

SmartIoT 2025

Technical Program at a Glance

Day 1 – November 17 th , 2025 (Monday)			
09:00am-17:00pm November 17	Registration (Conference Room 4, Level 9, Peter Shergold Building, Parramatta City Campus, WSU)		
18:00-20:00pm November 17	Welcome Reception Dinner (TBA)		
Day 2 – November 18 th , 2025 (Tuesday)			
Conference Room 1 (Level 9, Peter Shergold Building, Parramatta City Campus, WSU)			
09:00-09:20am November 18	Opening Remark Opening Presentation		
09:20-10:30am November 18	Keynote Speech 1: Solving Medical Challenges with Distributed Systems and Generative AI Albert Y. Zomaya, Fellow of the IEEE, Fellow of the AAAS The University of Sydney, Australia		
10:30-10:50am November 18	Coffee Break		
10:50-12:00am November 18	Keynote Speech 2: The Long Trajectory to Trajectory Privacy Salil Kanhere, Editor-in-Chief, Ad Hoc Networks Journal The University of New South Wales, Australia		
	Lunch & Noon Break		
	Conference Room 1	Conference Room 2	Conference Room 3
01:30-03:30pm November 18	R1: IoT sensing, localization and network optimization Chair: TBA	R2: Security and privacy for smart IoT or CPS Chair: TBA	R3: Edge computing, fog computing and the compute continuum Chair: TBA
03:30-03:50pm November 18	Coffee Break		
03:50-05:50pm November 18	R4: Artificial Intelligence, machine learning and evolutionary computing Chair: TBA	R5: Adversarial game theory and security decision-making for IoT/CPS Chair: TBA	S1: Advanced Vision and Techniques for Intelligent IoT Systems Chair: TBA
18:30-21:30pm November 18	Banquet & Conference Award Ceremony (TBA)		
Day 3 – November 19 th , 2025 (Wednesday)			
Conference Room 1 (Level 9, Peter Shergold Building, Parramatta City Campus, WSU)			
09:00-10:10am November 19	Keynote Speech 3: Smart IoT in GenAI Era: A World Model Approach Junshan Zhang, Fellow of National Academy of Inventors, Fellow of the IEEE Editor-in-Chief, IEEE/ACM Transactions on Networking University of California Davis, USA		
10:10-10:30am November 19	Coffee Break		
10:30-11:40am November 19	Keynote Speech 4: TBA Jiannong Cao, Dean of Graduate School, Member of Academia Europaea, Fellow of the IEEE The Hong Kong Polytechnic University, China		
	Lunch & Noon Break		
	Conference Room 1	Conference Room 2	Conference Room 3
01:30-03:30pm November 19	R6: Smart cities, intelligent transportation and internet of vehicles Chair: TBA	R7: Smart Industrial and environmental IoT application Chair: TBA	R8: Social networks, multimedia and mobile computing Chair: TBA
03:30-03:50pm November 19	Coffee Break		
03:50-05:50pm November 19	R9: Big data analysis and cloud computing Chair: TBA	R10: Intelligent and cooperative security in IoT and industrial systems Chair: TBA	Poster Session Chair: TBA
Day 4 – November 20 th , 2025 (Thursday)			
09:00-12:00am November 20	Organizing Committee Meeting		

Day 2 – November 18 th , 2025 (Tuesday) - Conference Room 1	
Time	Talks
R1: IoT sensing, localization and network optimization	
01:30-03:30pm November 18	LoRa-Based Indoor Localization: The Role of Bandwidth and Spreading Factor <i>Hakim Adjedjou, Lounis Zerioul, Iness Ahriz, Samuel Garcia and Michel Terre</i>
	An Interactive Visualization Framework for Heuristic-Driven IoT Topology Optimization <i>Ruimeng Cao, Songwei Zhang, Tie Qiu and Bingxian Lu</i>
	Radio Map Interpolation Using Geodesics on Statistical Manifolds <i>Imran Moez Khan, Xuezhi Wang, Bill Moran and Wayne Rowe</i>
	Evaluating Offloading Strategies in the IoT Continuum: a simulation-based approach <i>Claudio Savaglio, Raffaele Gravina, Antonio Guerrieri and Giancarlo Fortino</i>
	Flexibility-Enhanced Scheduling in Multi-Domain Time-Sensitive Networks <i>Guangzheng Guo, Zhenrui Cao, Shuang Liu and Tie Qiu</i>
	Energy-Aware Load Shifting in SWIPT-Enabled IoT Networks <i>Biagio Boi, Laura Finarelli, Falko Dressler, Christian Esposito and Gianluca Rizzo</i>
03:30-03:50pm November 18	Coffee Break
R4: Artificial Intelligence, machine learning and evolutionary computing	
03:50-05:50pm November 18	A Domain Adaptation Segmentation Network Based on Pyramid Prototypes and Contrastive Learning <i>Wang Siqu, Wu Hao, Wu Chengdong, Yu Xiaosheng and Yu Meiyu</i>
	Validation of Simple Parallel Annealing Algorithm Using Transition-Based Multi-State Spin <i>Kazuma Kanai and Takayuki Kawahara</i>
	Active Color-Aware Demosaicing for Color Polarization Images <i>Junlin Li, Xiangyue Zhang, Hao Wu, Chengdong Wu and Yaoming Zhuang</i>
	From Industrial to Sports Activity Classification via AI of Things Knowledge Adaptation <i>Nazia Akter, Andreea Molnar and Dimitrios Georgakopoulos</i>
	A Novel Hierarchical Integration Method for Efficient Model Merging in Medical LLMs <i>Prakrit Timilsina, Anuj Nepal, Rajan Kadel and Robin Doss</i>
	A Machine Learning Approach for Real-time Gait Analysis <i>Ankan Ghosh, Sumaiya Afroz Mila, Zongwei Zhen, Cong Chen, Swarup Bhunia and Sandip Ray</i>

Day 2 – November 18 th , 2025 (Tuesday) - Conference Room 2	
Time	Talks
R2: Security and privacy for smart IoT or CPS	
01:30-03:30pm November 18	Anonymous Lightweight Device-to-Device Continuous Authentication Protocol for IoT <i>Yaovi Ahadjitse</i>
	High Fidelity Synthetic data with Self Mapped VAE for IntuAsion Detection in SDN enabled Heterogeneous 6G Networks <i>Syed Hussain Ali Kazmi, Kashif Nisar, Faizan Qamar, Rosilah Hassan and Bahman Javadi</i>
	Direct-to-Cell Access for IoT Communications: A Blockchain-Assisted Approach <i>Zixin Wang, Zongyuan Song, Haoyang Li, Bin Cao and Mugen Peng</i>
	Secure Medical Image Encryption via Dual-Channel Strategy and Digital Signature Verification <i>Zixuan Qiao, Suxuan Yao, Yutong Xie, Xiaoqiang Zhu and Yingying Yao</i>
	MambaGuard: A Hybrid Framework for Unsupervised Anomaly Detection in IIoT Networks <i>Feng Xiong, Aniket Mahanti and Ni Ding</i>
	SMMEG-IoT: A Secure Multi-app Multi-protocol Edge Gateway for the IoT <i>Abdulkadir Dauda, Olivier Flauzac and Florent Nolot</i>
03:30-03:50pm November 18	Coffee Break
R5: Adversarial game theory and security decision-making for IoT/CPS	
03:50-05:50pm November 18	A Novel Whittle Index-Based Scheduling for Age of Information Minimization in IoT Networks <i>Arian Morteza, Dongyu Qiu and Yousef R. Shayan</i>
	MAFT-Net: Deep Bayesian Filtering for Radar Multi-Agent Formation Tracking <i>Yifu Fu, Bin Rao, Dan Song, Boyu Han, Yiqian Shen and Wei Wang</i>
	Securing Agentic AI in IoT Systems <i>Sandra Kumi, Richard K. Lomotey and Ralph Deters</i>
	Enhancing Real-Time Malicious Traffic Detection in IoT Networks via Image-Based Convolutional Neural Networks: A Scalable Deep Learning Solution for Zero-Day Threats <i>Tai-Ying Chiu, Jiann-Liang Chen and Candra Ahmadi</i>
	A Hybrid Deep-Learning Model for Multi-Class IoT Threat Detection employing Attention-Enhanced CNN-BiLSTM <i>Bipraneel Roy, Hon Cheung and Chun Ruan</i>
	Game-theoretic AI for Zero Trust Cyber Defense <i>Al Amin Hossain and Darryl Ahner</i>

Day 2 – November 18 th , 2025 (Tuesday) - Conference Room 3	
Time	Talks
R3: Edge computing, fog computing and the compute continuum	
01:30-03:30pm November 18	TLBO-HHO AoI-Aware Task Offloading for Mobile Edge Computing <i>Jie Bai, Haoru Su, Jing Bi, Li Zhang, Xiaoming Yuan and Xiliang Liu</i>
	An Analysis of the Impact of Network Conditions on Edge Federated Learning <i>Imran Zahid, Guilherme Rodrigues, Bahman Javadi and Rodrigo N. Calheiros</i>
	Multi-Agent Deep Reinforcement Learning based Offloading Strategies and Collaborative Optimization for Computing Power Networks <i>Ruiqi Zhang, Caixing Shao, Ran Li, Qilin Zhang and Jianhua He</i>
	IoMT Patient Monitoring with Blockchain and Fog Computing: A Secure and Efficient Architecture <i>Yunhao Zhao, Aniket Mahanti, Ranesh Naha and Sudheer Kumar Battula</i>
	A Link-Reliable Edge Computing Node placement strategy for Internet of Underwater Things <i>Zhao Zhao, Jiuxing Zhang, Wenwei Li, Chao Bu, Zening Zhao and Kai Shi</i>
	MicroIntent: Intent-Based Placement Strategy for Microservice Application in the Compute Continuum Using LLMs <i>Koushikur Islam Shohag, Guilherme Rodrigues, Bahman Javadi and Rodrigo N. Calheiros</i>
03:30-03:50pm November 18	Coffee Break
S1: Advanced vision and techniques intelligent IoT system	
03:50-05:50pm November 18	IAM-based Zero Trust Architecture for IoT: Securing Non-Human Identities in a Connected World <i>Sthembile Mthethwa, Edgar Jembere and Moses Dlamini</i>
	An IoT-Enabled Remote-Controlled Oil Skimming Boat Using LoRa Communication for Real-Time Environmental Monitoring <i>Shameer Ahmed, Fraz Ahmad, Younus Ahamad Shaik, Fahiza Fauz, Dilbar Hussain, Pankaj Yadav, Hammad Maqsood and Raja Atta Ur Rehman</i>
	FLOPs-based Lightweight Latency Estimation for Edge AI Inference on Raspberry Pi Devices <i>Kangbok Seo, Eunghyup Kim, Homin Kang and Soonju Kang</i>
	Quantum Meta-Learning for Adaptive Task Offloading in Dynamic Edge Computing Networks <i>Hoa Tran-Dang and Kim Dong-Seong</i>
	Development of AI-ML based Models for Predicting Prices of Agri-horticulture Commodities <i>Jayapradha J, Haw Su Cheng, Ganga Hemanth E, Teja D and Senthil Kumar T</i>
	Does Interactive AI-Enhanced Learning Increase Study Time: A Large-Scale Longitudinal Survey of Japanese Junior and Senior High School Students <i>Shiroh Ohno</i>

Day 3 – November 19 th , 2025 (Wednesday) - Conference Room 1	
Time	Talks
R6: Smart cities, intelligent transportation and internet of vehicles	
01:30-03:30pm November 19	Parameters design for vertical section of a 30,000-ton heavy-haul railway alignment based on longitudinal dynamics analysis <i>Qihan Chu, Can Zou and Yiming Zhang</i>
	Convolutional Neural Network-Based Intelligent Waste Classification for Smart City <i>Shengjie Li, Jiancheng Chi, Lei Wang and Van Cu Pham</i>
	A Real-Time Internet of Things System for Enhancing Cyclist Safety <i>Kanaka Sai Jagarlamudi, Ashim Debnath, Arkady Zaslavsky, Wonmongo Lacina Soro, Narelle Haworth, Alireza Hassani and Alexey Medvedev</i>
	A Logic-Driven Framework for Home Health Monitoring Using the Matter Protocol and Epistemic Reasoning <i>Viane Matsibekker, Gwendolyn Morgan, James Oswald and Thomas Ferguson</i>
	Cross-Modality Cooperative Perception for Multiple Vehicles under V2X <i>Tianci Fu, Fengxiang Long, Mengzhen Li and Xiaobo Zhou</i>
	E2E-V2X-CP: An Efficient Cooperative Perception Method for End-to-End Autonomous Driving <i>Jing Zhang, Fengxiang Long, Mengzhen Li and Xiaobo Zhou</i>
03:30-03:50pm November 19	Coffee Break
R9: Big data analysis and Cloud computing	
03:50-05:50pm November 19	Breaking Through Blockchain Scalability Barriers in IoT: A Decoupled Dual-Consensus Approach <i>Mingrui Cao, Bin Cao and Mugen Peng</i>
	DMSformer: Lightweight Transformer-based Model For Multivariate Time Series Forecasting <i>Shotaro Kawano and Takayuki Kawahara</i>
	Evaluation of Visual Adversarial Robustness on Multilingual Large Vision-Language Model <i>Ryo Kumagai, Shu Takemoto, Yusuke Nozaki and Masaya Yoshikawa</i>
	Entropy Regularized Transformer Autoencoder For Anomaly Detection in Multivariate Time Series <i>Mostofa Fahim Hasan, Md Sayem, Md.Jahid Hasan, Md Zahangir Alam and Tarem Ahmed</i>
	Enabling Efficient Federated Learning at the Edge through Sparse Forward-Forward Algorithm <i>Ilenia Ficili, Enrico Catalfamo, Fabrizio De Vita, Dario Bruneo and Antonio Puliafito</i>
	Scalable and Robust AI Forecasting of University KPIs Using LSTM and Random Forest within the Lamar Data Lakehouse <i>Ronish Shresth, Md Rana, Frank Sun and Bo Sun</i>
	Viperformer: Vision-Language Cooperative Transformer for Image Deraining in Smart IoT <i>Yunzhe Zhang, Hongda Ji, Jing Qin and Wanshu Fan</i>

Day 3 – November 19 th , 2025 (Wednesday) - Conference Room 2	
Time	Talks
R7: Smart industrial and environmental IoT application	
01:30-03:30pm November 19	Modernizing Legacy Healthcare Systems Utilizing Semantic-based Automated Mapping <i>Haw Su-Cheng, Tai Tong-Ern, Kong Wan-Er, Ng Kok-Why and Palanichamy Naveen</i>
	Design and Implementation of a handlebar defect detection system based on machine vision <i>Yirui Gou, Yajun Liu, Yaxuan Yu and Shengkai Guo</i>
	Hamming Distance aware Fault Analysis for LTLBC <i>Yusuke Nozaki, Shu Takemoto and Masaya Yoshikawa</i>
	Resilient Digital Twin Framework for Integrated Anomaly Detection, Classification, and Forensic Analysis in Dynamic Cyber-Physical Systems Under Adversarial Attacks <i>Md Rana and Helen Lou</i>
	Low-Latency Power Line Component Detection using Quantized YOLO on Edge Devices <i>Nico Surantha and Zhang Hanfei</i>
	Optimizing Industrial Anomaly Detection with Window-based Sparse Attention <i>Tianyi Xu, Yang Liu, Ziqi Gan and Tie Qiu</i>
03:30-03:50pm November 19	Coffee Break
R10: Intelligent and cooperative security in IoT and industrial systems	
03:50-05:50pm November 19	Effects of Beacon Spoofing Attacks on Various LoRaWAN Network Devices <i>Jayan Ariyawansa, Rodrigo N. Calheiros, Alana Maurushat and Ala Abdulhakim Al-Areqi</i>
	Blockchain Scalability in Healthcare: A Systematic Review of Privacy and Security Considerations <i>Ranjit Kaur, Seyed Shahrestani and Chun Ruan</i>
	Learning-enabled Intrusion Detection in IoT: Current Challenges and Future Directions <i>Safae Naciri, Olivier Gamache, Jacob Ouellet-Boudreault, Adel Abusitta, Martine Bellaiche and Talal Halabi</i>
	EV-CybersecurityClinic: Privacy-Preserving Distributed State Estimation for Electric Vehicles, and Federated Learning for Secure Network Control — Theories, Applications, and Research Roadmap <i>Md Rana</i>
	Improving IoT Cyber Threat Response with Multi-Agent LLMs and Semantic Retrieval <i>James Alan Williams, Sohan Gyawali, Yili Jiang and Jiaqi Huang</i>
	Global-Local Normalization based Model Pool for Online Anomaly Detection in IIoT <i>Yuanzhe Liu, Yang Liu, Cunyu Zhang, Yaotian Dong, Shuxin Ma and Yang Yang</i>

Day 3 – November 19 th , 2025 (Wednesday) - Conference Room 3	
Time	Talks
R8: Social networks, multimedia and mobile computing	
01:30-03:30pm November 19	Adaptive Handover Algorithm Based on A-FAHP and Dwell Time Prediction in 5G HetNets <i>Chengbin Huang, Jiahao Zhou, Li Cong, Yang Zhou and Chen Chen</i>
	Energy-Efficient Communication and Localisation Protocol for Industrial IoT Devices <i>Max Amiri, David Eyers and Morteza Biglari-Abhari</i>
	Adaptive Crowd Sensing with Privacy-Preserving WiFi Fingerprinting <i>Rui Neto Marinheiro, Fernando Brito E Abreu, Tiago Vieira and Miguel Martins</i>
	Low-Light Polarized Image Enhancement via Multi-Scale Feature Fusion Network <i>Zhixin Dong, Hao Wu, Xiangyue Zhang and Chengdong Wu</i>
	Federated-Aware Intelligent Mode Selection with Low-Latency Scheduling in Computing Power Networks <i>Yanmin Zhang, Xin Liu, Fengbiao Zan, Tianyi Xu and Tie Qiu</i>
	Refined Faster R-CNN for Enhanced Object Detection in 360-Degree Camera Systems <i>Sagar Shankarrao Dake, Arun Kumar and Narayan Nepal</i>
03:30-03:50pm November 19	Coffee Break
Poster Sesion	
03:50-05:50pm November 19	AI-Driven Real-Time Adaptive Camouflage System <i>Sajad Ghatrehsamani, Dylan Moore, Shuvashis Saha and Lawrence Ong</i>
	Efficient Gesture Recognition Using Simplified and Quantized CNN Architecture <i>Bong-Seok Kim, Soon Kwon and Sangdong Kim</i>
	Performance Comparison of Attention Modules in YOLO-based Vehicle Detection Network with a Super-resolution Branch <i>Hyunjin Jo and Byung Wook Kim</i>
	Smart Vehicle Braking System <i>Athish S A, Naveen Kumar.S, Naveen.R, Prem Kumar.R and Pradeep.S</i>