

MDAI 2023
modeling decisions

The 20th International Conference on
Modeling Decisions for Artificial Intelligence

Umeå, Sweden

June 19-22, 2023

<http://www.mdai.cat/mdai2023>

MDAI 2023 PROGRAM

Welcome to Umeå. Thank you for coming and participating MDAI 2023!

Venue. The conference will take place in the Natural science building (Naturvetarhuset) at Umeå University main campus. We will use two different rooms. They are room NAT.D 300 and room NAT.D 320.

Near the Universum stop (see below), there is the Universum building. There is a skywalk from the Universum building to the Natural science building. The conference rooms are just once you have crossed this skywalk.

Alternatively, the MIT building is also connected to the Natural science building with a skywalk.

We plan to have placards from the bus stop to the building.

If you like online maps, this is the place in the campus:

<https://use.mazemap.com/#v=1&zlevel=2¢er=20.307070,63.819944&zoom=18&campusid=289&sharepoi type=poi&sharepoi=1000998048>

How to reach the campus. There are buses from the city center (Vasaplan stop, main bus stop in the city) to the campus. The bus stop close to the conference venue is Universum (buses 2, 5, 8, 9). Ride: about 6 minutes. Double check buses, schedules and time! Note that from Vasaplan to the university is about 30 minutes walk (2.4 km).

Lunch: It will take place in Universum restaurant. We will go there from the conference rooms.

Proceedings: Printed copies of LNAI volume will be distributed. Online access to both LNAI and ISBN proceedings will be available during the conference here: <http://mdai.cat/mdai2023/program.php>

19th June (Monday)

12:30 Registrations

13:15 Opening

Room: NAT.D 320

13:30 – 14:30 Plenary. Juan Carlos Nieves

Imprecise probability in Formal Argumentation

Chair: Vicenç Torra

Room: NAT.D 320

14:30 – 15:30 Session 1a. Fuzzy measures 1

Chair: Zuzana Ontkovičová

Room: NAT.D 300

Constructive set function and extraction of a k-dimensional element

Ryoji Fukuda, Aoi Honda, Yoshiaki Okazaki

Set Function Representations in a Decision Process: Properties and Interpretation

Eiichiro Takahagi

Some examples of probabilistic metric spaces by means of fuzzy measures

Yasuo Narukawa, Vicenç Torra

14:30 – 15:30 Session 1b. NN and deep learning 1

Chair: Ulf Johansson

Room: NAT.D 320

Hand Pose Recognition through MediaPipe Landmarks

Manuel Gil-Martín, Rubén San-Segundo and Ricardo de Córdoba

Learning without real data, a 3D data simulation learning approach for enhanced ID cards segmentation and text extraction.

Edouard Bertrand, Anaïs Druart, Axel Thévenot, Christophe Rodrigues

A goal-oriented specification language for reinforcement learning

Simon Schwan, Verena Klös, Sabine Glesner

15:30 – 15:50 Coffee

15:50 – 16:50 Session 2a. Uncertainty and aggregation 2 – NOT ON 22

Chair: Nuria Agell

Room: NAT.D 300

Three Point Comparison of Interval Priority Weight Estimation Methods in Alternative Ranking

Masahiro Inuiguchi, Akiko Hayashi and Shigeaki Innan

A Fuzzy Weight Representation for Partial Inner Dependence AHP

Shin-ichi OHNISHI, Takahiro YAMANOI

Fusion functions based on a soft-penalty function

Zdenko Takáč, Eubomíra Horanská, Iosu Rodriguez-Martinez, Humberto Bustince

15:50 – 16:50 Session 2b. ML and Data Science 2

Chair: Manuel Gil-Martín

Room: NAT.D 320

Adapting the Gini's index for solving Predictive Tasks

Eva Armengol

Preprocessing Matters: Automated Pipeline Selection for Fair Classification

Vladimiro G. Zelaya, Julián Salas, Dennis Prangle, Paolo Missier

Textual Explanations of Tabular Data

Amber Zelvelde, Tommy Löfstedt, Kary Främling

20th June (Tuesday)

09:00 – 09:30 Registration

09:30 – 10:30 Plenary. Jozo Dujmovic

Title: Logic Aggregators and Their Implementations

Chair: Vicenç Torra

Room: NAT.D 320

10:30 – 10:50 Coffee

10:50 – 11:50 Session 3a. Uncertainty and aggregation 1

Chair: Masahiro Inuiguchi

Room: NAT.D 300

Multi-Target Decision Making under Conditions of Severe Uncertainty

Christoph Jansen, Georg Schollmeyer, Thomas Augustin

Bipolar OWA operators with continuous input function

Martin Kalina

A fuzzy-based method to boost short time-series to solve class imbalance in health care data

Jordi Pascual-Fontanilles, Aida Valls, Pedro Romero-Aroca

10:50 – 11:50 Session 3b. Graphs

Chair: Vladimiro González-Zelaya

Room: NAT.D 320

Characterization of Brain Networks through the lens of Persistent Homology

Toni Lozano-Bagén, Eloy Martinez-Heras, Elisabeth Solana, Sandra Garrido-Romero, Sara

Llufriu, Ferran Prados, Jordi Casas-Roma

Differential Privacy through Noise-Graph Addition

Julián Salas, Vladimiro González-Zelaya, Vicenç Torra, David Megías

Data protection and graphs

Sudipta Paul

11:50 – 13:00 Lunch

13:00 – 14:00 Plenary. Fiona Skerman

Title: Partially observing graphs -

when can we infer underlying community structure?

Chair: Klas Markström

Room: NAT.D 320

14:00 – 14:40 Session 4a. NN and deep learning 2

Chair: Jordi Casas

Room: NAT.D 300

Influence of Occlusion in Image Classification with Self-Supervised Capsule Networks

Ladyna Wittscher, Christian Pigorsch

Predicting Next Whereabouts using Deep Learning

Ana Galarreta, Hugo Alatrística-Salas, Miguel Nunez-del-Prado

14:00 – 14:40 Session 4b. ML and Data Science 1

Chair: Eva Armengol

Room: NAT.D 320

Data Augmentation For Small Object using Fast AutoAugment

Daeun Yoon, Semin Kim, SangWook Yoo, Jongha Lee

Conformal Prediction for Accuracy Guarantees in Classification with Reject Option

Ulf Johansson, Tuwe Ljöfström, Cecilia Sönströd, Helena Ljöfström

15:00 – 15:15 Bus to Bildmuseet (from Universum)

16:00 – 17:00 Bildmuseet visit

We will have a guided tour to the art museum. The museum is a part of Umeå University and the public heart of its Arts campus. It is located on the bank of the Umeå river.

<https://www.bildmuseet.umu.se/en/>

17:30 Dinner at Clarion Hotel Umeå (walking distance from the museum, in the city center).

Dinner at restaurant UMA, Storgatan 36.

21th June (Wednesday)

09:00 – 09:30 Registration

09:30 – 10:30 Plenary. Lupita Svensson

Title: Automation - mean or goal for distribution of social welfare

Chair: Vicenç Torra

Room: NAT.D 320

10:30 – 10:50 Coffee

10:50 – 11:50 Session 5a. Fuzzy measures 2

Chair: Aoi Honda

Room: NAT.D 300

Coherent upper conditional previsions defined by fractal outer measures to represent the unconscious activity of human brain

Serena Doria, Bilel Selmi

Fuzzy approach to differential entropy

Zuzana Ontkovičová

Optimal transport problem, fuzzy measures, and distances

Vicenç Torra

10:50 – 11:50 Session 5b. Privacy 1

Chair: Yuchi Kanzawa

Room: NAT.D 320

Local Differential Privacy Protocol for Making Key-Value Data Robust against Poisoning Attacks

Hikaru Horigome, Hiroaki Kikuchi, Chia-Mu Yu

Privacy Analysis of Synthetic Datasets via Attribute Inference Attack

Saloni Kwatra

Federated Traffic Flow Prediction using Temporal Fusion Transformers

Sargam Gupta

11:50 – 13:00 Lunch

13:00 – 14:00 Plenary. Alp Yurtsever

Title: Scalable Semidefinite Programming

Chair: Vicenç Torra

Room: NAT.D 320

14:00 – 14:20 Coffee

14:20 – 15:20 Session 6a. Fuzzy measures 3 – NO T ON 22nd

Chair: Serena Doria

Room: NAT.D 320

Discrete chain-based Choquet-like operators

Michal Boczek, Ondrej Hutník, Miriam Kleinová

Program design and implementation of inclusion-exclusion integral neural network

Aoi Honda and Yoshihiro Fukushima

On a new generalization of decomposition integrals

Adam Seliga

16:55 Participants gather in front of Hotel Comfort Winn, Skolgatan 62.

17:00 – 20:30 Bus to Täfteå, departure from Hotel Comfort Winn

18:00 – 20:00 Dinner in Kvarkenfisk

20:00 – 20:30 Bus back to Umeå

22th June (Thursday)

09:00 – 09:30 Registration

09:30 – 10:30 Session 8a. Privacy 2

Chair: Hiroaki Kikuchi

Room: NAT.D 300

On the number of counterfeits and deletions to enforce m-eligibility in continuous data publishing

Adrián Tobar Nicolau, Javier Parra Arnau, Jordi Forné, Esteve Pallarès

Data protection for smart grid

Kayode Adewole

Online learning

Ayush K. Varshney

09:30 – 10:30 Session 8b. Uncertainty and aggregation 3

Chair: Zdenko Takáč

Room: NAT.D 320

An application to measure customers' interest on food waste reduction using hesitant terms

Walaá Abuasaker, Jennifer Nguyen, Núria Agell, Mónica Sánchez, Francisco J. Ruiz

Fuzzy measures and probabilistic metric spaces

Mariam Taha

Bayesian logistic model for positive and unlabeled data

Małgorzata Łazęcka

10:30 – 10:50 Coffee

10:50 – 11:30 Session 9a. Session ML and Data Science

Chair: Julián Salas

Room: NAT.D 320

Patients and clinicians preferences together in the loop for ADHD treatment recommendations

Oscar Raya, Xavier Castells, David Ramírez, Beatriz López

Cost-constrained group feature selection using information theory

Tomasz Klonecki, Paweł Teisseyre, Jaesung Lee

10:50 – 11:30 Session 9b. Clustering – 21 or 22

Chair: Kayode Adewole

Room: NAT.D 300

A Generalization of Fuzzy c-Means with Variables Controlling Cluster Size

Yuchi Kanzawa

Clustering Longitudinal Data Application on Disease Progression Modeling

Loujain Liekah, Haytham Elghazel, Fabien De Marchi, Mohand-Saïd Hacid

11:30 – 11:40 Closing ceremony

Room: NAT.D 320

12:00 – 13:00 Lunch