
IUKM
2025

The 11th International Symposium on
**Integrated Uncertainty in Knowledge Modelling and
Decision Making**

Ho Chi Minh City, Vietnam, March 17 – 19, 2025

Industrial University of Ho Chi Minh City

12 Nguyen Van Bao, Ward 4, Go Vap District, Ho Chi Minh City, Vietnam

MONDAY, 17TH MARCH 2025

8:00 – 9:00 Registration

9:00 – 9:30 Opening [Hall E4]

- Greetings by IUH President
- Opening Remarks by General Chair Masahiro Inuiguchi
- IUKM 2025 Brief Summary: Van-Nam Huynh, Katsuhiko Honda, Bac Le

9:30 – 10:15 Plenary 1 [Hall E4]

On Conditional Event Algebra for Probability Reasoning in System Design

Hung T. NGUYEN, New Mexico State University, USA; Chiang Mai University, Thailand

Chair: Vladik KREINOVICH

10:15 – 11:00 Plenary 2 [Hall E4]

Introduction to the Office of Naval Research Global (ONRG)

Richard YAMADA, ONR Global, USA

Chair: Van-Nam HUYNH

11:00 – 11:30 Coffee break

11:30 – 12:15 Plenary 3 [Hall E4]

Information Fusion as a Tool to Estimate Parameters from Imprecise Data

Sebastien DESTERCHE, Université de Technologie de Compiègne, FRANCE

Chair: Van-Nam HUYNH

12:15 – 13:30 Lunch [Lunch boxes will be served]

13:30 – 15:10 Parallel Session 1: Machine Learning I [Research Room 3]

Chair: Hieu T. Huynh

Robust Classification in Bayesian Neural Networks

Kim-Dung Tran, Xuan-Truong Hoang, Vu-Linh Nguyen, Sebastien Destercke, Van-Nam Huynh

A Local PCA Model Induced from Linear Fuzzy Clustering With Cluster Separation
Katsuhiko Honda, Daichi Machida, Seiki Ubukata, and Akira Notsu

A Revised Method on Judging Abstract Shape of a Curve on a Two-Dimensional Plane
Kazuko Takahashi

SMC-PATE: A Secure Enhanced Private Aggregation of Teacher Ensembles with Secure Multiparty Computation
Anh-Tu Tran and The-Dung Luong

13:30 – 15:10 Parallel Session 2: Pattern Classification and Data Analysis I [Hall E3.2]

Chair: Katsushige Fujimoto

Fourier-Enhanced Student-Teacher Distillation for Semi-Supervised Medical Image Segmentation

Le Dinh Huynh, Truong Cong Doan, and Phan Duy Hung

Onboarding Process from Power-Up to Motion Detection Using ESP32-EYE: A Quick and Comprehensive Approach

Tho Nguyen, Long Le, Binh Nguyen, Trung Nguyen, Nhan Tran, Thien Pham, and Tho Quan

Enhancing Iris Verification through Multiple Distance Measurement Fusion and Enrollment Screening Mechanism

Chakapat Chokchaisiri, Waree Kongprawechnon, Hirohiko Kaneko, Poomrapee

Tippayamontri, Jessada Karnjana

Enhance Biometric Authentication: Integrating Iris and Periocular Verification through Support Vector Classification

Oranus Kotsuwan, Chakapat Chokchaisiri, Waree Kongprawechnon, Suradej Duangpummet, Kasorn Galajit, Jessada Karnjana

13:30 – 15:10 Parallel Session 3: Uncertainty Management and Decision Support I [Research Room 4]

Chair: Yuchi Kanzawa

Rough Sets Consisting of Valued Objects in Data Tables with Missing Values

Michinori Nakata, Hiroshi Sakai, Takeshi Fujiwara

Modifying Submodels in Estimation Methods Using Minimum Possible Ranges for Interval Priority Weights under a Crisp Pairwise Comparison Matrix

Masahiro Inuiguchi, Yeyang Hong, Shigeaki Innan

Effective Pair's Collaboration by Improving Efficiency Intervals [[Online](#)]

Tomoe Entani

All-Time WTA Leaders Ranking Using Incomplete Interval-Valued Fuzzy Preference Relations

Bich Khue Vo and Hung Son Nguyen

15:10 – 15:40 Coffee break

15:40 – 17:00 Parallel Session 4: Optimization and Statistical Methods I [Research Room 3]

Chair: Akkaranan Pongsathornwiwat

A Fuzzy Goal Programming Approach for Production Planning in Packaging Industry

Nitidetch Koothongsumrit, Wasana Chankham, Akkaranan Pongsathornwiwat, Wanatchapong Kongkaew

Parameter Adjustment for Unbounded Best Case of Interval Linear Program

Kanokwan Burimas, Artur Gorka, Phantipa Thipwiwatpotjana

Twin-Based Reinforcement Learning for Solving Multi-Period Portfolio Optimization Problem

Phuc Tan Huynh, Trang Hong Son, Khoa D. Vo, Nguyen Huynh-Tuong

Application of Modified Rule Table Method to Classification Problems and Comparisons with Neural Network Method [[Online](#)]

Yuichi Kato and Tetsuro Saeki

15:40 – 17:00 Parallel Session 5: Machine Learning Applications I [[Hall E3.2](#)]

Chair: Duy N. Le

Enhance Air Quality Index Prediction with Inception Time – BiLSTM Model and Huber Loss

Huu Do

Enhancing Pose Adaptability in Virtual Try-On Systems

Nguyen Dinh Hieu, Tran Minh Khuong, Phan Duy Hung

MiniMedMind: Small-Scale LLM for High-Performance Medical VQA on Chest X-ray

Duong Quoc Khanh, Hoang Trung Kien, Duong Thanh Nam, Phan Duy Hung

Enhanced Human Action Recognition from Synthetic UAVs Data Using Landmark Extraction and Mamba-based Model

Ninh Quang Tri, Luong Hoang Anh, Luu Quang Vu, Tran Quoc Khoa, Phan Duy Hung

15:40 – 17:00 Parallel Session 6: Economic and Management Applications [[Research Room 4](#)]

Chair: Warut Pannakkong

An Integration of OEE and OLE Based on Total Productive Maintenance to Reduce System Losses in Semi-Automated Production

Sathianphong Seedao, Warut Pannakkong, Van-Nam Huynh, Nuttapong Sanglerdsinlapachai, Fumio Kojima, Yoshiro Fukuda, Kuniaki Tanaka

The Differential Impacts of Climate Change and Renewable Energy on Income Inequality: A Panel Lasso Analysis of High-Income and Middle-Income Countries [[Online](#)]

Roengchai Tansuchat, Wiranya Punttoon, and Rungrapee Phadkantha

Assessing the Financial Impact of Natural Disasters on Global Stock Markets: Evidence from the Five Large Economies [[Online](#)]

Parvee Maneejuk, Yanagorn Panyagad, and Pichayakone Rakpho

Optimizing Public Health: A Nationwide Vaccine Distribution Management System [[Online](#)]

Maythem K. Abbas, Abdussalam A. Alashhab, Samer Hameed Majeed, Omar Fitian Rashid

TUESDAY, 18TH MARCH 2025

8:00 – 8:30 Registration

8:30 – 9:15 Plenary 4 [[Hall E4](#)]

Interaction Indices as a Tool to Explaining Machine Learning Models

Katsushige FUJIMOTO, Fukushima University, Japan

Chair: Masahiro INUIGUCHI

9:15 – 10:00 Plenary 5 [Hall E4]

Fuzzy Clustering: Unifying Algorithms through Theory, Parameterization, and Implementation

Yuchi KANZAWA, Shibaura Institute of Technology, Japan

Chair: Atsuo YOSHITAKA

10:00 – 10:30 Coffee break

10:30 – 12:10 Parallel Session 7: Uncertainty Management and Decision Support II [Research Room 3]

Chair: Michinori Nakata

Novel Distances for Fermatean Fuzzy Sets in Multi-Attribute Decision-Making Using Covering-Based Rough Sets

Quang-Thinh Bui, Thao Tran-Phuong, Thanh Nha Nguyen, Bao Huynh, and Bay Vo

What Is Optimal Granularity When Estimating Reliability of a Complex Engineering Systems

Niklas Winnewisser, Michael Beer, Olga Kosheleva, Vladik Kreinovich

How Shapley Value and Its Generalizations Can Help in the Analysis of Complex Engineering Systems and What Next

Niklas Winnewisser, Michael Beer, Olga Kosheleva, Vladik Kreinovich

Distance Between m -Functions in Dempster-Shafer Theory [[Online](#)]

Minyi Chen, Yanyan He, Isai Chavarri, and Lindsay Waldrop

10:30 – 12:10 Parallel Session 8: Machine Learning II [Hall E3.2]

Chair: Dung K. Tran

Self-Explaining Neural Network for Multi-Criteria Sentiment Analysis

Xuan-Truong Hoang, Takayuki Kitagawa, Vu-Linh Nguyen, Van-Nam Huynh

A Multimodal Deep Ensemble Framework for Skin Lesion Classification

Nhan Le Thanh Pham, Duc Dat Pham, Tan Duy Le, Kha Tu Huynh

Integration Vision-Language Models for Feature Extraction in Multi-Camera Multi-Object Tracking

Nguyen Hoang Trung, Trieu Thien Son, Tran Van Su, Phan Duy Hung

Nonparametric Estimation using Kolmogorov-Arnold Network

Hieu T. Huynh

10:30 – 12:10 Parallel Session 9: Pattern Classification and Data Analysis II [Research Room 4]

Chair: Jessada Karnjana

Lite-SCMamba: A Lightweight Model Applying Spatial and Channel Attention with Mamba Framework for Medical Image Segmentation

Quang-Huy Ho, Thi-Nhu-Quynh Nguyen, Duy-Thai Nguyen, Minh-Quang Phan, Thi-Thao Tran, Van-Truong Pham

Improving Brain Disease Classification Accuracy using Ensemble Learning

Huong Hoang Luong

Lung Cancer Detection Using Deep Neural Networks and Radiological Imaging
Le Nhi Lam Thuy, Lam Quang Anh Duy, Duong Tan Dat, Nguyen Thai Minh Khang, Nguyen Van Dat, Pham The Bao, and Vu Ngoc Thanh Sang

Classification of Breast Cancer for Mammography Using High-Resolution Network
Ngo Quoc Thai and Hieu Trung Huynh

12:10 – 13:30 Lunch [Lunch boxes will be served]

13:30 – 14:15 Plenary 6 [Hall E4]

Deep Tensor Learning: Application to Predicting Adverse Drug Effects

Hiroshi MAMITSUKA, Kyoto University, Japan

Chair: Canh-Hao NGUYEN

14:15 – 14:45 Coffee break

14:45 – 16:25 Parallel Session 10: Optimization and Statistical Methods II [Research Room 3]

Chair: Quang-Thinh Bui

Confidence Intervals for Percentile of Inverse Gaussian Distribution with Application to Pm2.5 in Bangkok, Thailand [Online]

Wasana Chankham, Nitidetch Koothongsumrit, Sa-Aat Niwitpong

Estimation Methods for the Percentile of Weibull Distribution and Its Application to Wind Speed Data in Southern Thailand [Online]

Manussaya La-ongkaew, Sa-Aat Niwitpong, and Suparat Niwitpong

Dependence Analysis of Indian Energy Sector Using Regular Vine Copula and Information Transfer Entropy [Online]

Pankaj Kumar and Vivek Vijay

Weight Matrix Variation and Performance Improvement of Regression Analysis

Masaaki Ida

14:45 – 16:25 Parallel Session 11: Machine Learning Applications II [Hall E3.2]

Chair: Bay Vo

Real-Time Monitoring and Anomaly Detection in Server Lab Environments Using ESP32 DevKit and VAE-Bi-LSTM Hybrid Model: A Case Study at HUFLIT University, Ho Chi Minh City

Trong Le, Long Le, Nhan Tran, Tho Nguyen, Binh Nguyen, Trung Nguyen, Thien Pham, Tho Quan

Anti-spoofing Using ResNet50 with Linear Discriminant Analysis for Automatic Speaker Verification

Peemapot Uparakool, Watee Kongpraweechnon, Noppharut Pipopsophonchai, Aticha Numsonthi, Kavinnat Rawanggij, Napat Assawamanachai, Jessada Karnjana

Vietnamese Receipt Information Extraction Using OCR and Deep Learning: A Hybrid Approach with Fuzzy C-Means and PhoBERTv2

Nguyen Hoang Ly, Do Tu Vy Nguyen, Tan Duy Le, and Kha Tu Huynh

Enhancing Vietnamese Mental Health Question-Answering Systems: Adaptive Retrieval Augmented Generation Pipeline and Data Augmentation for Large Language Models
Tu Anh Hoang Nguyen, Quang-Dieu Nguyen, and Loan T.T. Nguyen

14:45 – 16:25 Parallel Session 12: Economic and Management Applications II [Research Room 4]

Chair: Kazuhiro Takeuchi

Developing a Customer Churn Prediction Framework Using LFMCP Value Segmentation: Insights from the Thai Insurance Sector

Akkaranan Pongsathornwiwat and Pattaraporn Kulmanochwong

Data-Driven Validation of Self-Assessment and Peer Reviews in Team-Based Application Development Projects

Jay Pancham

Clustering Corporate Risk Descriptions through Exploring their Correlations with Management Indicators

Hiroyuki Higa, Kazuhiro Takeuchi, and Makoto Okada

16:30 – 18:00 Move to Luxury Hotel (bus service is provided)

18:00 – 20:00 Gala Dinner

Chair: Hien T.T. Nguyen, IUH

- **Welcoming Speech by IUH President/Vice President**
- **Banquet Program**

WEDNESDAY, 19TH MARCH 2025

9:00 – 10:40 Parallel Session 13: Economic and Management Applications III [Research Room 3]

Chair: Van-Nam Huynh

Earnings Management, Investment Efficiency, and High Information Uncertainty: Evidence from Vietnam

Ha Thi Thu Nguyen, Hien Thu Thi Nguyen, Anh Tu Pham, Ba Thu Tran

Comparative Effectiveness of Carbon Pricing and Green Finance in Promoting Carbon Mitigation in the Eurozone [[Online](#)]

Terdthiti Chitkasame, Pathairat Pastpipatkul

The Relationship among Foreign Aid, Poverty Reduction and Economic Growth in CLMV [[Online](#)]

Ye Yint, Anasree Chaiwan, and Chukiat Chaiboonsri

Impacting Factors on Social Entrepreneurship Education in Universities: Evidence from Vietnam

Hai Phan Hong and Hung Tran Ngoc

9:00 – 10:40 Parallel Session 14: Machine Learning Applications III [Hall E3.2]

Chair: Atsuo Yoshitaka

Real-time Wild re-prone Area Monitoring and Early Warning System Based on Two-stage YOLO-based Smoke Detection Model

Thitiphum Chaikarnjanakit, Waree Kongprawechnon, and Jessada Karnjana

Water Surface Level Estimation Based on the Fast Segment Anything Model for Coastal Monitoring Systems

Julathit Chetsawang, Kawewat Sricharoenchit, Krittapak Jairak, Warit Yuvaniyama, Peeravich Teerapatanapan, Kittin Traisiwakul, Tawin Supmahaudom, Akkharawoot Takhom, Phutphalla Kong, Didin Agustian Permadi, Sharifah Hafizah Syed Ariffin, Kasorn Galajit, Surasak Boonkla, and Jessada Karnjana

An Interactive System For Visual Data Retrieval From Multimodal Input

Tu Van Nguyen, Nghia Trung Duong, Nhan Thanh Pham, Thanh Xuan Luong, Dang Duy Bui

A Method for Classifying Fabricated Responses due to Psychological Biases Using Brain Activity Networks Based on Granger Causality in EEG Responses to the NEO-FFI [[Online](#)]

Yuto Ashikawa and Yosuke Kurihara

9:00 – 11:20 Parallel Session 15: Manipal Institute of Technology [[Research Room 4](#)]

Chair: S. Meenatchi Sundaram

Phytic Acid and Its Interaction with D-Alanine D-Alanine Ligase (Ddl) Crystal Structures of Escherichia Coli, Mycobacterium Tuberculosis and Staphylococcus Aureus

Balaji Seetharaman

Computational Analysis of Arsenic Induced Mirna Toxicity in Human Prostate Stem/Progenitor Cells

Swathi Pai, Arnab Mukherjee, Mukunthan K S

Numerical Analysis on The Effects of Actuation Pressure and Wall Thickness on The Deformation Behaviour of a Square-Sectioned Ecoflex Rubber Soft Actuator

Deepak D

Preliminary Review on System Identification Using Frequency Domain Method for Class Of Non-Linear Systems

Bipin Krishna, Prachisingh A Chandel, Meenatchisundaram S

Post-Covid Stress Management Analysis in Young Adults

C R Srinivasan, S Meenatchi Sundaram

Review And Simulation of Nano-Biosensor Response to Time-Dependent Biomarker Concentrations

Cyril Joseph

Analysis of Spiral Cantilever Structures for Hybrid Vibration Energy Harvesters.

Nevin Augustine

11:30 – 12:30 Closing and Farewell Lunch