IEEE Scanner

October 2024 Newsletter of Baltimore, Northern Virginia & Washington Sections

Editor: Murty S. Polavarapu

As we step into October, the air is crisp, and the vibrant colors of fall are beginning to emerge. Here are the news and events for IEEE in the local area.

Today in Technology History: We will move forward a couple of days here. It was on October 4, 1957 that the USSR launched Sputnik 1, the first artificial satellite to orbit the Earth. It was a polished metal sphere of about 23 inches diameter with four external antennas to broadcast radio pulses.

IEEE Day is an annual event commemorating the first technical meeting of American Institute of Electrical Engineers (AIEE) that took place on October 7-8, 1884 in connection with the International Electrical Exhibition in Philadelphia. It is celebrated on the first Tuesday of October every year. Northern Virginia Section is pleased to organize an event in this connection featuring Dr. Mary Ann Hellrigel from IEEE History Center. She will be speaking about Thomas Edison, one of the co-founders of AIEE. Please see the announcement below for the event on October 3.

IEEE Elections: The voting in the IEEE Annual Election ended at 12 PM on October 1. Results are expected to be announced on October 7 and will be published on ieee.org/elections.

Senior Member Elevations: We are still awaiting the release of the results of the September Senior Member Elevation Review Panel.

Check out the event on October 12 for a Practical Introduction to a DIY Internet-of-Things System! This is a Continuing Education event from the Computer Society Chapter.

The Power and Energy Society Chapter is hosting a talk on October 14 on nuclear power with focus on Small Modular Reactors.

The Baltimore Section is organizing its inaugural Technical Colloquium and Professional Development Conference on November 2.

Date/Time	Title	Speaker(s)	Location
Oct 03, 2024 06:00 PM	Thomas Edison's Plan to Illuminate America in the Late Nineteenth Century	Dr Mary Ann Hellrigel	Oakton, VA
Oct 05, 2024 11:00 AM	IEEE Baltimore Section Annual Picnic		Jessup, MD

Oct 08, 2024 06:00 PM	IEEE NOVA Section ExCom October Meeting		Arlington, VA
Oct 12, 2024 08:30 AM	Connect, Compute and Communicate! A Practical Introduction to a DIY Internet-of-Things System	Dr. Kartik Bulusu	Falls Church, VA
Oct 14, 2024 06:00 PM	Nuclear Power – Reliable, Clean and Affordable	Dr. Haghighat	Arlington, VA
Oct 18, 2024 11:00 AM	More is different: Complex Systems and AI inspiring Future Autonomous Networks and Industry 5.0		Arlington, VA
Oct 18, 2024 12:00 PM	AI and Digital Transformation: Industry Driven Partnerships	Dr Adel Elmaghraby	Virtual
Oct 19, 2024 03:30 PM	Sat 10/19/2024 @3:30 PM DLP "AI, Game Theoretical and Quantum Aspects of Future Networks"	Dr. Nicola Marchetti	Rockville, MD
Oct 21, 2024 06:30 PM	Baltimore Section Executive Committee (ExCom) Meeting, 21 October, 2024		Virtual
Nov 02, 2024 08:00 AM	First IEEE Baltimore Technical Colloquium & Professional Development Conference		Baltimore, MD
Nov 18, 2024 06:30 PM	Baltimore Section Executive Committee (ExCom) Meeting, 18 November, 2024		Virtual

Date: October 3, 2024 (Thursday)

Topic: Thomas Edison's Plan to Illuminate America in the Late Nineteenth Century

Speaker: Dr Mary Ann Hellrigel

Time: 6:00 PM

Place: Oakton Library, 10304 Lynnhaven Pl, Oakton, VA (Meeting Room)

Registration: https://events.vtools.ieee.org/m/432101

Abstract: In October 1880, Thomas A. Edison published "The Success of the Electric Light," in *The North American Review*," to explain that the adoption of his electric light for domestic use has been delayed "due to the enormous mass of details which have to be mastered before the system can go into operation on a large scale, and on a commercial basis as a rival of the existing system of lighting by gas." The "enormous mass of details" would include further research and development to improve the lamp, founding companies to manufacture components, and personally funding and supervising a company to build power plants. This talk will focus on the Thomas A.

Edison Central Station Construction Department, a little-known entity founded by Edison himself in May 1883, to construct direct-current electric power stations in towns and cities throughout the United States. It built thirteen central stations in Massachusetts, New York, Ohio, and Pennsylvania before being absorbed by the Edison Company for Isolated Lighting in October 1884, coincidently, around the time IEEE was founded. While Edison stepped away from the day-to-day central station business, he continued research in direct current and later alternating current technology. And by the late 1880s, he found himself dragged into a media war with George Westinghouse in what has become the mythical "battle of the currents." In 1887, Edison opened a new and expanded research laboratory in West Orange, New Jersey and by 1890 his research and business interests moved on to the improved phonograph, the talking doll, motion pictures, ore milling, and other technologies.

Speaker Bio: Since January 2016, Mary Ann Hellrigel, Ph.D. is the Institutional Historian, Archivist as well as the manager of the oral history program at the IEEE History Center. She is the recipient of numerous fellowships and grants, including the 1993 IEEE Life Member History Fellowship. Mary Ann has a bachelor's degree in history and biology from Rutgers University (1983); a master's degree in public history from the University of California, Santa Barbara (1989); and a Ph.D. in the history of technology and science from Case Western Reserve University. She served as an editor and research faculty the Thomas A. Edison Papers Project at Rutgers University, and for more than 30 years, she taught history; history of technology, engineering, and science; women's history; American Studies; and geography at universities in the USA, including Stevens Institute of Technology; California State University, Chico; New Jersey Institute of Technology; Iowa State University; and The State University of New York, College at Geneseo. Mary Ann has widely published and presented papers on Edison and early electric power and has consulted on related exhibits and documentaries.

Presented by: Northern Virginia Section

Date: October 5, 2024 (Saturday)

Topic: IEEE Baltimore Section Annual Picnic

Time: 11:00 AM

Place: Guilford Park Pavilion, Guilford Park, 9900 Guilford Rd, Jessup, MD

Registration: https://events.vtools.ieee.org/m/433287

Abstract: Baltimore Section members, come join us with your families at Guilford Park Pavilion in Jessup, Maryland, for our annual picnic as we eat, socialize, and celebrate IEEE day (IEEE day actual observance is Oct 1). There will be burgers, hot dogs, and

other treats. Look for the eNotice in your email shortly. Food will be served starting about 11:00 a.m. and continue until about 2:30 p.m. You are welcome to stay afterward since we have the pavilion until 8:00 p.m.

The event is free to members and their families but registration is needed so that we know how much food to bring.

Presented by: Baltimore Section

Date: October 8, 2024 (Tuesday)

Topic: IEEE NOVA Section ExCom October Meeting

Time: 6:00 PM

Place: Lubber Run Community Center, 300 N. Park PL, Arlington, VA (Hickory Room)

Registration: https://events.vtools.ieee.org/m/436167

Abstract: This is the monthly meeting of the IEEE Northern Virginia Section Executive Committee. Open to all Section members.

Presented by: Northern Virginia Section

Date: October 12, 2024 (Saturday)

Topic: Connect, Compute and Communicate! A Practical Introduction to a DIY Internet-of-Things System

Speaker: Dr. Kartik Bulusu

Time: 8:30 AM

Place: Thomas Jefferson Library, 7415 Arlington Boulevard, Falls Church, VA (Meeting Room 1)

Registration: https://events.vtools.ieee.org/m/437187

Abstract: The Internet of Things (IoT) is perceived as a collection of smart, connected devices with the ability to send and receive data; "internet" encapsulates connectivity and "things" are devices (electronic or mechanical) that can be adapted toward connectivity. There is an alternative perception of IoT, as a design methodology that

facilitates interoperability and connectivity of physical systems. Edge computing is a strategy for localized analysis of data, ahead in the pipeline of powerful data center- or cloud-based post-processing.

This workshop provides an introductory-level exposure of the IoT framework and expands it with edge computing ideology via practical and hands-on exposure. The attendees will be exposed to the IoT framework using sensors, IoT automation and connectivity in a "microLab" environment that includes the Raspberry Pi (single-board computer) and Python programming language.
The attendees will be expected to bring their own laptops with the following requirements:

· Personal machines or laptops (only) with:

o Mac OS 12+ or Windows 10+ operating system

o One USB A or USB C port that is available for use during the workshop

o WiFi connectivity

o A free version of RealVNC® Viewer software downloaded and installed; *instructions will be provided to the registrants.*

o Chrome web browser downloaded and installed

The attendees will be expected to work in small groups using a limited number of hardware components and WiFi connectivity that will be provided. The workshop will facilitate learning about how IoT with edge computing capability is going to be the backbone of the industry4.0.
Learning objectives:

1. Gain basic, hands-on knowledge of Raspberry Pi hardware with Python programming language

2. Gain exposure to IoT automation platforms such as ThingSpeak

4. Implement one Raspberry Pi-based IoT system

5. Gain insight on edge computing strategies with the Raspberry Pi

Speaker Bio: Dr. Kartik V. Bulusu is an Associate Research Professor in the Department of Mechanical and Aerospace Engineering at The George Washington University, Washington DC. He designed taught a cross- disciplinary course titled, Internet of Things (IoT) and Edge Computing with applications in cyber-physical systems and speech processing.In addition, he developed courses for first year engineering students on the engineering applications of Raspberry Pi, Python

programming and mobile App development inspired by social innovation potential during the COVID- 19 pandemic. His research interests span the areas of human health and sustainable energy with focus on mechanics of biological fluids, low-cost energy technologies and applications of wavelet transforms.His current research work on biofluid dynamics of the cardiovasculature, rheology of biological fluids and applications of wavelet transforms has been supported by NSF and the Center forBiomimetics and Bioinspired Engineering (CBBE), GWU. He developed a wavelet transform-based computational code (PIVlet) for the analysis of complex vortical patterns encountered in arterial blood flow.He has extensive knowledge of experimental fluid mechanics and non-invasive measurement techniques such as laser Doppler velocimetry (LDV), particle image velocimetry (PIV), schlieren imagery, magnetic resonance velocimetry (MRV) and molecular tagging velocimetry (MTV). Dr. Bulusu was recognized with the ASME Best Paper Award by the Advanced Energy Systems Division (AESD) Heat Pump Technical Committee and William and Louise Corcoron Award for contributing to the intellectual and social life of the School of Engineering and Applied Science, GWU.

Presented by: Computer Society Chapter

Date: October 14, 2024 (Monday)

Topic: Nuclear Power – Reliable, Clean and Affordable

Speaker: Dr. Haghighat

Time: 6:00 PM

Place: Central Library - Arlington Public Library, 1015 North Quincy St., Arlington, VA (Bluemont Room)

Registration: https://events.vtools.ieee.org/m/435735

Abstract: The joint Northern Virginia/Washington PES Chapter is pleased to host Professor Alireza Haghghat, Robert E. Hord, Jr. Endowed Professor and Director of the Nuclear Engineering Program at Virginia Tech as guest speaker. He will be presenting on the topic of nuclear power with special focus on small modular reactors (SMRs) and Micro-reactors, which are being positioned as viable, clean energy alternatives to fossil fuel plants offering flexible solutions for micrograms and base load power for the near future.

Speaker Bio: Dr. Haghighat is the Robert E. Hord, Jr. Endowed Professor and Director of the Nuclear Engineering Program at Virginia Tech, housed within the Department of Mechanical Engineering. From 2001 to 2009, Dr. Haghighat was the Chair of the Nuclear & Radiological Engineering (NRE) Department at the University of Florida (UF), and from 2008 to 2010, he directed the UF Training Reactor (UFTR). Prior to his tenure

at UF, he was a faculty member in the Nuclear Engineering Department at Pennsylvania State University for 15 years.A fellow of the American Nuclear Society (ANS), Dr. Haghighat leads the Virginia Tech Theory Transport Group (VT3G). Over his 36-year career, he has pioneered new particle transport methodologies nd developed advanced computer codes for nuclear system modeling and simulation. His work has applications in nuclear reactors, security and safeguards systems, and medical devices. Dr. Haghighat has been instrumental in creating several advanced software tools, including PENTRAN, A3MCNP, TITAN, INSPCT-s, AIMS, TITAN-IR, and RAPID, the latter of which features a virtual reality system (VRS) web application.Dr. Haghighat has authored over 280 publications and received multiple best paper awards. His contributions are recognized both nationally and internationally, through invited workshops, seminars, and presentations. He is the author of Monte Carlo Methods for Particle Transport (CRC Press Taylor & Francis Group), published in two editions, in December 2014 and July 2020.Among his numerous honors, Dr. Haghighat received the 2023 Gerard C. Pomraning Memorial Award for his groundbreaking work in particle transport methods, the 2021 Dean's Award for Excellence in Service from Virginia Tech's College of Engineering, and the 2011 Radiation Protection Shielding Division's Professional Excellence Award. In 2009, he was recognized by the U.S. Office of Global Threat Reduction for his leadership in the HEU to LEU fuel conversion for the UF Training Reactor.An active leader within the ANS, Dr. Haghighat has served as Chair of both the Reactor Physics Division (2012-13) and the Mathematics and Computation Division (2005-06). He co-founded the Computational Medical Physics Working Group, chaired the committee on computational methods for pressure vessel fluence calculation, and led the Nuclear Engineering Department Heads Organization (NEDHO) as Chair (2006-07).Dr. Haghighat is the founding Chairman (2015) and current Vice-Chair of the Board of the Virginia Nuclear Energy Consortium (VNEC), a nonprofit dedicated to promoting nuclear technology, research, and education in Virginia and beyond. He also serves as the Chief Scientific Officer for the Virginia Innovative Nuclear (VIN) Hub, a newly established nonprofit focused on workforce development, public engagement, and R&D in nuclear science and engineering.

Presented by: Power Engineering Society Chapter

Date: October 18, 2024 (Friday)

Topic: More is different: Complex Systems and AI inspiring Future Autonomous Networks and Industry 5.0

Time: 11:00 AM

Place: Virginia Tech Research Center, 900 N Glebe Rd, Arlington, VA (2nd floor).

Registration: https://events.vtools.ieee.org/m/433047

Abstract:

IEEE Comsoc Distinguished Lecture
Title - More is different: Complex Systems and AI inspiring Future Autonomous Networks and Industry 5.0
Speaker: Dr. Nicola Marchetti, Assoc. Professor, Head of EE Engineering Department, Trinity College Dublin, Ireland. www.nicolamarchetti.wordpress.com
The talk will have an online webinar option, which can be accessed upon registration using the following link:
Registration link: https://virginiatech.zoom.us/webinar/register/WN_64O6cpH4Q42q6nf5Ev3f0g
Abstract - It is expected that future mobile networks will be ultra-large-scale, highly dynamic, and complex systems, encompassing a massive number of heterogeneous devices. However, the architecture of the current wireless networks is often fixed, and the optimization tasks are defined to cope with specific and identified challenges and services. Hence, the prevailing manual and predetermined optimization and configuration tasks are no longer appropriate for future networks. We are working on resolving such issues by proposing a framework inspired by theories and tools inspired by complex systems science, focusing on the impact of network topology on the system's (i) information representation and transfer, (ii) robustness, and (iii) self-synchronization capabilities. We will also look into how the IoT is creating a new structure of awareness – a cybernetic one – upon physical processes and discuss how industries of different kinds are expected to join soon this revolution, leading to the so-called Factories of the Future, also called Industry 5.0. We will then discuss different problems in this space and how to solve them resorting to tools from mmWave, AI, and semantic communications.
Bio:
Dr. Nicola Marchetti is Associate Professor in Wireless Communications at Trinity College Dublin, Republic of Ireland, where he leads the Wireless Engineering and Complexity Science lab (WhyCOM). He is an IEEE Communications Society Distinguished Lecturer, an IEEE Senior Member, and a Fellow of Trinity College Dublin. He received the PhD in Wireless Communications from Aalborg University, Denmark in 2007, the MSc in Electronic Engineering from University of Ferrara, Italy in 2003, and the MSc in Mathematics from Aalborg University in 2010. He has authored more than 190 journals and conference papers, 2 books and 9 book chapters, holds 4 patents, and received 4 best paper awards. His research interests span Complex Networks, Mathematics for Communications & Computing, Network Resource Allocation, and Signal Processing for Communications. He serves as Technical Editor for IEEE Network and IEEE Wireless Communications, and has served as an Associate Editor for the IEEE Internet of Things Journal and the EURASIP Journal on Wireless Communications and Networking.

Presented by: Communications Society Chapter

Date: October 18, 2024 (Friday)

Topic: AI and Digital Transformation: Industry Driven Partnerships

Speaker: Dr Adel Elmaghraby

Time: 12:00 PM

Place: Virtual

Registration: https://events.vtools.ieee.org/m/431172

Abstract: The continued growth in the digitization of data has created an immense wealth of information. With this data explosion, Artificial Intelligence (AI) techniques are becoming the tools of choice to transform them into knowledge and actionable investments. Digital Transformation (DT) aims to optimize business processes and deliver them digitally. This presentation will highlight some tools and techniques that are enablers for Digital Transformation and will also discuss case studies and different approaches to engage university-industry partnerships to address these growing needs.

Presentation by Dr Adel Elmaghraby - Director of Research and Innovation for the Digital Transformation Center, University of Louisville

Speaker Bio: Professor Adel S. Elmaghraby is the University of Louisville Director of Research and Innovation for the Digital Transformation Center, he is also Director of Industrial Research and Innovation and Winnia Professor of Computer Science and Engineering at the Speed School of Engineering – University of Louisville. He received both his MS and PhD degrees from the University of Wisconsin-Madison (USA) and his BS degree from Alexandria University (Egypt). He has also held appointments at the Software Engineering Institute – Carnegie-Mellon University, The American University in Cairo, and as A Fulbright Scholar at Qatar University. He advised over 60 master's graduates and 36 doctoral graduates.

Presented by: Computer Society

Date: October 19, 2024 (Saturday)

Topic: AI, Game Theoretical and Quantum Aspects of Future Networks

Speaker: Dr. Nicola Marchetti

Time: 3:30 PM

Place: Rockville Memorial Library, 21 Maryland Ave, Rockville, MD (Medium on the 2nd Floor)

Registration: https://events.vtools.ieee.org/m/435451

Abstract: The Wash DC ComSoc Chapter Executive Committee is delighted to announce that the chapter will kick off the fall season with an in person ComSoc Distinguished Lecturer Presentation (DLP) followed by dinner. As an IEEE member you are eligible to receive a complimentary entrée and nonalcoholic beverage up to thirty dollars.

Distinguished Lecturer Dr. Nicola Marchetti from Trinity College Dublin, Ireland will present DLP "AI, Game Theoretical and Quantum Aspects of Future Networks". The event is on **Saturday, October 19, 2024, commencing at 3:30 PM** and will be held in the **Rockville Memorial Library** located in the Rockville Town Square, Rockville, Maryland.

To attend, register online at https://events.vtools.ieee.org/m/435451 or email Lydia at lydia.aitoucheggou@ieee.org by **October 17, 2024**. In the subject line "RSVP 10/19/24 DLP". In your response provide your name, email address, phone number, IEEE membership ID and if you will be attending the dinner. You will receive a confirmation upon successful registration.

Presentation Topic DLP "AI, Game Theoretical and Quantum Aspects of Future Networks"

Metro Accessible: the station is Rockville, 251 Hungerford Drive, Rockville, MD 20850, it's a 10 minutes walk to the library.
Parking Library customers can get 2 hours of free parking when you park in one of the Rockville Town Square garages. https://www.montgomerycountymd.gov/Library/branches/rockville.html

Speaker Bio: Dr. Nicola Marchetti is Associate Professor in Wireless Communications at Trinity College Dublin, Ireland, where he is the Head of the EE Engineering department. He is an IEEE Communications Society Distinguished Lecturer, an IEEE Senior Member, and a Fellow of Trinity College. He received the PhD in Wireless Communications from Aalborg University, Denmark in 2007, the MSc in Electronic Engineering from University of Ferrara, Italy in 2003, and the MSc in Mathematics from Aalborg University in 2010. He has authored more than 190 journals and conference papers, 2 books and 9 book chapter, holds 4 patents, and received 4 best paper awards. His research interests span Complex Networks, Mathematics for Communications & Computing, Network Resource Allocation, and Signal Processing for Communications. He serves as Technical Editor for IEEE Network and IEEE Wireless Communications and has served as an Associate Editor for the IEEE Internet of Things Journal and the EURASIP Journal on Wireless Communications and Networking.

Presented by: Communications Society Chapter

Date: October 21, 2024 (Monday)

Topic: Baltimore Section Executive Committee (ExCom) Meeting, 21 October, 2024

Time: 6:30 PM

Place: Virtual

Registration: https://events.vtools.ieee.org/m/391989

Abstract: Monthly meeting of the IEEE Baltimore Section's executive committee. The meeting is open to all Section members.

This meeting will be by videoconference only. The meeting link will be sent to registrants.

Presented by: Baltimore Section

Date: November 2, 2024 (Saturday)

Topic: First IEEE Baltimore Technical Colloquium & Professional Development Conference

Time: 8:00 AM

Place: UMBC Interdisciplinary Life Sciences Building, University of Maryland, Baltimore County, 1000 Hilltop Cir, Baltimore, MD (116)

Registration: https://events.vtools.ieee.org/m/425435

Abstract: Enhance your knowledge of Emerging Technologies with tracks in:

Engineering in Medicine & Biology

Power & Energy, Power Electronics

Communications and Computing

Professional Development "Power Skills"

PDH/CEU credits will be available for IEEE Members.

Interested in the member rate? Join us at: https://www.ieee.org/membership/join/index.html

	Early rate by October 18	Until noon October 28 when we must order meals	Late Registration
Grad or Undergrad Student Member	$10	$20	$30

Member, Senior Member or Fellow	100	$120	$150
Life Member including Senior and Fellow Life Members	$35	$50	$75
Student Non Member	$55		
Non Member	$220		

Parking is in the UMBC Commons Drive Garage adjacent to the Interdisciplinary Life Sciences (ILS) Building hosting the conference.
Parking is free on Saturdays and handicapped accessible.

Presented by: Baltimore Section

Date: November 18, 2024 (Monday)

Topic: Baltimore Section Executive Committee (ExCom) Meeting, 18 November, 2024

Time: 6:30 PM

Place: Virtual

Registration: https://events.vtools.ieee.org/m/391990

Abstract: Monthly meeting of the IEEE Baltimore Section's executive committee. The meeting is open to all Section members.

This meeting will be by videoconference only. The meeting link will be sent to registrants.

Presented by: Baltimore Section