

IEA/AIE 2025

The 38th International Conference on Industrial, Engineering & Other Applications of
Applied Intelligent Systems

Conference Program

Kitakyushu, Japan

<https://www.i-somet.org/iea-aie2025/index.html>

All times are according to Japan Standard Time (JST), UTC +9

Each symbol represents (Paper ID)-(Category)

Yellow is for North America; **Green** is of European, no colour is Asian.

Regular papers: 25 min presentation and 5 min questions

Short papers: 15 min presentation and 5 min questions

Meaning of Paper ID-Symbol

Symbol	Session (Category)
A	Reinforcement Learning
B	Optimization
C	Natural Language Processing
D	Multi-Agent
E	Machine Learning and Decision Making
F	Knowledge Representation
G	Data Engineering
H	Large Language Model
I	Computer Vision
J	Robotics
K	Education
L	Cyber Security
M	Healthcare and Medical Applications
N	Advanced Applied Intelligence Methodologies and Applications (AAIMA)
O	Intelligent Systems and e-Applications (iSeA)
P	Industrial and Engineering Applications

July 1st, Tuesday, 2025

Japan standard time (JST) AM 9:00-9:30 REGISTRATION

< Room A >

9:30-10:00 Opening

Session Chair: Prof. Hamido Fujita

Official announcement for the IEA/AIE2026 in Kuala Lumpur (Malaysia)

Prof. Nurulakmar Abu Husain, University Teknologi Malaysia (UTM), Dean of Malaysia Japan International Institute of Technology (MJIIIT),

10:00-11:00 Keynote Speech 1

Session Chair: Prof. Yutaka Watanobe

“About Responsible Artificial Intelligence Systems”

Prof. Enrique Herrera-Viedma, University of Granada, Spain

11:00-11:30 COFFEE BREAK

11:30-12:30

Session Chair: Prof. Thai-Nghe Nguyen

14-O Improving University Quality from Student Feedback with Sentiment Analysis

Thai-Nghe Nguyen (Can Tho University); Ba-Hung Ngo; Cam-Nhung Mai-Thi*

96-P Beyond Air Pollution Prediction: A Step to Pollution Pattern Discovery With A Novel Binary Neuro-symbolic AI Framework

Hareesh Kumar yerragolla (University of Aizu); Vanitha Kattumuri; Uday RAGE*

12:30-14:00 LUNCH BREAK

14:00-15:30

Session Chair: Prof. Binh Nguyen

81-O Multimodal Sarcasm Detection On Vietnamese Social Media

Minh Nhu Vu; Yen Nhi Nguyen Hoang; Tram Phan; Binh Nguyen

*(University of Science, Vietnam National University Ho Chi Minh City, Vietnam)**

101-O A Hybrid Knowledge-Based and Machine Learning Approach for Financial Health Prediction in Small and Medium-sized Enterprises

Hien Nguyen (University of Information Technology, VNU-HCM); Sang Vu; Uyen Pham; Dung Dinh; Diem Nguyen*

115-O Enhancing Ransomware Detection Using Deep Learning Models

Ali Selamat; Ras Elisa Harzie (Universiti Teknologi Malaysia); Ondrej Krejcar; Hamido Fujita; Quang Do Nguyet*

15:30-16:00 COFFEE BREAK

16:00-17:30

Session Chair: Prof. Yutaka Watanobe

121-O CAGN-GAT Fusion: A Hybrid Contrastive Attentive Graph Neural Network for Network Intrusion Detection

*Md Abrar Jahin; Shahriar Soudeep; M. F. Mridha; Raihan Kabir; Dr. Md. Rashedul Islam (University of Asia Pacific)**

Short Paper 93-O Fine-grained WEEE Product Retrieval Using Hybrid Search and Re-ranking

Ajibola Obayemi (University of Brighton); Khuong Nguyen*

114-A A reinforcement learning based framework to the facility layout problem

Lukas Rijßmann (University of Applied Sciences Landshut); Sebastian Meißner*

< Room B >

11:30-12:30

Session Chair: Prof. Markus Stumptner

52-F Automating OntoClean Ontology Verification

Shathika Kularatne (University of South Australia); Wolfgang Mayer; Markus Stumptner*

Short Paper 53-F Automating OntoClean - Subsumption Hierarchy Construction

Shathika Kularatne (University of South Australia); Wolfgang Mayer; Markus Stumptner*

12:30-14:00 LUNCH BREAK

14:00-15:30

Session Chair: Dr. Churn-Jung Liau

Short Paper 56-F Possibilistic Reasoning with Fuzzy Formal Contexts: An Extended Abstract

*Churn-Jung Liau (Academia Sinica)**

111-F A Strategy for Implementing Garbage Detection in Ontology Completion using Description Logics

Teeradaj Racharak (Japan Advanced Institute of Science and Technology); Chavakan Yimmark*

104-B Optimizing Feature Selection Binary Peacock Algorithm with improved movement strategy

*Hema Banati; Asha Yadav (School of Open Learning, University of Delhi)**

15:30-16:00 COFFEE BREAK

16:00-17:30

Session Chair: Dr. Liwen Zhang

16-B Domain Generalization through Domain-Expert Risk Assessment

*Jinyong Jeong; Hyungu Kahng; Seoung Bum Kim (Korea University)**

35-B Enhanced Optimization Space Learning: Towards Real-Time Compiler Optimization

Damian Garber (Graz University of Technology); Sebastian Lubos; Viet-Man Le ; Alexander Felfernig*

11-B Bayesian Optimization for Fine-Tuning an AI Solver: Application to Preventive Maintenance Scheduling Problems

Liwen Zhang (Berger-Levrault); Youness Chetouan; Sara Maqrot; Kevin Ducharlet; Housseem Saidi*

< Room C >

11:30-12:30

Session Chair: Prof. Jun Sasaki

26-E Bridging the Trust Gap: Leveraging Explainable AI for Personalized E-Commerce Recommendations

Gumma Sougandhika (IIITDM Kurnool); Hari Sai Ganesh Sanjammagari; Srinivasa Desikan K E*

40-E A clustering method based on hesitant difference granularity

*Yu Fu; Anna Wu; Yimin Dai; Bin Yu (Hunan Normal University)**

12:30-14:00 LUNCH BREAK

14:00-15:30

Session Chair: Prof. Jun Sasaki

5-C Apply TF-IDF and LDA to Explore Topics and Related Trends in Electric Vehicle Reviews

Wei Ming Lee; Ming Shien Cheng (Ming Chi University of Technology, Department of Industrial Engineering and Management); Min Che Chen; Ping Yu Hsu ; YI CHIN CHEN*

8-C Identifying Fake Reviews and Their Implications Using BERT and LDA: A Case Study of Online Shopping Website Reviews

Yung Ching Li; Ming Shien Cheng (Ming Chi University of Technology, Department of Industrial Engineering and Management); Wei Hsiang Hsu; Ping Yu Hsu; YI CHIN CHEN*

45-C A Lightweight and Efficient Punctuation and Word Casing Prediction Model for On-Device Streaming ASR

*Jian You (Cisco Systems)**

15:30-16:00 COFFEE BREAK

16:00-17:30

Session Chair: Prof Mats Danielson

82-G Fast HSIC-based tests for random processes

Antonin Arsac (CEA); Gabriel Sarazin ; Aurore Lomet; Jean-Philippe Poli*

15-E Distribution Variance for Surrogate Weights in Multi-Criteria Decision Analysis

*Sebastian Lakmayer; Mats Danielson (Stockholm University)**

73-E Evaluation of Efficient AI for the Edge: Insights from Deep Neural Networks Model Compression Techniques Applied to Occupancy Detection

*Mina Basirat; Franz Wotawa (TU Graz)**

July 2nd, Wednesday, 2025

Japan standard time (JST) AM. 9:00-9:30 REGISTRATION

< Room A >

9:30-11:00

Session Chair: Prof. Chia-Li Lin

- Short paper 6-P** Using Meta-Learning to Predict Work-in-Progress: An Approach for Small Datasets
Yousef Mehrdad Bibalan (University of Calgary); Behrouz Far; Bahareh Ghiyasian; Mohammad Moshirpour*
- 78-P** Establishing the subscription service strategies for digital music services using the DAA-NRM approach
Chia-Li Lin (Ming Chuan University); Chen-Yu Chen; Kana Taira*
- Short paper 83-P** Development and Performance Evaluation of a Wiring Safety Detector for Electrical Sockets in Buildings
*Yu-Hong Chen; Daniel Wu; Chin-Shiuh Shieh; Chun-Chih Lo; Mong-Fong Horng (National Kaohsiung University of Science and Technology)**

11:00-11:30 COFFEE BREAK

11:30-12:30

Session Chair: Prof. Jun Sasaki

- 72-O** Fusion in Multimodal Sentiment Analysis: A Review of Approaches and Challenges
*Nurulhuda Zainuddin (UiTM)**
- 123-P** A Dual-Agent Framework for Condition-Based Maintenance of Production Systems
Linsheng Guo; Yuanyuan Li (Shanghai University of Engineering Science); Xun Zhu; Bo Huang; Zhijun Fang*

12:30-14:00 LUNCH BREAK

14:00-15:30

Session Chair: Prof. Jun Sasaki

- 124-P** MST-SGAN-KGQA: An Approach for Industrial Knowledge Graph Quality Assessment
Xun Zhu; Yuanyuan Li (Shanghai University of Engineering Science); Linsheng Guo; Bo Huang; Zhijun Fang*
- 125-P** Adversarial Learning Based Error Detection for Industrial Knowledge Graphs
Xun Zhu; Yuanyuan Li (Shanghai University of Engineering Science); Linsheng Guo; Bo Huang; Zhijun Fang*
- 84-N** Effective Virtual Force Estimation with Semi-Parametric Joint Friction Compensation for Robot Manipulators
Bo-Ru Tseng (National Yang Ming Chiao Tung University); Ching-Hung Lee*

15:30-16:00 COFFEE BREAK

16:00-17:00 Keynote Speech 2

Session Chair: Prof. Hamido Fujita

“AI in Software Engineering: Productivity Gains Ahead?”

Prof. Volker Gruhn, Universität Duisburg-Essen, Germany

17:10-18:10 Bus tour

18:30-20:30 Banquet

< Room B >

9:30-11:00

Session Chair: Dr. Ahmed Missaoui

- 23-A** An Enhanced Preference-Based Reinforcement Learning Framework for Autonomous System
Dake Ding (The University of Aizu); Kabir Raihan; Nnadi Leonard Chukwualuka*

32-A Reinforcement Learning based Iterated Greedy for Parallel Machine Scheduling with Weighted Earliness Tardiness

Ahmed Missaoui (University college Cork); Barry O'Sullivan*

44-A VMD-IMF Enhanced Hyper Graph Attention Module Based Reinforcement Learning For Portfolio Optimization
Neeli Siva (Indian Institute of Information Technology Design and Manufacturing Kurnool); K E Srinivasa Desikan*

11:00-11:30 COFFEE BREAK

11:30-12:30

Session Chair: Prof. Yutaka Watanobe

30-K Interpretable Machine Learning for Predicting and Explaining Code Submission Outcomes in an Online Judge System

Leonard Nnadi (The University of Aizu); Dake Ding; Daniel Muepu; Md Faizul Ibne Amin; Kabir Raihan; Yutaka Watanobe*

71-K Teaching Practices and Effectiveness Assessment of AI Courses Assisted by Large Language Models
*Shih-Chuan Chang; Yung-Chun Chang (Taipei Medical University)**

12:30-14:00 LUNCH BREAK

14:00-15:30

Session Chair: Prof. Chin-Yu Sun

22-L A Self-Adaptive Multi-Modal Cyber Threat Intelligence Framework for Securing Industrial Communication Networks

Deepika Saxena (University of Aizu); Randima Nimantha*

54-L RANsomCheck: A CNN-Transformer Model for Malware Detection Based on API Call Sequences
*Sheng-Shan Chen; Yi-Xuan Wu; Ying-Xuan Ho; Pang-Po Cheng; Chin-Yu Sun (National Taipei University of Technology)**

109-L A Comprehensive Survey of Cryptography Key Management in Decentralized Identity Ecosystem
*Geun-Hyung Kim (Dong-eui University)**

15:30-16:00 COFFEE BREAK

16:00-17:00 Keynote Speech 2 (RoomA)

17:10-18:10 Bus tour

18:30-20:30 Banquet

< Room C >

9:30-11:00

Session Chair: Prof. Willy Ugarte

102-M MediTHIM: Temporal Hierarchical Imputation Methods for Medical Time Series

*Helia Hashemolhosseiny; Paula Branco (University of Ottawa)**

117-M IoT system based on deep learning for the identification and feedback of work postures when using a computer

*EDUARDO CABALLERO-LARA; ENZO CAMARGO-RAMIREZ; Willy Ugarte (Universidad Peruana de Ciencias Aplicadas)**

2-N A Novel Score Function for Ranking Interval-Valued Intuitionistic Fuzzy Values

Shyi-Ming Chen (Asia University); Cheng-Yu Hsieh; Xin-Yao Zou*

11:00-11:30 COFFEE BREAK

11:30-12:30

Session Chair: Prof. Huai-Kuei Wu

4-N BF-YOLOv7: Enhancing Helmet Rule Violation Detection

Chun-Ming Tsai (University of Taipei); Jun-Wei Hsieh; Ming-Ching Chang*

29-N A Smartphone-based Early Detection and Remote Consultation System for Stroke and Dementia

Chien-Nan Lee (Asia Eastern University of Science and Technology); Huai-Kuei Wu*

12:30-14:00 LUNCH BREAK

14:00-15:30

Session Chair: Prof. Jun Sasaki

57-C SYNCAD: Synchronised Yields from Narrative Cross Modal Audio and Data

Aditya Vardhan Madivada (Indian Institute of Information Technology Design and Manufacturing Kurnool); Madhav Kartheek Bhumireddi ; Srinivasa Desikan K E*

76-C MultiGAU: Real Time Sign Language Generation using Multimodal Gated Attention

Nabeela Khan (Institute of Science Tokyo); Bowen Wu; Carlos Toshinori Ishi; Nakadai Kazuhiro*

110-C Classification of Approval Desires and Analysis of Emotional and Linguistic Features in SNS Posts Using Generative AI

*Erina Murata; Qun Jin (Waseda University)**

15:30-16:00 COFFEE BREAK

16:00-17:00 Keynote Speech 2 (RoomA)

17:10-18:10 Bus tour

18:30-20:30 Banquet

July 3rd, Thursday, 2025

Japan standard time (JST) AM. 9:00-9:30, REGISTRATION

< Room A >

9:30-11:00

Session Chair: Prof. Sebastian Link

31-G Linking Data Meaningfully: Identifying Meaningful Keys and Foreign Keys from Data

*Henning Koehler; Sebastian Link (University of Auckland)**

60-G A-REACT: Adaptive Resampling and Active Classification for Thresholded Anomalies

Mayukh Bhattacharjee; Sankhadeep Chatterjee; Paula Branco (University of Ottawa); Saranya Bhattacharjee*

18-G Uncertainty-based Instance-Dependent Noisy Label Datasets Generation

*Jungmin Lee; Seoung Bum Kim (Korea University)**

11:00-11:30 COFFEE BREAK

11:30-12:30 Keynote Speech 3

Session Chair: Prof. Ali Selamat

“Compressive Sensing: Principles and Applications in Signal and Image Processing”

Prof. Hector Perez-Meana, National Polytechnic Institute, Mexico

12:30-14:00 LUNCH BREAK

14:00-15:30

Session Chair: Prof. Yutaka Watanobe

19-G Guided by Uncertainty: Semi-supervised Domain Adaptation with Curriculum and Contrastive Learning

*Sunhyeok Hwang; Seoung Bum Kim (Korea University)**

38-G CAMI: A missing value imputation method based on causal discovery and self-attention

*Yunlong Liu; Yifeng Cao; Zhaojun Zeng; Mingjie Cai; Bin Yu (Hunan Normal University)**

105-I SkinPalNet: An Advanced Ensemble Model for Skin Cancer Diagnosis with Computer Vision Approach

*Osim Kumar; M. F. Mridha; Raihan Kabir (Department of Computer Science and Engineering, University of Aizu) *; Md Rashedul Islam ; Yutaka Watanobe*

15:30-16:00 COFFEE BREAK

16:00-17:30

Session Chair: Dr. Ahmed Missaoui

122-I Brain Tumor MRI Interpretation: Towards a Benchmark for Medical Visual Question Answering

Faheem Shehzad (Naples University); Hamido Fujita; Aniello Minutolo; Massimo Esposito*

80-P Multi-Objective Energy-Efficient Scheduling in Two Stages Hybrid Flowshop under Consideration of No-wait

Ahmed Missaoui (University college Cork); Barry O'Sullivan*

Short Paper 37-P Evaluating Large Language Models for the Automated Generation of Software Requirements

Thomas Puchleitner; Sebastian Lubos (Graz University of Technology); Alexander Felfernig; Damian Garber*

< Room B >

9:30-11:00

Session Chair: Dr. Thayne Walker

3-D Hierarchical Multi-Agent Reinforcement Learning with Epistemic Priors for Scalable Communicationless Coordination of Teamable Agents

Thayne Walker (University of Denver); Jaime Ide*

95-D Automated Issue Hierarchy Generation for Improved Automated Negotiation Outcomes

Adnan Ahmed (University of Calgary); Behrouz Far; Clinton Purtell*

89-N Enhancing Traffic Accident Detection with YOLOv5 in Smart City Road Monitoring

*Rung-Ching Chen (Chaoyang University of Technology)**

11:00-11:30 COFFEE BREAK

11:30-12:30 Keynote Speech 3 (Room A)

12:30-14:00 LUNCH BREAK

14:00-15:30

Session Chair: Prof. Huei-Wen Ferng

59-N Implementation of a One-Time Random Number Generation Mechanism for Zero-Trust Networks with IoT Transmission Verification

Wen-Chung Tsai (National Taichung University of Science and Technology); Tzu-Hsuan Tsai; Mao-Lun Chiang; Te-Jen Wang*

70-N Adaptive DRL-Based Traffic Signal Control with an Infused LSTM Prediction Model

*Ying-Tsu Tseng; Huei-Wen Ferng (National Taiwan University of Science and Technology)**

74-N A Fast R1CS Normalization Method Based on Parameter Vectors

*Wei-Chung Teng (National Taiwan University of Science and Technology)**

15:30-16:00 COFFEE BREAK

16:00-17:30

Session Chair: Prof. Armando Stellato

49-G MDR: An Ontology Vocabulary and Registry Service for Dataset Catalogs

*Armando Stellato ("University of Rome, Tor Vergata")**

Short paper 75-I LSTM-based Proactive Scheduling of Stream Applications in Edge/Cloud Environments

Sabeur Lajili (University of Sousse); Zaki Brahmi; Mohamed Nazih Omri*

Short Paper 92-I Uncertainty Quantification Of Multimodal Models

Ajibola Obayemi (University of Brighton); Khuong Nguyen*

< Room C >

9:30-11:00

Session Chair: Prof. Jun Sasaki

63-H Towards Predicting Complex Carpooling Trajectories with Context-Augmented BERT-LLM in Chaotic Environments

DARIL RAOUL KENGNE WAMBO (UQAM); Roger Nkambou; Ange Tato; Clara Lacourarie*

113-H LLM-base MaSE, A Software Development Framework for Developing Multi-Agent Systems

Sahar Hajjarzadeh (University of Calgary); Zahra Shakeri Hossein Abad; Behrouz Far*

47-H Exploring the Efficacy of Large Language Models in Predicting Chemical Toxicity

*Yueh-Hsi Chung; Chun-Wei Tung; Yung-Chun Chang (Taipei Medical University)**

11:00-11:30 COFFEE BREAK

11:30-12:30 Keynote Speech 3 (Room A)

12:30-14:00 LUNCH BREAK

14:00-15:30

Session Chair: Prof. Harumi Murakami

107-J Collision Detection and Avoidance among SWARM Robots using Convolutional neural network (CNN) in Harsh Environment

HOSSAIN SHAH ALAM (The University of Aizu); Raihan Kabir; Yutaka Watanobe*

13-M Ranking Lifelogs for Memory Recall Support

Harumi Murakami (Osaka Metropolitan University); Sihan Wang; Takashi Hirata*

65-M Comparative Analysis of Large Language Models and Machine Learning Approaches for the Detection of Dengue Fever Information from ProMED-mail Platform

*Kai-Shun Lin; Feng-Jen Tsai; Nai-Wen Kuo; Yung-Chun Chang (Taipei Medical University)**

15:30-16:00 COFFEE BREAK

16:00-17:30

Session Chair: Prof. Franz Wotawa

66-M Model-based diagnosis for building systems - results of an initial feasibility study

*Franz Wotawa (Graz University of Technology, Institute of Software Engineering and Artificial Intelligence)**

7-M Assessment of frailty levels in older adults through smartphone applications

Andreu Català (UPC); Jordi Olle; Xavier Parra; Carlos Perez; Oscar Macho; Marta Arroyo; John Nelson*

62-J Multi-Class Semantic Segmentation of Photovoltaic Module Defects and Features: Towards Industrial Robotic Applications

Shiva Hanifi (University of Luxembourg); Sasan Jafarnejad; Mathieu Cormier; Raphael Frank*

July 4th, Friday, 2025

Japan standard time (JST) AM. 9:00-9:30 REGISTRATION

< Room A >

9:30-11:00

Session Chair: Prof. Willy Ugarte

100-I Lost in the Noise: Evading and Detecting Backdoors in Conditional Diffusion Models

William Aiken (University of Ottawa); Paula Branco; Guy-Vincent Jourdan*

116-I Enhancing Minimarket Customer Experience through YOLOv8-Powered Checkout Systems

*SEBASTIAN ARANA-DEL-CARPIO; LUIS BECERRA-BISSO; Willy Ugarte (Universidad Peruana de Ciencias Aplicadas)**

10-I WeldViT: A Lightweight Network for Online Identification of Multi-Label Welding Defects

Yue Zhang (Beihang University); Qiang Zhan*

11:00-11:30 COFFEE BREAK

11:30-12:30

Session Chair: Dr. Piyavach Khunsongkiet

17-I Impact of Replay Ratios on Performance and Efficiency in Continual Learning for Skeleton-based Action Recognition

*SIHU AHN (Korea University); Seoung Bum KIM (Korea University)**

42-I Extending YOLO for Feature-Based Classification Through Numerical-to-Image Transformation

*Piyavach Khunsongkiet; Waranya Mahanan (Chiang Mai University)**

12:30-13:00 Closing Ceremony

< Room B >

9:30-11:00

Session Chair: Dr. Paula Branco

61-G DistResampleR-Lite: Light Distributed Resampler for Imbalanced Regression Problems

Alexandra De Furia; Anushree Kulai; Paula Branco (University of Ottawa); Guy-Vincent Jourdan*

51-M An Efficient and Cost-Effective Medicine Reminder and Dispenser System

*Hailemichael Yimer; Huiming Yu; Xiaohong Yuan; Jinsheng Xu; Letu Qingge (North Carolina Agricultural and Technical State University)**

Short Paper 67-M Leveraging Real-World Data to Predict Macrovascular Complications in Type 2 Diabetes: A Comparative Machine Learning Study

Jia-Min Wu (Tunghai University); Feng-Jung Yang; Ting-Yu Pan; Bor-Wen Cheng*

11:00-11:30 COFFEE BREAK

11:30-12:30

Session Chair: Prof. Jun Sasaki

79-M T-test-based Feature Selection on DNA Microarrays Gene Expression Data for Leukemia Classification

*Phuong Ha Dang Bui; Linh Yen Bach Nguyen; Luu Duc Ngo; Thanh-Hai Nguyen (Can Tho University)**

20-D DynaMIX: Sample-Efficient Multi Agent Reinforcement Learning with Multi-Step Temporal Forward Dynamics Modeling

*Jung In Kim; Seoung Bum Kim (Korea University)**

12:30-13:00 Closing Ceremony (Room A)

< Room C >

9:30-11:30

Session Chair: Dr. Raihan Kabir

97-J Transformer-Based UWB Positioning: Learning to Correct Ranging Errors for Autonomous Agents

Somayeh Modaberi (University of Calgary); Behrouz Far*

25-J A Novel Task Assignment Strategy for Multi-Robot System

Md Ali Haider (The University of Aizu); Raihan Kabir; Yutaka Watanobe*

27-J Robotic Path Optimization for Efficient Robot Movement in Harsh Environments

Raihan Kabir (Department of Computer Science and Engineering, University of Aizu); Yutaka Watanobe; Keitaro Naruse; Md Rashedul Islam*

28-J A Hybrid Approach for Path Planning in Harsh Environments Combining WOA and DMSGPSO

Md Obaydullah Al NUMAN (The University of Aizu); Raihan Kabir; Md Rashedul Islam; Yutaka Watanobe*

12:30-13:00 Closing Ceremony (Room A)