

2025 IEEE 13th Region 10 Humanitarian Technology Conference (R10-HTC) Program

Time (Tokyo)	702	701	711	721	731	1101	1103	1104	1208	1209	1210	1211	1212	Elsewhere							
Monday, September 29																					
09:30-12:00	OC: <i>Opening Ceremony & Invited Talks</i>																				
12:30-14:30														PS: <i>Poster Session @ Entrance</i>							
14:30-16:00									TP01: <i>Technical Program 1</i>	TP02: <i>Technical Program 2</i>	TP03: <i>Technical Program 3</i>	TP04: <i>Technical Program 4</i>	TP05: <i>Technical Program 5</i>								
16:15-17:45									SP01: <i>Empowering the Society for a Sustainable Future: Strategies for Promoting SDG Education in the Asia-Pacific Region</i>	SP02: <i>(Online) TUTORIAL ON: "Future 6G Wireless Network Technologies with Intelligent Computing for Sustainable Earth"</i>	SP03: <i>Special Session: Intelligent Systems for Computational Biology: Advancing Healthcare Through AI</i>	SP04: <i>Empowering Student Innovators: Humanitarian Technology for Social Good</i>	SP05: <i>Emerging Technologies for a Resilient and Sustainable World: Generative AI, Blockchain, Security, and Agent-Based Modeling</i>								
18:00-20:00	RC: <i>Reception @ CLIC</i>																				
Tuesday, September 30																					
08:30-10:45	GI: <i>Greetings & Invited Talks</i>																				
11:00-12:30		TP06: <i>Technical Program 6 with Invited Talk</i>	TP07: <i>Technical Program 7</i>	TP08: <i>Technical Program 8</i>	TP9: <i>Technical Program 9</i>																
13:30-15:00									SP06: <i>Workshop on "From Idea to Impact: Funding Humanitarian Technology Projects as IEEE Members"</i>	SP07: <i>Road to AI ethical and equitable professional: From Zero to Hero</i>	SP08: <i>Workshop on Reverse Vaccinology: Using Insilico methods to develop vaccines</i>	SP09: <i>Special Session Title: Control and Optimization Strategies for Source Hydrogenation and Estimation Techniques in Electric and Hybrid Vehicles</i>	SP10: <i>Empowering Women in Engineering: Shaping the Future Through Science and Technology</i>								
15:15-17:45					SP11: <i>Redefining Tomorrow: Beyond SDGs Challenges</i>	SP13: <i>From Innovation to Impact: Advancing Humanity through IEEE Humanitarian Initiatives</i>	SP12: <i>Recent Disasters: Lessons, Response, and the Role of Technology</i>														
18:00-19:00	TF: <i>Transfer to Banquet Venue</i>																				
19:00-21:00	AB: <i>Banquet with Award Ceremony @ Hotel</i>																				
Wednesday, October 1																					
09:30-12:00									SP: <i>Special session for resilient and green ICT (Sendai Section)</i>												
12:00-13:00	LB3: <i>Lunch</i>																				
13:00-14:30									SP14: <i>Extending Double-Entry Bookkeeping: A Proposal for Production Accounting to Bridge Financial and ESG Reporting</i>	TP10: <i>Technical Program 10</i>	SP15: <i>Synergy for Sustainable Impact</i>										
14:45-15:15					CC: <i>Closing Ceremony</i>																

Monday, September 29 9:30 - 12:00 (Asia/Tokyo)

OC: Opening Ceremony & Invited Talks ↗

- 9:30-9:35 Opening Remarks,Kiyoharu Aizawa (LOC General Co-chair)
- 9:35-9:40 Greetings,Toshiro Hiramoto (Tokyo Section Chair)
- 9:40-10:00 Greetings & Introduction of R10 Activity,Takako Hashimoto (R10 Director)
- 10:00-10:30 Keynote Talk,Grayson Randall (IEEE HTB Chair)
- 10:30-11:00 Keynote Talk,Yasuhiro SOSHINO Ph.D. (Disaster Management Research Institute, Japanese Red Cross College of Nursing)
- 11:00-11:25 Keynote Talk,Chun Che (Lance) Fung (IEEE R10 Past Director 2025-2026)
- 11:25-11:55 Keynote Talk, Kazunori Ide (NX Tech (Gold Sponsor/Presenter))
- 11:55-12:05 Keynote Talk, Eng. Thulfiqar Hoshi Khalaf (Iraqi Engineers Union President) and Dr. Hussain Falih Mahdi (University of Diyala, IEEE PES HAC Chairperson 2025)

Room: 702

Monday, September 29 12:30 - 14:30 (Asia/Tokyo)

PS: Poster Session @ Entrance ↗

PS.1 <i>Thread-Level Parallelization Efficiency in Real-Time Drone Signal Analysis: a Comparative Study of DJI Drone Models</i> Riza Alaudin Syah (Universiti Teknologi Malaysia, Malaysia & DVI Solution Asia, Indonesia)
PS.2 <i>Towards 2030: Comparative Analysis of SDG Achievements in India, Indonesia and Japan Using Machine Learning Techniques</i> Sreekanth Bonthala (Madnapalle Institute of Technology and Science, India); Basabi Chakraborty, (Iwate Prefectural University, Japan); Yukari Shiota (Gakushuin University, Japan)
PS.3 <i>A Measurement of Packet Delivery Rate and Signal Strength in LoRa Communication in Urban and Suburban Areas of Sapporo</i> Yuito Ishisaki, Kyotaro Kunii, Hiroshi Tsutsui and Takeo Ohgane (Hokkaido University, Japan)
PS.4 <i>Enhancing Quarry Management Using RTK-UAV LiDAR</i> Jieling Wu (Suwa University of Science, Japan)
PS.5 <i>A Mathematical Formalization of Vision-Driven Agent Models</i> Shuqi Hao, Toshiyuki Kaneda and Koichi Moriyama (Nagoya Institute of Technology, Japan)
PS.6 <i>Multiparameter Analysis of Gold Dissolution in Chloride-Hypochlorite Leaching of Philippine Ore</i> Rica Jan C. Ondoy (Mapúa Malayan Colleges Mindanao, Philippines); Gerald M Gumahad and Lea Krishna E. Capin (Department of Science and Technology, Philippines); Gernelyn T. Logrosa (Mapua Malayan Colleges Mindanao, Philippines)
PS.7 <i>A Contextual Readiness Model for Smart Learning Environment Implementation in Indonesian Higher Education</i> Rivaldi Rizalul Akhsan (Universitas Indonesia, Indonesia); Dana Indra Sensuse (University of Indonesia, Indonesia); Harry Budi Santoso (Universitas Indonesia, Indonesia); Ria Febrianti, Rf (University of Malang, Indonesia & State University of Malang, Indonesia)
PS.8 <i>Developing ADDIE-Based Motion Graphics for Enhancing Solid Waste Management Knowledge, Attitude, and Practice Among Generation Z</i> Raupert Martin C. Quinal, Virgianne Prisca A. Boiser, Alliya Kim S. Panes and Marie Gabrielle R. Ba-ang (Mapúa Malayan Colleges Mindanao, Philippines)
PS.9 <i>Blockchain-Enabled Explainable AI Framework for Secure UAV-Based Delivery in Telesurgery Systems</i> Krisha Shastri, Mahek Shah, Kajal Lochab, Priyal Bhide, Lakshin Pathak, Dhrishita Parve and Rajesh Gupta (Nirma University, India); Sudeep Tanwar (Nirma University & Institute of Technology, India); Jitendra Bhatia (Nirma University, India)
PS.10 <i>Development of Music Materials for Special Needs Schools That Can Be Performed with Simple Operation</i> K. Ukaji (Nagoya University of Economics, Japan)
PS.11 <i>Smart Interactive IoT for Post Nuclear Disaster Landscapes: Towards Sustainable Human-Wildlife Coexistence</i> Haoran Hong and Daisuke Shimotoku (The University of Tokyo, Japan); Junya Kawase (University of Tokyo, Japan); Hill Hiroki Kobayashi (The University of Tokyo, Japan)
PS.12 <i>Meta-Analysis of Biomass-Derived Carbon Material from Agricultural Residue for Heavy Metal Adsorption</i> Carlo Venci V. Alageño, Joseph D. Dinauto, Herald Carl O. Jesalva and Rica Jan C. Ondoy, (College of Engineering and Architecture, Mapúa Malayan Colleges Mindanao, Davao City, Philippines)
PS.13 <i>Exploring the Potential of Duckweed-Derived Materials in Mercury Removal: a Systematic Review</i> Lalaine Joan A Limbago, Althea Leen Berganio, Jesslien Kaye Cantil and Exelle Megan Delima (Mapúa Malayan Colleges Mindanao, Philippines)
PS.14 <i>Edge-AI Technologies for Sustainability: a Comparative Analysis</i> Shadi Mahmoodi Khaniabadi (Polytechnic Institute of Viana Do Castelo (IPVC), Portugal); Salviano Soares (Universidade de Trás-os-Montes e Alto Douro, Portugal); Sergio Ivan Lopes (Polytechnic University of Viana Do Castelo, Portugal & CITin - Centro de Interface Tecnológico Industrial, Portugal)
PS.15 <i>A Computational Approach for Incidence Prediction Models of Lung Cancer in Asia Countries</i> Kung-Min Wang, Chrestella Ayu Hernanda, Shih-Hsien Tseng and Kung-Jeng Wang (National Taiwan University of Science and Technology, Taiwan)
PS.16 <i>Predicting Breast Cancer Outcomes Using Integrated Machine Learning Classifiers</i> Khushi Kansara, Yug Trivedi, Zuzer Chathiwala and Husen Lakdawala (Marwadi University, India); Sejal Shah (Marwadi University Rajkot, India); Muktesh Chandra (Marwadi University, India)
PS.17 <i>Hydrological Analysis of Upland Reservoirs Using DEM Data</i> Jieling Wu (Suwa University of Science, Japan)
PS.18 <i>Quality Attributes of Collaborative Architectures Utilizing Open Data - Based on Research by PLATEAU -</i> Yo Suzuki, Kaito Domon and Sumie Morita (Akita Prefectural University, Japan)
PS.19 <i>Dialogue System Using Emotion Analysis</i> Ryusei Maeda (Mie University, Japan); Kenta Morita (Suzuka University of Medical Science, Japan); Haruhiko Takase (Mie University, Japan)
PS.20 <i>A Low-Cost Edge ML System for Real-Time Drinking Water Contamination Detection</i> Asif Ahmed Joy and Mohaiminul Islam (Independent University, Bangladesh, Bangladesh); Tarem Ahmed (Independent University, Bangladesh (IUB), Bangladesh)
PS.21 <i>ClimateNet: a Multi-Faceted Classifier for Analyzing Climate Change Discourse</i> Tustee Mazumdar and Adrika Chowdhury (Asian University for Women, Bangladesh); Abu Nowshed Chy (University of Chittagong, Bangladesh); Tarem Ahmed (Independent University, Bangladesh (IUB), Bangladesh)
PS.22 <i>A Compact and Lightweight Astronaut Assistance Rover with Robust Validation</i> Md. Ragib Aunijum, Ali Ahsan, Zareef Jafar, S. M. Masrur Ahmed, Razin Bin Issa, Md. Mahbub Ali, KM Fahim Mahmud, Mohammad Zahirul Islam and Zaber Mohammad (BRAC University, Bangladesh); Musa Al Johan Gazi (Brac University, Bangladesh); Md. Saiful Islam, Md. Golam Rabiul Alam and Md. Khalilur Rhaman (BRAC University, Bangladesh)
PS.23 <i>IoT-Driven Window System for Real-Time Environmental Monitoring and Enhanced Safety for Home 4.0</i> Khondaker Ifthi Hasan Turjo, Debashish Kumar Ghosh, Mustakim Ahmed, Kazi Redwan, Ahmed Hossain, Md. Faruk Abdullah Al Sohan and Abu Shufian (American International University-Bangladesh, Bangladesh)
PS.24 <i>Ensemble Learning Approaches in HPV Associated Oral Squamous Cell Carcinoma</i> Amisha Patel (RK University, India); Arjay Bavarya (Marwadi University, India); Tripti Swarnkar (National Institute of Technology, Raipur CG (NITRR), India); Vijaykumar Gupta (Rajkot Cancer Society, India); Sejal Shah (Marwadi University Rajkot, India); Yug Trivedi (Marwadi University, India)

Monday, September 29 14:30 - 16:00 (Asia/Tokyo)

TP01: Technical Program 1 ↗

Room: 1208
Chair: Khanita Duangchaemkarn (University of Phayao, Thailand)

<i>Proposal of an Emotion Estimation Method for Speech Using Knowledge Distillation</i> <u>Orinha Hamaguchi</u> (Japan Advanced Institute of Science and Technology, Japan); Kenta Morita (Suzuka University of Medical Science, Japan)
<i>Food Security and Emotional Acceptance</i> <u>Michiko Ohkura</u> , Hidetsugu Nanba, Yasushi Kyutoku and Hiroko Shoji (Chuo University, Japan)
<i>Leveraging User Mutual Affinity to Generate Recommendations for Dynamically Evolving Groups</i> <u>Dilip Singh Sisodia</u> (National Institute of Technology Raipur, India); Devesh Kumar Sahu (Oracle, India)
<i>EmoSync: Synchronizing AI-Mediated Book Recommendation with Readers' Emotions</i> <u>M. Fahim Ferdous Khan</u> (The University of Tokyo, Japan); Kanata Negoro (Toyo University, Japan); Ken Sakamura (The University of Tokyo, Japan)

Monday, September 29 14:30 - 16:00 (Asia/Tokyo)

TP02: Technical Program 2 ↗

Room: 1209
Chair: Indra Riyanto (Universitas Budi Luhur, Indonesia)

<i>Developing a Retrieval-Augmented Natural Language Interface for Philippine Demographics and Social Statistics</i> <u>Marieneel N. Velasco</u> (Polytechnic University of the Philippines, Philippines & PUP, Philippines); Minera Laiza C. Acosta, Mark Jayson T. Agao, Sheena D. Rom, Alfea Aemiel V. Mingua, Edrian Joshua L. Rosero and Anne Bernadette D. Yaoto (Polytechnic University of the Philippines, Philippines)
<i>Private 5G Radio Control Scheme for IPTV by Cable TV</i> <u>Hiroshi Ito</u> , Hideki Ohno and Hikaru Kitano (NEC Networks & System Integration Corporation, Japan); Shuichi Matsumoto (Japan Cable Laboratories, Japan)
<i>Enhancing Detection of Abnormal Climate and Fire Incidents in Lac Cultivation Areas</i> Jaratpong Tepmanee (University of Phayao, Thailand); Chukiat Fakkaew and <u>Pattarawadee Fakkaew</u> (CK Tech Innovation, Thailand); Thitirath Chaewsuwan (University of Phayao, Thailand); Tossaphorn Maniam (School of Information and Communication Technology, University of Phayao, Thailand); Jirabhorn Chaiwongsai (University of Phayao, Thailand)
<i>Translating Requirements into CARLA Executable Scripts: an LLM-Driven Automated Scenario Realization</i> <u>Shiyang Guan</u> and Yijun Lu (Waseda University, Japan); Jati H. Husen (Telkom University, Indonesia); Haowei Cheng, Hironori Washizaki, Naoyasu Ubayashi and Nobukazu Yoshioka (Waseda University, Japan)

Monday, September 29 14:30 - 16:00 (Asia/Tokyo)

TP03: Technical Program 3 ↗

Room: 1210
Chair: Madhuri Bayya (BITS-Pilani WILP, India)

<i>PUF and Edge-Assisted Secure V2V Communication Framework for ITS Underlying 6G Networks</i> <u>Parth Paraskumar Vyas</u> , Ratnesh Patel, Chitt Bhavsar and Jitendra Bhatia (Nirma University, India); Malarum Kumhar (Institute of Technology Nirma University Ahmedabad, India); Nileshkumar Patel and Rajesh Gupta (Nirma University, India); Sudeep Tanwar (Nirma University & Institute of Technology, India)
<i>Beyond the SDGs: Intelligent Equity Planning and Economic Resilience in South Auckland's Renewable Energy Transition</i> <u>Rahul R Chopra</u> (University of Auckland, New Zealand); Amanda Yates (Auckland University of Technology, New Zealand); Nirmal Nair (University of Auckland, New Zealand)
<i>Explainable Ensemble Learning-Based Robust Intrusion Detection Framework for Power Systems</i> Arhaan Godhrawala, <u>Devarsh Patel</u> , Fenil Ramoliya, Shlok Patel, Lakshin Pathak and Rajesh Gupta (Nirma University, India); Sudeep Tanwar (Nirma University & Institute of Technology, India)
<i>Natural Fibre Reinforced Steel Concrete Composite Wall Panel for Sustainable Building</i> <u>Sangeetha P</u> (Sri Sivasubramaniya Nadar College of Engineering, India); P Kaythry (Anna University, India & Sri Sivasubramaniya Nadar College of Engineering, India)

Monday, September 29 14:30 - 16:00 (Asia/Tokyo)

TP04: Technical Program 4 ↗

Room: 1211
Chair: Saurabh Soni (Artiligent Solutions PVT LTD, India)

<i>Blockchain-Secured Federated Learning for Energy Forecasting in Steel Manufacturing</i> <u>Nazia Sultana Plabon</u> (Premier University, Chittagong, Bangladesh)
<i>In Silico Classification of Nanotoxicity Using QSAR-Perturbation Based Model</i> Heidi A. Puato and Perlita E. Gasmen (University of the Philippines Manila, Philippines); Jahaziel B. Rafael, Aries Valeriano and John Riz V. Bagnol (University of Southeastern Philippines, Philippines); <u>Vince Jebryl G. Montero</u> (Mapua Malayan Colleges Mindanao, Philippines); Loreniel E Anonuevo (Caraga State University); Rey Capangpangan (Mindanao State University at Naawan)
<i>Optimizing Flotation for Ultrafine Gold Recovery in Small-Scale Mining Communities: a Scoping Review with Scientometric Analysis</i> Wayne Hiroshi L. Bañados, Kaye R. Orlanes and Richard Jr R. Anghag (Mapúa Malayan Colleges Mindanao, Philippines); <u>Gernelyn T. Logrosa</u> (Mapua Malayan Colleges Mindanao, Philippines)
<i>Compressive Strength and Workability of Recycled Gold Tailings as Replacement for Concrete Aggregate</i> Evan Myles S Rapanot (Mapua Malayan Colleges Mindanao, Philippines); Juren Michael Jay B Padin (Mapua Malayan Colleges Mindanao, Philippines & Geotechnologies for Mineral and Environmental Laboratory and Research Center (GemLab), Philippines); Kit Lester P Balayo (Mapua Malayan Colleges Mindanao, Philippines & Geotechnologies for Mineral and Environmental Laboratory and Research Center, Philippines); <u>Gernelyn T. Logrosa</u> (Mapua Malayan Colleges Mindanao, Philippines)

Monday, September 29 14:30 - 16:00 (Asia/Tokyo)

TP05: Technical Program 5 ↗

Room: 1212
Chair: Cheon Won Choi (Dankook University, Korea (South))

<i>Motivation Enhancement Method for Students Based on Personality Analysis</i> <u>Rikuto Fukada</u> , Toru Nakata, Takashi Sakamoto and Toshikazu Kato (Chuo University, Japan)
<i>Development and Effectiveness Analysis of Virtual Reality on Students' Understanding and Application of Laboratory Safety Procedures in School</i> <u>Fatimatu Zuhro</u> (National Chung Hsing University, Taiwan); Khakam Maruf (Gadjah Mada University, Indonesia); Rizal Justian Setiawan (National Chung Hsing University, Taiwan & Yuan Ze University, Taiwan); Tony Tai-Ting Liu (National Chung Hsing University, Taiwan); Darmono (Yogyakarta State University, Indonesia); Nur Azizah (National Cheng Kung University, Taiwan & China Medical University, Taiwan)
<i>KuruKuru: a Real-World Oriented Learning Material Integrating Coding and Modeling for Informatics Education</i> Shiki Hanaoka and <u>Noriya Ogawa</u> (Shinshu University, Japan); Takashi Nagai (Institute of Technologists, Japan & Shinshu University, Japan); Nobuyuki Tachi and Mizue Kayama (Shinshu University, Japan)
<i>Developing Interactive and Immersive Studying Environments Using AI and Game Engine</i>

Monday, September 29 16:15 - 17:45 (Asia/Tokyo)

SP01: Empowering the Society for a Sustainable Future: Strategies for Promoting SDG Education in the Asia-Pacific Region ↗

Special Program 1
IEEE R10 Educational Activities (EA) Committee
(Organizer: Chi-Un Lei)

Room: 1208

In 2015, the United Nations introduced the 17 Sustainable Development Goals (SDGs) and 169 associated targets, with SDG Target 4.7 emphasizing the role of education in promoting sustainable development. However, the Asia-Pacific region faces significant challenges due to insufficient educational resources, threatening the global attainment of these goals by 2030. Addressing this gap requires innovative strategies to engage learners, foster understanding of SDGs, and inspire communities to adopt sustainable practices. This workshop is divided into two key segments. The first segment takes a macroscopic perspective on advancing SDG education and explores the integration of SDGs into educational curricula through open-source machine learning tools. By analyzing diverse educational settings, participants will gain practical insights into curriculum classification and SDG alignment. Real-world case studies will illustrate these techniques in action, empowering participants to incorporate SDG principles into their own educational frameworks. The second segment is on a microscopic approach to engage new learners through game-based learning. It highlights a card game, developed with support from IEEE EAB and IEEE R10 HTC, designed to teach environment-related SDGs and encourage collaboration to achieve SDG 17. This game, already implemented in schools and universities, serves as a model for effective game-based learning. The discussion will extend to integrating game-based learning into sustainability education, with guidance on leveraging support from IEEE OUs. The session will include interactive discussions and hands-on activities, making it particularly valuable for educators and stakeholders committed to advancing sustainability education.

Monday, September 29 16:15 - 17:45 (Asia/Tokyo)

SP02: (Online) TUTORIAL ON, "Future 6G Wireless Network Technologies with Intelligent Computing for Sustainable Earth" ↗

Special Program 2
Dr. Arun Agarwal

Room: 1209

The 6G technology is expected to revolutionize wireless networks by enabling intelligent connectivity of all devices. The concept of a 6G green network aims for ubiquity, intelligence, simplicity, environmental friendliness, and carbon reduction. This Tutorial dives into the essential energy-saving technologies for 6G radio access networks within an energy-efficient framework and proposes a multi-tiered cloud-enabled endogenous intelligent architecture for 6G wireless networks. Furthermore, the tutorial will focus on the relationship between AI model deployment and energy efficiency. Beyond 2030, newly evolving application such as Artificial Intelligence (AI), Internet of Things (IoT). Blockchain, etc. often referred as high data consuming applications and the extensively spread of wireless cellular networks demands for the research in 6G technology. mmWave technology come into picture for today's scenario (high data rate and high data transmission speed) which uses frequencies in mmWave spectrum typically between 30GHz and 300GHz that is higher than traditionally used frequencies i.e., 900 MHz to 5GHz. In 6G networks, mmWave technology will play a crucial role for fulfilling the proposed communication tasks and network performance. The concept of 6G networks, poised to emerge in the coming years, holds significant promise for contributing to a greener and more sustainable future. While 5G networks are already revolutionizing industries with faster speeds and lower latencies, 6G aims to push the boundaries even further, integrating cutting-edge technologies to create a more environmentally friendly ecosystem.

Monday, September 29 16:15 - 17:45 (Asia/Tokyo)

SP03: Special Session Intelligent Systems for Computational Biology: Advancing Healthcare Through AI ↗

Special Program 3
Dr. Sejal Shah

Room: 1210

Scope and Objectives The intersection of Artificial Intelligence (AI) and Computational Biology is transforming modern healthcare by enabling more precise diagnostics, personalized treatment plans, and innovative drug discovery processes. This special session at IEEE HTC 2025 aims to explore cutting-edge AI-driven methodologies in computational biology that are revolutionizing biomedical research and clinical applications. With advancements in machine learning, deep learning, and bioinformatics, intelligent systems are playing a crucial role in understanding complex biological systems, predicting disease outcomes, and enhancing medical decision-making. The session will focus on novel AI techniques applied to genomics, proteomics, medical imaging, and computational drug discovery, among other domains. Topics of Interest We welcome original research papers, case studies, and review articles on (but not limited to) the following topics: 1. AI-Driven Biomarker Discovery for Disease Diagnosis and Prognosis 2. Deep Learning Applications in Genomics and Precision Medicine 3. Computational Drug Discovery and Personalized Therapeutics 4. Explainable AI for Clinical Decision Support in Computational Biology 5. Machine Learning Models for Protein Structure Prediction and Drug Target Identification IEEE R10 HUMANITARIAN TECHNOLOGY CONFERENCE September 29 to October 1, 2025 "Beyond SDGs - A New Humanitarian Era with Intelligent Partners - " 6. AI-Powered Healthcare Imaging: Integrating Computational Biology and Radiomics 7. Big Data Analytics for Biomedical Research and Healthcare Insights 8. Multi-Omics Data Integration Using Intelligent Systems for Disease Prediction 9. Natural Language Processing (NLP) for Biomedical Text Mining and Knowledge Extraction 10. Federated Learning for Privacy-Preserving Computational Biology Applications 11. AI in Epidemiology: Predictive Modeling for Infectious Disease Spread and Control 12. Neural Networks for Genomic Data Interpretation and Mutation Analysis 13. Ethical and Bias Considerations in AI-Driven Computational Biology for Healthcare 14. Reinforcement Learning in Precision Medicine and Adaptive Treatment Strategies 15. AI for Early Detection of Rare and Genetic Disorders Using Computational Approaches

Monday, September 29 16:15 - 17:45 (Asia/Tokyo)

SP04: Empowering Student Innovators: Humanitarian Technology for Social Good ↗

Special Program 4
IEEE R10 Student Activities Committee (SAC) &R10 Young Professionals (YP)
(Organizer: Natt Leelawat, Ray Cheung, and Vismini Amarasinha)

Room: 1211

Through project-based learning, university-led innovation activity and community engagement, IEEE students can drive real-world change. The session will highlight potential how student activities can drive humanitarian tech projects, discuss ways to integrate humanitarian technology into IEEE student branches, and encourage cross-regional collaboration for greater impact. Participants will gain insights into leveraging IEEE resources, mentorship, and opportunities to turn ideas into transformative solutions. By empowering the next generation of engineers and technologists, this workshop fosters a global movement where students are not just learners but active contributors to a better, more resilient world.

Monday, September 29 16:15 - 17:45 (Asia/Tokyo)

SP05: Emerging Technologies for a Resilient and Sustainable World: Generative AI, Blockchain, Security, and Agent-Based Modeling ↗

Special Program 5
1. Takao Terano (CUC, Japan),
2. Alfred Taudes (Wien University of Economics and Business, Austria),
3. Yuichi Ikeda (Kyoto University, Japan),
4. Chathura Rajapakse (University of Kelaniya, Sri Lanka)

Room: 1212

This special session explores the latest technological advances that underpin the creation of a sustainable, resilient, and intelligent global society. This session focuses on cutting-edge developments in Generative Artificial Intelligence, Blockchain Technology, Cybersecurity, and Agent-Based Modeling, each of which contributes uniquely to the realization of sustainable and trustworthy ecosystems. The session features presentations by leading researchers and practitioners, followed by a panel discussion to foster interdisciplinary dialogue and insight into future directions.

Monday, September 29 18:00 - 20:00 (Asia/Tokyo)

RC: Reception @ CUC ↗

Tuesday, September 30 8:30 - 10:45 (Asia/Tokyo)

GI: Greetings & Invited Talks ↗

- 8:30-9:00 Keynote Talk (Online),Don Tan (IEEE Vice President TAB)
- 9:00-9:30 Keynote Talk,Mary Ellen Randall (IEEE President-Elect 2025)
- 9:30-10:00 Keynote Talk,Isabelle Mercier (Director, Independent Evaluation Office, UNDP)
- 10:00-10:30 Keynote Talk,Ryuki Tachibana (Keynote Speaker)
- 10:30-10:45 Introduction of CUC Tour,Susumu Teshima (Chiba University of Commerce)

Room: 702

Tuesday, September 30 11:00 - 12:30 (Asia/Tokyo)

TP06: Technical Program 6 [with Invited Talk] ↗

- [Keynote Speaker] Sérgio Ivan Fernandes Lopes,
- [Title] Digital Technologies for Sustainability: From Data to Actionable Information

Room: 701

Chair: Pauline N. Kawamoto (Shinshu University, Japan)

<i>Advanced Earth Observation Using Explainable AI for Climate Change Monitoring in the Era of Multisensor Cooperation</i> <u>Akira Hirose</u> (The University of Tokyo, Japan); Gunjan Joshi (Helmholtz-Zentrum Dresden-Rossendorf (HZDR), Germany); Ryo Natsuaki (The University of Tokyo, Japan)
<i>Energy Efficiency of Ball Milling at Varying Lifter Number and Mill Speed Using DEM Simulation and Experimental Study</i> Kit Lester P Balayo (Mapua Malayan Colleges Mindanao, Philippines & Geotechnologies for Mineral and Environmental Laboratory and Research Center, Philippines); Juren Michael Jay B Padin (Mapua Malayan Colleges Mindanao, Philippines & Geotechnologies for Mineral and Environmental Laboratory and Research Center (GemLab), Philippines); Evan Myles S Rapanot and <u>Gernelyn T. Logrosa</u> (Mapua Malayan Colleges Mindanao, Philippines)
<i>Proof of Authenticity of General IoT Information with Tamper-Evident Sensors and Blockchain</i> <u>Kenji Saito</u> (Waseda University, Japan)

Tuesday, September 30 11:00 - 12:30 (Asia/Tokyo)

TP07: Technical Program 7 ↗

Room: 711

Chair: Bernard Kee Weng Lim (Logikhaus Sdn Bhd, Malaysia)

<i>Modified Physics-Informed Neural Network for Predicting Earthquake-Induced Landslides Susceptibility</i> Loreniel E Anonuevo (ML-PREP, Caraga State University, Ampayon, Butuan City, 8000 Philippines); <u>Vince Jebryl G. Montero</u> (Mapua Malayan Colleges Mindanao, Philippines); Paolo L. Pacaldo, Jay Melvin Segales, Ken Adrian Villarias and Jayrold P Arcede (Caraga State University, Philippines)
<i>Threshold-Free Event Detection for Non-Intrusive Load Monitoring Using Relative Position Matrix and Convolutional Neural Networks</i> <u>Yen-Kuang Lin</u> and Men-Shen Tsai (National Taipei University of Technology, Taiwan)
<i>Projection of Temperature Change in Busan City Under Shared Socioeconomic Pathway Scenarios (SSPs)</i> <u>Ismail Robbani</u> and Jung-Jae Yee (Dong-A University, Korea (South))
<i>A Mixed-Review Method Analysis of Green Corrosion Inhibitors for Carbon Steel in an Acidic Environment</i> <u>Lalaine Joan A Limbago</u> , John Noel R Cabusas, Kate M Calderon, Althea Mae C Ledesma and Leila Kristine T Villafior (Mapúa Malayan Colleges Mindanao, Philippines)

Tuesday, September 30 11:00 - 12:30 (Asia/Tokyo)

TP08: Technical Program 8 ↗

Room: 721

Chair: Sejal Shah (Marwadi University Rajkot, India)

<i>Optimized Parameter Selection for Parkinson's Diagnosis Using a Hybrid Machine Learning Models</i> Husen Lakdawala, Zuzer Chathiwala, Yug Trivedi, Jaiklee Kumar Singh and Himanshu Avashthi (Marwadi University, India); <u>Sejal Shah</u> (Marwadi University Rajkot, India)
<i>Novel Ventilation Design and CFD Modelling Validation of an Isolation Operating Theatre in Hong Kong</i> Hau Nam Chen, <u>Wing Kit Wan</u> , Lok Yiu Tang and Ka Nin Lee (Electrical and Mechanical Services Department, Hong Kong); Yee Ting Wong and Wing Sum Lai (Arup, Hong Kong)
<i>Controllable Medical Image Generation Using Text Prompts on Multi-Phase Contrast CT Data</i> <u>Nguyen Duong Nguyen Nhat</u> , Thanh Huyen Dang Thi and Viet Dung Nguyen (Hanoi University of Science and Technology, Vietnam)
<i>ADaFSlide: Adapting Vision-Language Foundation Model for Lifelong Whole Slide Image Analysis</i> <u>Doanh Cao Bui</u> (Nara Institute of Science and Technology, Japan); Hoai Luan Pham (NARA Institute of Science and Technology, Japan); Vu Trung Duong Le, Tuan Hai Vu, Van Duy Tran and Yasuhiko Nakashima (Nara Institute of Science and Technology, Japan)

Tuesday, September 30 11:00 - 12:30 (Asia/Tokyo)

TP9: Technical Program 9 ↗

Room: 731

Chair: Arjav Bavarva (Marwadi University, India)

<i>The Impact of Body Fat on the Signal Performance of Implantable NFC Chips</i> Ye Zhang, Xiaodong Song, Mao Wang and Megumi Saito (Waseda University, Japan); Shigeru Shimamoto (Waseda University & Graduate School of Global Information and Telecommunication Studies, Japan)
<i>Data Transmission Scheme in Underwater Wireless Power Transfer Systems for Dynamic Spectrum Access</i> <u>Koshi Inoue</u> , Urara Tsuchiya and Mamiko Inamori (Tokai University, Japan)
<i>An Economics of Creative Machines: the Role and Responsibility of Human-AI Creators</i> <u>Tetsuya Saito</u> (Globiz Professional University, Japan & DERaC, Japan)
<i>Machine Learning-Based Prediction of Load-Slip Behaviour in Composite Space Trusses for Sustainable Structural Design</i> P Kaythry (Anna University, India & Sri Sivasubramaniya Nadar College of Engineering, India); <u>Sangeetha P</u> (Sri Sivasubramaniya Nadar College of Engineering, India)

Tuesday, September 30 13:30 - 15:00 (Asia/Tokyo)

SP06: Workshop on "From Idea to Impact: Funding Humanitarian Technology Projects as IEEE Members" ↗ ↖

Special Program 6
Allya Paramita Koesoema

Room: 1208

This hands-on workshop, jointly organized by IEEE SIGHT on eHealth & Telemedicine Indonesia, IEEE Region 10 PAC, and IEEE SSIT Indonesia Chapter, will guide participants through the process of identifying and securing funding for humanitarian technology initiatives. Aimed at IEEE members across career stages, the session will explore both IEEE-specific and external funding pathways, helping engineers turn innovative ideas into funded, community-driven projects. The workshop will cover key IEEE funding programs-such as HAC/SIGHT Grants, IEEE Foundation support, EPICS in IEEE, and Region-specific opportunities-highlighting their scope, application processes, and success factors. Participants will also explore funding beyond IEEE, including sources from multilateral organizations, foundations, universities, government programs, and CSR initiatives. Interactive elements will include funding strategy mapping, reviewing sample proposals, and small-group brainstorming on real-world project ideas. Experienced IEEE members and humanitarian project leaders will share actionable insights, common pitfalls, and best practices. By the end of the session, attendees will have a clear understanding of how to position their ideas, build strong proposals, and leverage IEEE's global network for mentoring and partnerships. This workshop is ideal for professionals and students ready to amplify their impact through engineering solutions that matter.

Tuesday, September 30 13:30 - 15:00 (Asia/Tokyo)

SP07: Road to AI ethical and equitable professional: From Zero to Hero ↗ ↖

Special Program 7
IEEE R10 EAAC & DEI (Organizer: Jong Chang Yi (Hongik University) and Huynh Thi Thanh Binh(Hanoi University of Science and Technology))

Room: 1209

Session Detail The rapid advancement of Artificial Intelligence (AI) presents both immense opportunities and significant ethical challenges across diverse sectors, including finance, mass media, social networks, and commercial advertising. This joint workshop, hosted by IEEE Region 10's Ethics Awareness & Advancement Committee (EAAC) and Diversity, Equity & Inclusion (DEI) Committees, provides aspiring professionals with a practical roadmap for launching successful careers in AI ethics and equitable AI within both academic and industry settings. The session will explore:

- The Evolving Landscape of AI Ethics: We will examine the key ethical considerations surrounding AI development and deployment, drawing on real-world examples from finance (e.g., algorithmic bias in lending), mass media (e.g., misinformation and deepfakes), social networks (e.g., echo chambers and online harassment), and commercial advertising (e.g., targeted advertising and privacy concerns). The discussion will highlight the proactive steps IEEE Region 10 is taking to address these challenges.
- Career Pathways in AI Ethics & Equitable AI: We will delve into the various career opportunities available to those specializing in AI ethics and equitable AI, including roles in research, development, policy, consulting, and advocacy, both within universities and in industry. Successful professionals in these fields will share their experiences and insights.
- Essential Skills and Qualifications: This session will outline the key skills and qualifications needed to thrive in this emerging field. This will encompass technical expertise (e.g., machine learning, data analysis), ethical frameworks (e.g., fairness, accountability, transparency), communication and collaboration skills, and policy understanding.
- Navigating the Job Market: Practical advice will be offered on crafting compelling resumes and cover letters, networking effectively, and preparing for job interviews specific to this niche field. Resources for career development and further learning will be shared.
- IEEE Region 10 Initiatives: The workshop will showcase IEEE Region 10's ongoing initiatives to promote ethical AI development and deployment within the Asia-Pacific region, highlighting opportunities for involvement and collaboration.

Target Audience: Students, researchers, early-career professionals, and anyone interested in pursuing a career in AI ethics and equitable AI.

Tuesday, September 30 13:30 - 15:00 (Asia/Tokyo)

SP08: Workshop on Reverse Vaccinology: Using Insilico methods to develop vaccines ↗ ↖

Special Program 8
Dr. Sejal Shah

Room: 1210

Computational techniques have reshaped vaccine creation in recent years, providing creative ways to fight infectious illnesses and improve global health security. The workshop will examine how bioinformatics, immunoinformatic, and computational biology can work together to generate new vaccines. The program will commence with a summary of the standard approaches used in vaccine development, emphasizing its drawbacks and difficulties. After that, the participants will learn about the foundational ideas of computational biology and how they apply them to the development of vaccines. With the help of interactive presentations by experts and hands-on exercises, participants will learn about computational tools and techniques used in immune response simulation, molecular modeling, epitope prediction, and antigenic target identification. Key topics to be covered include: ☒ Introduction to Vaccine Design: Understanding the immune system, antigen recognition, and the role of vaccines in disease prevention. ☒ Bioinformatics in Vaccine Design: Exploring databases, sequence analysis, and comparative genomics for antigen discovery and characterization. ☒ Immunoinformatics Techniques: Utilizing algorithms and machine learning approaches for epitope prediction, antigen-antibody interactions, and immunogenicity assessment. ☒ Molecular Modeling and Simulation: Application of computational models to predict protein structures, and vaccine candidate optimization.

Tuesday, September 30 13:30 - 15:00 (Asia/Tokyo)

SP09: Special Session Title: Control and Optimization Strategies for Source Hybridization and Estimation Techniques in Electric and Hybrid Vehicles ↗ ↖

Special Program 9
Dr.Madhuri Bayya

Room: 1211

Sustainable transportation refers to the ability to meet society's mobility needs in a manner that minimizes environmental damage and preserves mobility for future generations. A key solution to achieving this goal is the growing adoption of xEVs, where 'x' denotes various types such as micro, mild, hybrid, or fully electric vehicles. This special session aims to bring together researchers, engineers, and industry experts to discuss the latest advancements in control and optimization strategies for the hybridization of power sources in electric and hybrid vehicles (xEVs). Emphasis will be placed on innovative approaches including rule-based, adaptive, and model-based optimization techniques tailored for various vehicle classes and driving conditions to enhance the performance of such hybrid systems and optimal control strategies tailored to specific vehicle classes and driving patterns being developed through model-based design approaches. . Batteries play a critical role in enabling hybridization. Accurate and fast estimation of battery states-such as state of charge (SOC) and state of health (SOH)-is essential for system reliability and efficiency. Hence estimation strategies to improve battery life are developing equivalent circuit models and physics-based models integrated with adaptive algorithms to improve battery condition estimation. Papers are also invited in this area

Tuesday, September 30 13:30 - 15:00 (Asia/Tokyo)

SP10: Empowering Women in Engineering: Shaping the Future Through Science and Technology ↗ ↖

Special Program 10
IEEE Tokyo/Shin-etsu Joint Section WIE
[Keynote speaker: Dr. Emi Yuda]

Room: 1212

This WIE session features a keynote by Prof. Emi Yuda (Mie University / Tohoku University), a distinguished researcher in biomedical engineering. Her talk, "Women in Biomedical Engineering: Fostering a Balanced and Innovative Future," will address the persistent gender imbalance in engineering and healthcare fields and explore strategies to support early-career female researchers and encourage interdisciplinary collaboration. By fostering a more equitable and inclusive environment, biomedical engineering can achieve greater innovation and impact. In addition, the session will showcase humanitarian technology initiatives led by Women in Engineering (WIE) groups across IEEE Region 10. Participants will gain insights into how diversity drives innovation, learn practical ways to integrate humanitarian technology into WIE activities, and be inspired by women who are shaping a more resilient and inclusive future through science and technology.

Tuesday, September 30 15:15 - 17:45 (Asia/Tokyo)

SP11: Redefining Tomorrow : Beyond SDGs Challenges ↗ ↖

Special Program 11
IEEE R10 LMAG (Organizer: Hideki Hayashi)

Room: 1101

Five program directors of Japan's large-scale research initiative, the Moonshot Program, will present their efforts in their respective fields. This program promotes ambitious research and development that goes beyond conventional technology extensions, aiming for bold and innovative ideas to achieve societal implementation by 2050, surpassing the initiatives of the SDGs.

[Speakers] Toshio Fukuda, IEEE Past President Norihiro Hagita, Osaka University of Arts Kenji Yamaji, Research Institute of Innovative Technology for the Earth (RITE) Masahiro Kitagawa, Osaka University Zensho Yoshida, National Institute for Fusion Science (NIFS)

Tuesday, September 30 15:15 - 17:45 (Asia/Tokyo)

SP12: Recent Disasters: Lessons, Response, and the Role of Technology ↗

Special Program 12
Organizer: Takako Hashimoto and Takao Terano

Room: 1104

In this session, we will focus on recent disasters such as the Noto earthquake and the Myanmar earthquake, exploring how technology has contributed-or failed to contribute-to disaster management and humanitarian response. We will also discuss our expectations and visions for technology that can better serve communities in times of crisis.

Tuesday, September 30 15:15 - 17:45 (Asia/Tokyo)

SP13: From Innovation to Impact: Advancing Humanity through IEEE Humanitarian Initiatives ↗

Special Program 13
Organizer: Dr Hussain Fahih Mahdi

Room: 1103

This panel session will explore how IEEE humanitarian initiatives translate technological innovation into real-world impact across communities in need. Drawing from diverse experiences across Region 10, the discussion will highlight best practices, funding opportunities, and the essential elements that contribute to the success of impactful humanitarian technology projects. From grassroots engineering solutions to large-scale collaborations, panelists will share stories from the field that demonstrate how IEEE members are transforming lives and addressing global challenges-aligned with the UN Sustainable Development Goals (SDGs).

Tuesday, September 30 18:00 - 19:00 (Asia/Tokyo)

TF: Transfer to Banquet Venue ↗

Tuesday, September 30 19:00 - 21:00 (Asia/Tokyo)

AB: Banquet with Award Ceremony @ Hotel ↗

Wednesday, October 1

Wednesday, October 1 9:30 - 12:00 (Asia/Tokyo)

SP: Special session for resilient and green ICT (Sendai Section) ↗

9:30-10:00
Adaptive Antenna Network Control Technology for Green and Resilient B5G. Advancement of resilient ICT elemental technologies that support robust information and communication, Qiang Chen (Tohoku University, School of Engineering)
10:00-10:30
Challenges and Directions of Resilient ICT: Introduction of Research at NICT and Research Outcomes Utilized by Local Governments, Masugi Inoue (National Institute of Information and Communications Technology, NICT, Resilient ICT Research Center)
10:30-11:00
Resilient Wireless Communication Technology for B5G/6G with Adaptive RAN, Fumiuyuki Adachi (Tohoku University, International Research Institute of Disaster Science)
11:00-11:30
Establishing strategic approaches for developing resilient systems that can withstand disruptions and maintain functionality, Hirohito Yamada (Tohoku University, International Research Institute of Disaster Science)
11:30-12:00
Highly Reliable Data Platform Powering Data-Driven Society, Takaki Nakamura (Tohoku University, Cyberscience Center)

Room: 1101

Innovations in advanced information and communication systems continue to develop rapidly, enabling "anytime," "anywhere," "with anyone," and "broadband" information transmission, supporting information and communication technology as a social infrastructure. However, we have also witnessed large-scale disasters such as earthquakes, floods and wildfires causing severe damage to these advanced technologies, leading to massive functional disruptions. As a result, it has become clear that current information and communication technologies, which have become widely adopted as social infrastructure and categorized as "humanitarian technologies," require further improvements in disaster resilience. To achieve this, in addition to enhancing the performance of high-speed information communications, it is essential to strategically build resilient systems that consider disaster resistance, ensuring the realization of highly available information and communication technologies (Resilient ICT) that can continue operating even in the event of a large-scale disaster. From this perspective, this session will focus on the development of resilient information and communication technologies, which, in addition to advanced broadband and green ICT systems, will incorporate high disaster resistance. Based on insights provided by invited speakers with deep expertise in cutting-edge ICT technology, we will discuss anti-disaster ICT solutions. This session will cover recent innovations in resilient ICT infrastructure, including high-speed mobile communications, adaptive antennas, optical communication networks, low-power green systems, and disaster-resistant large-scale data centers, facilitating a broad discussion on these topics.

Wednesday, October 1 13:00 - 14:30 (Asia/Tokyo)

SP14: Extending Double-Entry Bookkeeping: A Proposal for Production Accounting to Bridge Financial and ESG Reporting ↗

Special Program 14
Organizer: Takao TERANO, Hiroshi DEGUCHI, and Kaya AKAGI

Room: 1208

This session proposes Production Accounting as an innovative extension of traditional accounting that enables the structured recording, evaluation, and processing of non-financial, physical data related to manufacturing processes. At its core, Production Accounting treats input-output relationships (e.g., raw materials, labor, capital services, emissions, by-products) as entries in a multidimensional double-entry bookkeeping system, preserving the conceptual symmetry and traceability of conventional accounting. We will demonstrate how Production Accounting can serve as the information backbone for the IFRS Sustainability Disclosure Standards, enabling integrated reporting and unified optimization of financial and environmental goals. This represents not only a conceptual expansion of accounting but also a practical step toward operationalizing sustainability in enterprise information systems.

Wednesday, October 1 13:00 - 14:30 (Asia/Tokyo)

SP15: Synergy for Sustainable Impact ↗

Special Program 15
IEEE R10 Professional Activities Committee & R10 Industry Relations Committee (Organizer: Agnes Irwanti and Bernard Lim)

Room: 1212

This special session, co-organized by IEEE Region 10 Professional Activities Committee (PAC), IEEE Special Interest Group on Humanitarian Technology (SIGHT) Indonesia Chapter, and IEEE Society on Social Implications of Technology (SSIT) Indonesia Chapter, will explore the pivotal role of professional engineers in advancing humanitarian technology. The session will highlight how engineers can actively collaborate with communities, organizations, and interdisciplinary stakeholders to co-develop context-aware, sustainable, and impactful solutions. Through a series of presentations and discussions, we will showcase success stories, challenges, and emerging opportunities where engineering expertise has directly contributed to improving quality of life, especially in underserved or crisis-affected regions. Topics will include grassroots innovation, ethical design, inclusive technology development, and professional engagement models that align with humanitarian goals. Speakers will include representatives from each organizing unit, along with practicing engineers and innovators who have led humanitarian tech projects across the Asia-Pacific and globally. The session will encourage interaction and exchange of best practices among participants, emphasizing capacity building and long-term impact. We aim to inspire IEEE professionals to see humanitarian technology not as a niche, but as an integral part of their career journey and a pathway to meaningful global contribution.

Wednesday, October 1 13:00 - 14:30 (Asia/Tokyo)

TP10: Technical Program 10 ↗

Room: 1209
Chair: Hussain Mahdi (University of Diyala, Iraq)

<i>Arbitrary Image Style Transfer by Using Conditional Latent Diffusion Models</i> Ting-Chun Chiu (National Taipei University of Technology, Taiwan); Cheng-Ming Huang (National Taipei University of Technology (TaipeiTech), Taiwan)
<i>Smart Waste Management Systems Using IoT and Machine Learning: Case Study of Kuala Lumpur and Putrajaya</i> Wai Yie Leong (INTI International University, Malaysia)
<i>Low-Cost IoT Sensor Networks for Real-Time Water Quality Monitoring in Refugee Camps</i> Wai Yie Leong (INTI International University, Malaysia)
<i>Drone Swarms for Post-Disaster Search and Rescue in Remote and Inaccessible Areas</i> Wai Yie Leong (INTI International University, Malaysia)

Wednesday, October 1 14:45 - 15:15 (Asia/Tokyo)

CC: Closing Ceremony ↗

Room: 1101
[EPAS](#) at alpha ([Sun, 21 Sep 2025 01:36:27 +0900 JST](#)) (User: 2150132 aM7YBzmyOkkzelOmMXrAAAAAw) [Request help](#)