

MDAI 2025

modeling decisions

The 22nd International Conference on Modeling Decisions for Artificial Intelligence

València,

15-18 setembre 2025

<http://www.mdai.cat/mdai2025>

Monday, 15 September

13:00 - 14:30 Lunch

xx:xx - 14:15 Registration

14:15 - 14:30 Opening

14:30 - 15:30: Session Uncertainty

Chair:

Conditional aggregation and permutation-based OWA operator in image noise reduction

Stanislav Basarik, Lenka Halčinová, Natália Puškárová

An Investigation of Alternative Methods for the Inference of Probabilistic-Fuzzy Systems

Nhung Cao, Radek Valášek, Michal Holčapek, Nicolás Madrid, David Neděla

Comparing Qualitative Object Descriptors using a Visual Similarity Measure

Zoe Falomir, Vicent Costa

15:30 - 16:30: Session Machine Learning I

Chair:

Probabilistic-Fuzzy Inference with Piecewise Linear Quantile Regression

Nhung Cao, Michal Holčapek, Radek Valášek, Nicolás Madrid

Cumulative Subnetwork Analysis for interpreting neural networks

Marcus Gullstrand, Florian Westphal, Maria Riveiro

Positive Unlabeled Classification Methods with Logistic Regression Revisited: An Evaluation of Optimization Techniques

Kacper Paczutkowski, Konrad Furmańczyk

15:30 - 16:30: Session Fuzzy measures and power indices

Chair:

Using Shapley and Y-values

Vicenç Torra

CSPI: A class-based Shapley-Shubik Power Index for interpretable feature attribution in classification

Daiki Kanamaru, Vicenç Torra, Aoi Honda

Tuesday, 16 September

9:00 - 10:30: Plenary.

Chair:

Conditional Choquet-like operators and their application in image processing

Lenka Halčinová

10:30 - 11:00: Coffee break

11:00 - 12:00: Session Fuzzy measures and integrals

Chair:

Representation of the Choquet Integral via the σ -Additive Möbius Transform and its application to Optimal Transport Problem

Serena Doria

Measurable Closure of a Finitely-Additive Measure Space: An Analysis of Spaces Similar to Stone Spaces

Ryoji Fukuda, Yoshiaki Okazaki, Aoi Honda

Recent development in the study of the fuzzy derivatives

Zuzana Ontkovicova

11:00 - 12:00: Session Clustering

Chair:

On Sharma-Mittal divergence-regularized Fuzzy c-Means Clustering and its Alternative

Yuchi Kanzawa

Fuzzy clustering for Preference Ranking Using Mahalanobis distance

R. de Andrés Calle, J.M. Cascón, T. González-Arteaga

Multi-view clustering

Fatemeh Sadjadi

12:00 - 13:00: Session Machine Learning II

Chair:

Regularized learning algorithm with finite state Markov chain

Priyanka Roy, Susanne Saminger-Platz

Comparing Transformer Models for Stock Selection in Quantitative Trading

Jan Kwiatkowski, Jarosław A. Chudziak

Decision Rules for Replicating the Visual Learning of the Blackboard in Digital Presentations

Alejandro Torres-García, Susana Díaz-Vázquez, Emilio Torres-Manzanera, Susana Montes

13:00 - 14:30: Lunch

14:30 - 15:30: Session Decision Making I

Chair:

Ecological Inference for Electoral Analysis: A Computational Perspective on Human Decision-Making

J.M. Pavía, P. Pérez-Asurmendi, R. de Andrés Calle

Dimensionality reduction with entropies from f-divergences

Mateu Sbert, Min Chen, Jordi Poch, Miquel Feixas, Shuning Chen, Víctor Elvira

ChessFormer - Modeling human decision making in chess

Jakub Zeman, Miroslav Čeppek

14:30 - 15:30: Session Privacy and Security II

Chair:

Assessing Privacy Requirements for Controlled Query Evaluation in OBDA

Divya Baura, Diego Calvanese

Integrally private model construction via optimization: a case in linear regression

Yuchi Kanzawa, Vicenç Torra

Navigating the Privacy Challenges of Language Models

Sonakshi Garg

15:30 - 16:30: Session Data Science IV

Chair:

Refining Community Detection in Social Networks: Agglomerative and Divisive Methods with Size Constraints

Diego Vallejo-Huanga, Erlend Eindride Fasmer, Cèsar Ferri, Fernando Martínez-Plumed

Comparing Graph Neural Networks for Single and Multi-Layer Brain Connectivity Analysis in Multiple Sclerosis

Jordi Casas-Roma, Toni Lozano-Bagén

Enhancing Ultra-Low-Bit Quantization of Large Language Models Through Saliency-Aware Partial Retraining

Deyu Cao, Samin Aref

16:30 - 17:00: Coffe Break

17:00 - 18:00: Session XYZ

18:15 - 20:00: Guided tour

Wednesday, 17 September

9:00 - 10:30: Plenary.

Chair:

Sokratis Katsikas

10:30 - 11:00: Coffee break

11:00 - 12:00: Session Decision Making II

Chair:

A Comprehensive Framework for Turn-Taking Evaluation in Multi-Agent Systems: Rotational Periodicity for Scalable Coordination Analysis

Nikolaos Al. Papadopoulos, Rallou Taratori, Marti Sanchez-Fibla, Konstantinos E. Psannis

Understanding Online Fan Reactions through Football Team Dynamics

Nil Agell, Jordi Nin

Triangular Fuzzy Rescaling Distance

Eddy Soria, Aida Valls, Ana Beatriz Hernández Lara

11:00 - 12:00: Session Privacy I

Chair:

The differentially private d-Choquet integral: an extension of differentially private Choquet integrals

José Carlos R. Alcantud

Differentially Private Rankings via Outranking Methods and Performance Data Aggregation

Luis Del Vasto-Terrientes

Defenses Against Membership Inference Attacks on Unlearned Data

Josep Domingo-Ferrer, Najeeb Jebreel, David Sánchez

12:00 - 13:00: Session Decision Making III

Chair:

Multi-criteria Assessment of Clustering Procedures in E-Commerce

David Ramsey, Adam Wasilewski

Automated Decision-Making via Reinforcement Learning from Demonstrations

Max Pettersson, Florian Westphal, Maria Riveiro

Decision Analysis with the Hurwicz Decision Map under a Set of Interval Priority Weight Vectors

Yeyang Hong, Masahiro Inuiguchi, Shigeaki Innan

12:00 - 13:00: Session Privacy II

Chair:

FedBC: Privacy-preserving breast cancer diagnosis from ultrasound images using federated learning

Faisal Ahmed, David Sánchez, Josep Domingo-Ferrer, Zouhair Haddi

Differential Private Risk Factors Analysis of Polypharmacy

Hiroaki Kikuchi, Andres Hernandez-Matamoros

Towards Lightning Network Channel Randomization

Kanishkar K, Guillem García, Martí Llinés, Julián Salas, Guillermo Navarro-Arribas

Combining k-anonymity and Differential Privacy in Federated learning for personalized user privacy

Sargam Gupta

13:00 - 14:30: Lunch

14:30 - 15:30: Session Knowledge and Uncertainty in AI

Chair:

Estimating Result Size in Rank-aware Similarity-based Databases

Petr Krajca, Radomir Skrabal

Dual Focus: Transforming Negatives into Knowledge

Adrian Maduta, Tudor Ileni, Adrian Darabant

Simulating Electoral Behavior

Jose M. Pavía, Antonio Forcina

15:30 - 16:30: Session Data Science II

Chair:

Testing monotonicity of similarity functions based on embeddings

Sara Suarez-Fernandez, Agustina Bouchet, Susana Diaz-Vazquez, Susana Montes

Hybrid Transformer-ANFIS Architecture for Sentiment Analysis

Arda Derbent, Jarosław A. Chudziak

A proposal for PU classification under Non-SCAR using clustering and logistic model

Konrad Furmańczyk, Kacper Pacutkowski

16:30 - 17:00: Coffe Break

20:00 (or 20:30) Dinner

Thursday, 18 september

9:00 - 10:30: Plenary.

Chair:

Catuscia Palamidessi

10:30 - 11:00: Coffee break

11:00 - 12:00: Session Data Science II

Chair:

Neural Architecture Search with Differential Evolution and Multi-Peak Performance Prediction

Yoshihisa Yamaguchi, Keiko Ono, Panagiotis Adamidis, Yusuke Shimizu

DUPGT-CDR: Deep User Preference Gating Transfer for Cross-domain Recommendation

Yusuke Shimizu, Keiko Ono, Yoshihisa Yamaguchi

Anomaly Detection Using Multiple Auto Encoders Specialized for Malware Families

Sho Washika, Nobuhiro Nomura, Tomotaka Kimura, Jun Cheng

12:00 - 13:00: Session Data Science III

Chair:

Adversarial Malware Detection Using Feature Contribution Analysis with Kernel SHAP

Yoshiki Namura, Tomotaka Kimura, Moto Kamiura, Jun Cheng

Ordinal Proximity Measures Applied to Consumer Perception of Nutri-Score Labeling

Rodion Iurev, Víctor Temprano-García, María de Haro González, José Luis García-Lapresta

Improving Machine Understanding of Czech Medical Text Using Self-Supervised and Rule-Based Data Augmentation

Křištof Anetta, Aleš Horák

13:00: Closing remarks

13:15 - 14:30: Lunch