IEEE North Jersey Section
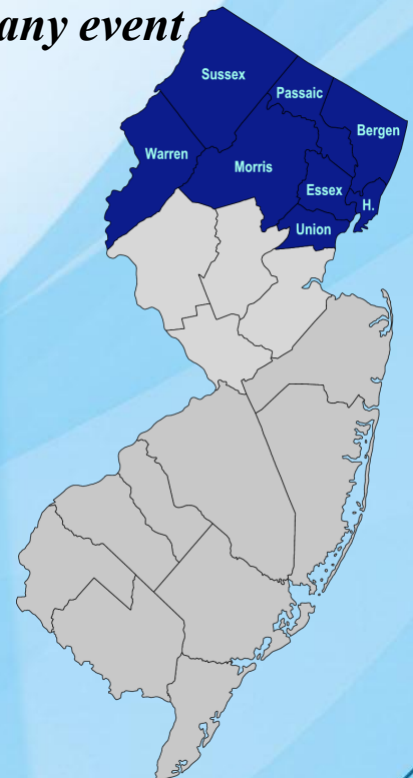
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Prior registration is highly encouraged to attend any event

IEEE North Jersey Section Website

IEEE North Jersey Section - Roster

Chair's Note - A Message from the IEEE North Jersey Section Chair, Dr. Emad Farag

October is a particularly exciting month for our section, as we came together to celebrate IEEE Day 2025 with a series of impactful events and new milestones. Among the highlights was the 39th IEEE North Jersey Annual Symposium and Mini-Show, which featured an impressive lineup of distinguished lectures in the area of wireless technologies. Notably, we welcomed the past IEEE Antennas and Propagation Society (AP-S) Chair and the incoming IEEE AP-S Chair-Elect, who shared deep insights into the future of wireless systems and emerging trends in the field. We were also honored to host exhibitors from leading tech companies, who showcased their latest innovations. Their presence underscored the dynamic intersection between academia, research, and industry, and made for an incredibly engaging and educational experience.

A particularly meaningful part of our IEEE Day celebration was the inauguration of three new IEEE AP-S Student Branch Chapters at Montclair State University, New Jersey Institute of Technology (NJIT), and Stevens Institute of Technology. This expansion is not just a testament to the growing interest in IEEE activities, but a celebration of the vibrant and passionate student communities at these institutions. It is especially fitting that we marked these new beginnings on IEEE Day — a day that commemorates the very first-time engineers from around the world came together in 1884 to collaborate, innovate, and solve global challenges. That same spirit of ingenuity and cooperation is clearly alive and thriving in the North Jersey Section today.

Our IEEE Day events also included Talks from distinguished speakers, both local and international, as well as Student poster sessions, showcasing outstanding research and projects.

None of this would have been possible without the dedication and hard work of our volunteers and organizers, and the support from the universities. Events of this scale and impact don't happen without passionate individuals working tirelessly behind the scenes.

What stood out most to me was the incredible energy and enthusiasm of the students. Their curiosity, ambition, and commitment to pushing the boundaries of knowledge were truly inspiring. It's clear that the future of our field — and the breakthroughs yet to come — lie in the hands of students like those at Montclair, NJIT, and Stevens.

As Chair, I'm deeply encouraged to see so many students taking the initiative to get involved. Their passion will be the driving force behind these chapters, and I have no doubt they will make meaningful contributions to both their local communities and the broader IEEE network.

To all students involved: This is your moment! Make the most of it. Explore new ideas. Lead with curiosity. Ask bold questions. Build connections. Organize talks, host technical workshops, attend conferences, and engage with researchers and industry leaders.

Let these chapters become vibrant spaces where innovation takes root and where the next generation of engineers and scientists find their voice.

Congratulations to everyone who made the launch of these student chapters a reality. I am excited to see the amazing things you will achieve — both on campus and on the global stage — in the

months and years ahead. Photos from these events are included in this newsletter — we hope they capture the energy and excitement of the celebrations!

Later this month, we will come together at Nokia Bell Labs to recognize 7 important IEEE Milestone achievements — contributions that have played a key role in shaping the technological landscape. This will be a meaningful occasion to reflect on the progress made over the years and to celebrate the legacy of innovation that continues to influence our engineering community. Whether you are a student, researcher, or industry professional, I encourage you to stay active, stay curious, and stay engaged. It's through our collective efforts that we grow as a section and continue to make a lasting impact.

Emad Farag

IEEE North Jersey Section Chair

Schedule for the 2025 ExCom Meetings:

Month	Meeting Date	Venue
January	Wed: 08-Jan-25	Zoom Meeting
February	Wed: 05-Feb-25	Fairleigh Dickinson University, Teaneck + Zoom
March	Wed: 05-Mar-25	NJIT, Newark + Zoom
April	Wed: 02-Apr-25	Montclair State University, Montclair + Zoom
May	Sun: 04-May-25	Awards Banquet: Hanover Manor (no Zoom)
June	Wed: 04-Jun-25	Zoom Meeting
August	Sat: 02-Aug-25	Picnic: Duke Island Park, Bridgewater (no Zoom)
September	Wed: 03-Sep-25	Fairleigh Dickinson University, Teaneck + Zoom
October	Wed: 01-Oct-25	NJIT, Newark + Zoom
November	Wed: 05-Nov-25	Nokia Bell Labs, New Providence + Zoom
December	Tue: 02-Dec-25	End of the year: Hanover Manor, East Hanover (no Zoom)

IEEE North Jersey Section's Education Committee Technology Review Series:
- ### Article for October 2025

Introduction to Artificial Neural Networks - Part 3: Deep Learning and CNN - Pytorch versus Keras

This article is a continuation of the introduction to artificial neural networks (ANN). The first two articles gave background information about NN, DL, and CNN. The theory sections covered many details related to architectures and hyperparameters. Image recognition is a unique task and that material was also demonstrated in terms of building a CNN to recognize handwritten digits. Some optimizations were done by tuning a few of the many hyperparameters available in the Keras and TensorFlow libraries.

This article expands upon earlier work and examines two new datasets. These two include the heart disease and fashion MNIST datasets. They provide examples of binary and multi-category classification tasks using DL and CNN. The former dataset is focused on predicting a binary outcome and the latter on assigning labels to clothing images. Both tasks are addressed using different NN architectures.

The main focus of examining two new datasets is to attempt to compare and contrast programming the Keras and Pytorch libraries used for DL and CNN. The Keras library built NN are similar to the last article. The Pytorch built NN are different in form and function for defining a NN and training it. The Pytorch library functionality provides similar access to hyperparameters and metrics collection. Both are shown with several example architectures and their corresponding performance metrics.

Full Article (**Contact:** Amit Patel email: a.j.patel@ieee.org)

SOME UPDATES FROM IEEE Women in Engineering

2025 IEEE WIE FORUM EAST
The IEEE Women in Engineering (WIE) Forum USA East is dedicated to fostering leadership development for professionals at every career stage. Rotating between IEEE Region 1 and Region 2 in the Northeast USA, our forum offers attendees the chance to gain inspiration and empowerment from renowned leaders. Through dynamic workshops and engaging panel discussions, participants will explore emerging technologies and innovative STEM outreach initiatives.

The 39th ANNUAL SYMPOSIUM AND MINI-SHOW

The 39th ANNUAL SYMPOSIUM AND MINI-SHOW of the IEEE NORTH JERSEY SECTION AP/MTT Societies Joint Chapter held on October 9th at the Hanover Manor was a great success!

The Technical Conference presented a series of 13 lectures describing the state-of-the-art in Digital Radio, Emerging Apps, Propagation Modeling, Digital Twins, Devices, Biomedical RF, Wireless Power Transfer, AI Digital Predistortion, The Inside History on 9/11, Phased Arrays & UAS Detection Systems.

The speakers are leaders in their respective fields, at L3Harris, Mercury Systems, IEEE, Synergy Microwave, Altair, Indian Institute of Technology, CommScope, University of Texas, MathWorks, US ARMY, San Diego State, and the United Nations.

The Mini-Show presents a group of displays and demonstrations representing the state-of-the-art in products from leading companies in these technologies.

The Exhibits include components, subsystems, test equipment, and CAD tools. Technical representatives were on-site to assist you.

Online Registration at vTools and also on-site was available, and there was no charge to attend.

IEEE Membership is not required.

Complimentary breakfast, refreshments, and lunch was provided, as always.

Below are some pictures taken at the event, that included an industry showcase and technical talks.

For more pictures of the event – Click HERE

The IEEE North Jersey Section Inaugurated new AP-S Student Branch chapters and celebrated IEEE Day events along with an "Engineering in Music" a musical program.

[Montclair State University](#): October 10th, 2025

The 2025 IEEE International Workshop on Intelligent Systems and Interdisciplinary Applications (ISIA) brought together scientists, engineers, educators, practitioners, and industry experts to explore the cutting-edge advancements in intelligent systems and their applications across multiple domains. In today's rapidly evolving technological landscape, intelligent systems —powered by antennas, wireless communication systems, artificial intelligence, robotics, machine learning, and data-driven techniques — are playing a transformative role in areas ranging from smart manufacturing, healthcare, and finance to advanced transportation, smart cities, and sustainable environments. This one-day workshop aimed to foster a collaborative platform where participants can exchange knowledge, discuss emerging challenges, and identify innovative solutions that bridge disciplinary boundaries. By integrating insights from science, engineering, and domain-specific expertise, the workshop will facilitate holistic approaches and solutions for designing, deploying, and optimizing intelligent systems for real-world interdisciplinary impact.

This workshop featured keynote welcome remarks by Montclair administrators and IEEE leaders, international invited talks, panel sessions, IEEE student poster competitions on intelligent systems-enabled humanitarian technology, networking with industry leaders, IEEE student branch activities and celebrations, and IEEE membership drives. The best student poster awards were selected, and the corresponding projects can be financially supported for further research. See: https://forms.gle/G68pnKkv5e8jV32M6.

This workshop was co-sponsored by the IEEE North Jersey Section, the IEEE North Jersey Section AP/MTT Jt. Chapter, College of Science and Mathematics at Montclair State University, Montclair AI Hub, National Science Foundation, IEEE NJS SMC Chapter, IEEE Montclair AP-S Student Branch Chapter, and IEEE Montclair Student Branch.

A few pictures and links to more pictures taken at the event are shared below.

Montclair State University: Click Here for more pics

New Jersey Institute of Technology (NJIT) – IEEE AP-S SBC Inauguration, Oct 10th, 2025

The *Workshop on Antennas, Electromagnetics, and AI-Enabled Electronic Circuits and Communication Systems for Humanitarian Applications* aimed to advance research and innovation at the convergence of electromagnetic technologies and artificial intelligence, with a focus on addressing global societal needs. The workshop covered state-of-the-art developments in antenna design, electromagnetic modeling, and intelligent electronic circuits that enable resilient, energy-efficient, and adaptive communication systems. Special emphasis was placed on AI-driven optimization techniques, reconfigurable architectures, and low-cost solutions tailored for disaster management, remote healthcare, environmental monitoring, and connectivity in underserved regions. By integrating rigorous scientific principles with real-world humanitarian challenges, this workshop provided a multidisciplinary platform to foster collaboration, inspire technological breakthroughs, and accelerate the deployment of impactful solutions for sustainable development.

This workshop featured international invited talks, panel sessions, IEEE student poster competitions on intelligent systems-enabled humanitarian technology, IEEE student branch activities, and IEEE membership drives. The best student poster awards will be selected, and the corresponding projects can be financially supported for further research by IEEE AP-S SIGHT and IEEE AP-S COPE.

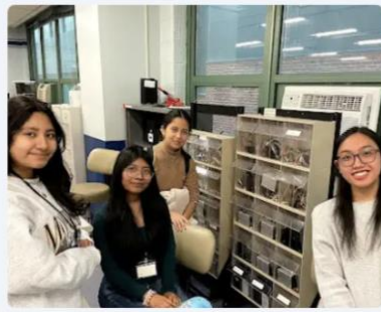Below are some pictures taken at the event.

For More picture of the event at NJIT: Click HERE

IEEE AP-S SBC at the Stevens Institute of Technology

The inauguration of the IEEE Stevens Institute of Technology Antennas and Propagation Society (AP-S) Student Branch Chapter, in conjunction with the workshop on *Antennas, Electromagnetics, and AI-Enabled Communication Systems*, was designed to foster academic, professional, and interdisciplinary engagement in advancing next-generation technologies. The event convenes students, researchers, and practitioners to explore innovative approaches that integrate classical electromagnetic theory, signal processing, coding, robotics, artificial intelligence, augmented reality, the Internet of Things, green energy, and climate-conscious technologies with modern intelligent systems. Emphasis is placed on applications spanning healthcare, sustainable energy, environmental monitoring, and global connectivity. By aligning technological innovation with the United Nations Sustainable Development Goals (UN SDGs), the workshop underscored the pivotal role of antenna design, electromagnetic modeling, and AI-driven communication frameworks in addressing societal challenges, promoting sustainability, and inspiring future leaders in engineering and technology.

This workshop featured international invited talks, panel sessions, IEEE student poster competitions on intelligent systems-enabled humanitarian technology, IEEE student branch activities, and IEEE membership drives. The best student poster awards will be selected, and the corresponding projects can be financially supported for further research by IEEE AP-S SIGHT and IEEE AP-S COPE.

For more pictures of the event at Stevens Institute of Technology: [Click Here](#)
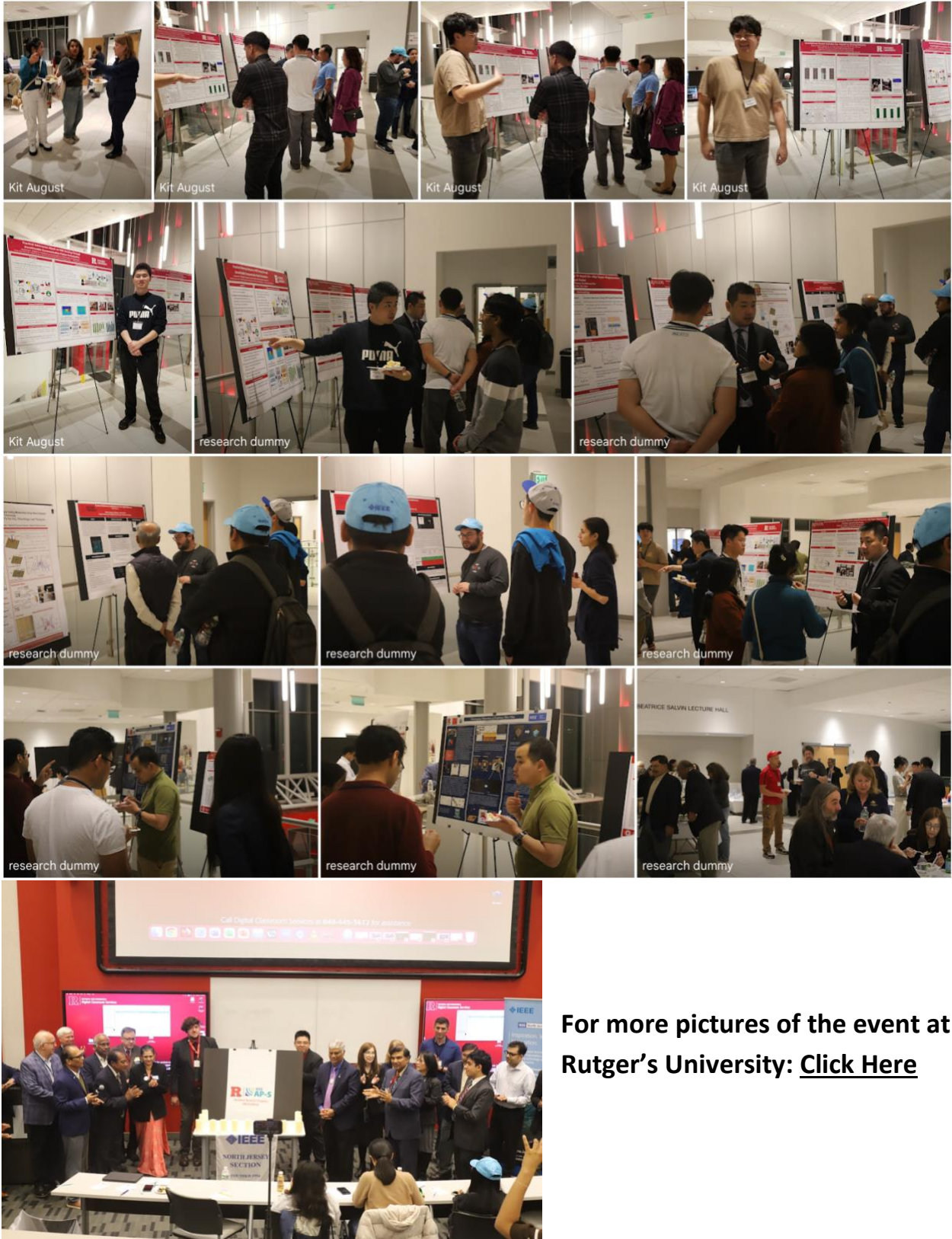
IEEE AP-S SBC Chapter Inauguration, Workshop and Student Poster Competition at [Rutger's University](#) on October 11th

The inauguration of the IEEE Rutgers University AP-S Student Branch Chapter, accompanied by the workshop on *AI, Wireless Innovation, IoT, Climate Action, and Humanitarian Technologies*, aimed to advance interdisciplinary research at the intersection of electromagnetics, antennas, and intelligent communication systems. The program highlighted the integration of artificial intelligence into next-generation wireless networks, sustainable IoT architectures, and AI-driven signal processing for robust connectivity. Special emphasis was placed on addressing global challenges, including climate change mitigation, energy-efficient wireless systems, and the deployment of humanitarian technologies for disaster management and community resilience. By uniting academia, industry, and professional societies, this initiative seeks to accelerate innovation while cultivating future leaders in wireless and applied technologies.

This workshop featured international invited talks, panel sessions, IEEE student poster competitions on intelligent systems-enabled humanitarian technology, IEEE student branch activities, and IEEE membership drives. The best student poster awards will be selected, and the corresponding projects can be financially supported for further research by IEEE AP-S SIGHT and IEEE AP-S COPE.

Shared below are some pictures at RU.

For more pictures of the event at Rutger's University: Click Here

IEEE DAY – Engineering in Music Event

Engineering plays a pivotal role in music by merging artistic expression with technological innovation to advance both professional practice and societal impact. For musicians and audio professionals, engineering enables high-fidelity recording systems, digital signal processing, and intelligent sound design tools that expand creative possibilities and enhance live performances. Beyond the professional domain, engineering contributes to humanitarian applications such as developing affordable musical instruments, designing assistive technologies like hearing aids and cochlear implants, and creating therapeutic sound systems that support mental health, rehabilitation, and community well-being. STEM activities further strengthen this connection by engaging students in hands-on projects like building simple electronic instruments, coding music-generating algorithms, exploring acoustics through wave experiments, and applying robotics to interactive performance systems. Such initiatives not only cultivate technical and creative skills but also inspire the next generation to view engineering as a bridge between science, technology, and the universal language of music. By integrating professional engagement, humanitarian values, and STEM education, engineering in music enriches artistic excellence while fostering accessibility, innovation, and global cultural connection.

IEEE Day-Engineering in Music: Click Here for more photos

Calendar of Events
Upcoming Events: October 2025 Onwards

Title	Date	Location
Personal Branding Workshop: North Jersey Section Affinity Group, YP	01 Oct 2025 06:30 PM EDT	South Orange, New Jersey
October IEEE North Jersey Section ExCom: North Jersey Section	01 Oct 2025 06:30 PM EDT	Newark, New Jersey Hybrid
IEEE Presentation on Personal Branding: Seton Hall Univ	01 Oct 2025 06:30 PM EDT	South Orange, New Jersey
Quantum Machine Learning (QML): Quantum Architecture Search (QAS): Philadelphia Section	02 Oct 2025 06:00 PM EDT	Virtual
IEEE Montclair Students Membership Drive and Technical Event: Montclair State Univ	03 Oct 2025 11:00 AM EDT	New York, New York
2025 IEEE Day - 2025 IEEE CTU Challenge Public Choice Kickoff: IEEE Future Networks Community	07 Oct 2025 09:30 AM EDT	Virtual
39th Annual Symposium and Mini-Show - Exhibitor Registration Site: North Jersey Section Jt. Chapter, AP03/MTT17	09 Oct 2025 08:00 AM EDT	East Hanover, New Jersey
39th Annual Symposium and Mini-Show - Attendee Registration Site: North Jersey Section Jt. Chapter, AP03/MTT17	09 Oct 2025 08:00 AM EDT	East Hanover, New Jersey
IEEE Day Event: 2025 IEEE International Workshop on Intelligent Systems and Interdisciplinary Applications (ISIA) & Inauguration of IEEE Montclair AP-S SBC (21201): North Jersey Section Jt. Chapter, AP03/MTT17	10 Oct 2025 09:00 AM EDT	Montclair, New Jersey

IEEE DAY EVENT: Inauguration of IEEE NJIT AP-S Student Branch Chapter & Workshop on Antennas, Electromagnetics, and AI-Driven Circuits and Communication Systems for Humanitarian Technologies: North Jersey Section Jt. Chapter, AP03/MTT17	10 Oct 2025 05:00 PM EDT	Newark, New York
IEEE DAY EVENT: Inauguration of the IEEE Stevens Inst. of Tech. AP-S SBC & Workshop on Antennas, Electromagnetics, and AI-Enabled Communication Systems for Interdisciplinary Applications Addressing the UN SDGs: North Jersey Section Jt. Chapter, AP03/MTT17	11 Oct 2025 09:00 AM EDT	Hoboken, New Jersey
IEEE Day Event: Inauguration of the IEEE Rutgers AP-S Student Branch Chapter and Workshop on AI-Enabled Wireless Communication, IoT, Climate Challenges, and Humanitarian Technologies: North Jersey Section Jt. Chapter, AP03/MTT17	11 Oct 2025 05:00 PM EDT	Piscataway, New Jersey
IEEE Day – Engineering in Music: North Jersey Section Jt. Chapter, AP03/MTT17	11 Oct 2025 06:00 PM EDT	Piscataway, New Jersey
Innovating for the Future: A Conversation with the 2024 CTU Challenge Winners: IEEE Future Networks Community	15 Oct 2025 11:00 AM EDT	Virtual
Robotics and AI Seminar: From Engineering Challenges to Market Opportunities: Montclair State Univ	15 Oct 2025 02:00 PM EDT	Montclair, New Jersey
Imposter Syndrome: Identify, Address, Overcome: New Jersey Coast Section Affinity Group, WIE	22 Oct 2025 07:00 PM EDT	Virtual
Scaling Trustworthy Formal Verification in NextG and Beyond: North Jersey Section Chapter, C16	24 Oct 2025 12:00 PM EDT	Teaneck, New Jersey
Women in AI Series 2025 - Artificial Intelligence in Journalism: Christen Smith: Lehigh Valley Section Affinity Group, WIE	28 Oct 2025 07:00 PM EDT	Virtual

What would they like to hear more of? I am thinking: Building a scalable Generative AI product: North Jersey Section Chapter, SYS45	29 Oct 2025 12:00 PM EDT	Teaneck, New Jersey
Medium Voltage Substation Circuit Breakers & Metalclad Switchgear: North Jersey Section Chapter, PE31	30 Oct 2025 09:00 AM EDT	South Plainfield, New Jersey
IEEE Buildathon 2025: North Jersey Section Affinity Group, YP	01 Nov 2025 10:00 AM EDT	Newark, New Jersey
2025 IEEE North Jersey Section November ExCom Meeting: North Jersey Section	05 Nov 2025 06:30 PM EST	Murray Hill, New Jersey
Universal Grid-Graph Learning: Zero-Shot Transfer without Retraining or Fine-tuning: North Jersey Section Chapter, CS23	06 Nov 2025 12:00 PM EST	Newark, New Jersey
AI Workshop – Learn, Build, and Apply Artificial Intelligence: North Jersey Section Affinity Group, YP	19 Nov 2025 06:00 PM EST	Hoboken, New Jersey
AI-Native 6G IP Moats: Rethinking Global Policy for SEP/FRAND: Philadelphia Section	20 Nov 2025 07:00 AM EST	Virtual
Meters: North Jersey Section Chapter, PE31	20 Nov 2025 09:00 AM EST	South Plainfield, New Jersey
Women in AI Series 2025 - Integrating Generative AI Tools in Computer Science Course-based Research Experiences: Dr. Paula Lauren: Lehigh Valley Section Affinity Group, WIE	25 Nov 2025 07:00 PM EST	Virtual
IEEE North Jersey Section End-of-the-Year 2025: North Jersey Section	02 Dec 2025 06:00 PM EST	East Hanover, New Jersey
Distributed Quantum Neural Networks on Distributed Photonic Quantum Computing: Philadelphia Section	04 Dec 2025 06:00 PM EST	Virtual

2025-Fall IEEE Metropolitan AI Applications Symposium (METAI) [Friday December 12th 2025 @12:00PM Zoom 506 875 4099]: North Jersey Section	12 Dec 2025 12:00 PM EST	Virtual

For Past Month's Events – SEPTEMBER 2025 - Click Here

Click Here: For a List of the 2025 IEEE North Jersey Section Volunteers