some of these recommendations are incorporated into the final standard.

Biography: Matthew Valenti is a Professor in the Lane Department of Computer Science and Electrical Engineering at West Virginia University. Dr. Valenti's research and teaching interests are in the application areas of wireless networking, biometric identification, and cybersecurity. He received B.S. and Ph.D. degrees from Virginia Tech and an M.S. from the Johns Hopkins University. He previously worked as an Electronics Engineer at the U.S. Naval Research Laboratory. Dr. Valenti serves as Director of the Center for Identification Technology Research (CITeR) at WVU, which is an NSF-funded Industry/University Cooperative Research Center (I/UCRC). Dr. Valenti also serves as the main point-of-contact (PoC) for the National Center of Academic Excellence in Cybersecurity (NCAE-C) designation bestowed upon WVU by the National Security Agency (NSA). He has served as the Technical Program Chair for the 2017 *IEEE Military Communications Conference* (MILCOM) and the 2024 *IEEE International Conference on Communications* (ICC). He is recipient of the 2019 MILCOM Award for Sustained Technical Achievement in recognition to his career contributions to secure military communications. Dr. Valenti is registered as a Professional Engineer (P.E.) in the state of West Virginia and is a Fellow of the IEEE through the Communications Society.

- ***Prudentia: Findings of an Internet Fairness Watchdog***

Speaker: Adithya Abraham Philip
Date: Feb 12th, 2025
Time: 6:30 pm – 8:00 pm (Meet and Greet with light dinner/refreshments at 6:30 pm)
Venue: 3rd floor theater space (Room 316), 135 N. Bellefield, Pittsburgh PA 15260
Sponsor: Communications Society
Registration: https://events.vtools.ieee.org/m/463025

Abstract: Almost all traffic on the Internet today is sent by Congestion Control Algorithms, which aim to maximize utilization of available bandwidth on an Internet link while simultaneously sharing this bandwidth equally with competing traffic. With the rise of heterogeneous congestion control algorithms and increasingly complex application control loops (e.g. adaptive bitrate algorithms found in video streaming), the Internet community has expressed growing concern that network bandwidth allocations are unfairly skewed, and that some Internet services are 'winners' at the expense of 'losing' services when competing over shared bottleneck links. In this paper, we provide the first study of fairness between live, end-to-end services with distinct workloads. Put simply, if you and your roommate are watching Netflix and YouTube on a bandwidth-constrained Internet link, would you end up streaming your video at the lowest resolution while your roommate enjoys a high quality 4K stream, or would the outcome be fairer? Among our findings, we observe that services typically achieve less-than-fair outcomes: on average, the 'losing' service achieves only 72% of its max-min fair share of link bandwidth. We also find that some services are significantly more contentious than others: for example, one popular file distribution service causes competing applications to obtain as low as 16% of their max-min fair share of bandwidth when competing in a moderately-constrained setting.

Bio: Adithya Abraham Philip is a sixth-year CSD Ph.D. student at Carnegie Mellon University, advised by Prof. Justine Sherry. His research interests lie in computer networking, with a focus on Congestion Control Algorithms (CCAs) and their increasingly complex interactions. His current research investigates the fairness properties of CCAs in various settings and deployments, so we can make informed decisions on what CCAs we should be using and where. In his spare time, he dabbles in archery and fixes holes in his drywall, events which he promises are completely unrelated.

- ***Revolutionizing Problem-Solving with AI Agentic Architecture***

Presenter: Vishal Rastogi
Date: 20th Feb 2025
Time: 6:00 pm to 6:45 pm
Place: Virtual
Registration: Link: https://events.vtools.ieee.org/m/462863
Sponsor: Computer Society

Abstract: Artificial Intelligence (AI) Agents and agentic architectures represent a paradigm shift in autonomous systems. These intelligent entities dynamically perceive, reason, and act to achieve goals, leveraging advanced machine learning and natural language processing. AI agentic architecture enhances collaboration between agents, enabling seamless orchestration of complex tasks across distributed systems. By integrating reinforcement learning, multi-agent environments, and self-evolving capabilities, this approach solves intricate challenges in real-time. Whether optimizing business workflows, enhancing customer experiences, or enabling breakthroughs in robotics, AI agents redefine efficiency and innovation.

Biography: With over 20 years of industry experience, Vishal Rastogi is a visionary AI Architect and a key member of Accenture's Center for Advanced AI group. Specializing in Generative AI, Vishal develops transformative, data-driven solutions for large energy clients, driving operational efficiency, risk reduction, and customer satisfaction.

• IEEE Robot Car Race 2025 – Call for Volunteers

IEEE will host the annual Robot Car Race called the IndEEE 500cm at Eaton Power System Experience Center on Saturday, February 22, 2025, in conjunction with Engineer's Week. Ten to twelve teams of 8th graders from local schools will build a robot car using Lego NXT kits and program it to negotiate a 500cm track with some challenges along the way. The Saturday program starts at noon and is over by 5 PM. Volunteers arrive around 10:00 AM to setup. We will hold workshops in February for volunteers to prepare for the race. If working with children, sharing your profession and explaining electrical concepts capture your interest, then consider volunteering for the IEEE Robot Car Race.

To volunteer to help with the Robot Car Race, just email tom.dionise@ieee.org, and you will be given more details and included in future mailings.

• Pittsburgh Regional Science and Engineering Fair 2025 – Call for Judges

Once again, volunteers are needed to represent the IEEE Pittsburgh Section as Judges for our four Sponsor Awards at the 2025 Pittsburgh Regional Science and Engineering Fair (PSREF).

The 86th Annual Pittsburgh Regional Science & Engineering Fair (PRSEF), the third oldest science fair under the affiliation of the Society for Science, will be held April 1-2, 2025 at Carnegie Science Center. The IEEE Pittsburgh Section will again underwrite sponsor awards and members like you are needed to judge projects in the Junior, Intermediate and Senior levels. The goal of the PSREF coincides with one of the missions of the IEEE, that is to foster an interest in the engineering profession.

To volunteer to be an IEEE judge for PRSEF, just email tom.dionise@ieee.org, and you will be given information on registration and included in future mailings.

• 2025 IEEE Technical Symposium in Western Pennsylvania

Dear IEEE members,

We are hosting an IEEE Technical Symposium on April 5, 2025. The tentative format for the symposium is shown below. All times are in eastern time zone.

8:00 am: Registration & breakfast
9:00 am – 12:00 noon: Technical sessions with presentations
12: 00 – 1:00 pm: Lunch
1:00 pm – 4:50 pm: Technical sessions with presentations
4:50 – 5:00: Concluding remarks

We are looking for around 12 speakers who would like to talk about an engineering topic for 25 minutes each. Interested IEEE members are requested to submit a 150-word Abstract of their presentations and a 150-word Speaker's Biography in the following format to Dr. Balaji Palanisamy (bpalan@pitt.edu) and Mr. Abdulrahman Alhaidari <ABA70@pitt.edu>by February 16th.

Speaker's Name:
Title:
Organization:
Abstract: (150 words)
Speaker's Biography: (150 words)

You will be notified by February 20th if you are selected to be one of the speakers. Here are the details of this hybrid event:

Place: 3rd Floor Theater space, Information Science Building, 135 N Bellefield Ave, Pittsburgh, PA 15260
Remote option: through Zoom.

The RSVP link for the meeting will be announced in the March bulletin.

- ***IEEE Pittsburgh Section Outing to The National Museum of the US Air Force at Wright-Patterson AFB near Dayton, Ohio***

Date: Saturday, May 31, 2025
Time: 6:00 AM: Departure, Panera Bread, Miracle Mile,
4172 William Penn Hwy, Monroeville, PA 15146.
10:00 PM: Return
Cost: $40 per person
RSVP: **Required at https://events.vtools.ieee.org/m/456469. These seats are available on a first-come-first-serve basis. If interested, please send an email to senkk@ieee.org and send your check in the amount of $40 per person, payable to "IEEE Pittsburgh Section" to the following address: Mey Sen, 126 Pauline Drive, Monroeville, PA 15146.**

Organizers: IEEE Pittsburgh Section

We are organizing an outing to *The National Museum of the US Air Force* at Wright-Patterson AFB near Dayton, Ohio**.** The event is open to the IEEE Pittsburgh Section's members and their guests and limited to the capacity (34 people) of the bus on a first-come-first-serve basis. The event is highly subsidized by the Section. If interested, please register at the vtools weblink above.

The museum, which is free to the public, is the world's largest military aviation museum. Here are just a few of the items on view: X-15 rocket plane, U2 and SR-71 spy planes, B-52 B-29 B17 and XB-70 bombers, F-22 F-111 P-51 fighters, Apollo Capsule, Soyuz capsule, as well as the Second Wright Flyer, and ICBMs, cruise missiles, strange prototypes and all of the Presidential Air Force Ones (except Reagan's) etc. All exhibits are located indoors. The museum features more than 350 aerospace vehicles and missiles and thousands of artifacts amid more than 19 acres of indoor exhibit space. The museum opened to the public on May 16, 1923 in Dayton Ohio and has now evolved to its fourth location which includes four buildings, a Missile Gallery, an Air Park and a Memorial Park. For further information, you may click on the following weblink at: https://www.nationalmuseum.af.mil.

- ***Seeking Nominations for The Outstanding Volunteer of The Year Award***

Dear members at large, we are seeking nominations for the 2025 IEEE Pittsburgh Section Outstanding Volunteer of the year award. This award seeks to honor an IEEE member or members who have demonstrated exemplary levels of dedication and service to IEEE in general and the Pittsburgh Section in particular over the 2024 calendar year. In order to qualify, the recipient must be an active IEEE member or student member volunteer that has contributed to IEEE in a demonstrable way. To nominate someone, please submit their name, IEEE number and a brief summary (250 words or less) highlighting their service and contributions in 2024. Nominations may be submitted via email to: jebeck@ieee.org. The cut-off date for nominations is March 31st, 2025. All nominations will be reviewed by the awards committee, and the recipient will be honored at the 2025 IEEE Pittsburgh Section's annual history and awards dinner which will be held next Spring (details to follow).

2025 Calendar – Meetings of IEEE Pittsburgh Section

	Jan	Feb	Mar	Apr	May	June	July	August	Sept	Oct	Nov	Dec
Executive Committee (AdCom)	Virtual	Virtual	Virtual	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Section		22 Robot Car Race		1 Science Fair	16-Awards dinner; 31-Museum		20 Picnic	22 Baseball				
Communi-cations		6 Realizing AI 12 Prudentia		5 Symposium								
Computer		20 AI Agentic										
EMBS												
EMCS												
Power Electronics												
PES/IAS												
Magnetics												
Nanotech-nology												
Robotics												
SPS/CSS												
EPS/ED												
Education												
Social Impl Technology												
Upper Mon		10 Secure 6G										
Women in Eng'ing												
Young Pros												
Life Mem-bers												
PACE												
Student Act												

* This meeting was not published in the Pittsburgh Bulletin