

# The 15th International Conference on **Modeling Decisions for Artificial Intelligence**

Mallorca, 15 - 18, 2018

<http://www.mdai.cat/mdai2018>

## **October 15<sup>th</sup>, 2018**

14:30 – 15:00 Registration

15:00 – 15:30 Opening

**15:30 – 16:30 Plenary. Dr. Aïda Valls (Assembly hall)**

**Chair: Vicenç Torra**

**Decision making tools with semantic data to improve tourists' experiences**

**16:30 – 17:00 Coffee Break**

**17:00 – 18:20 Parallel sessions Privacy / clustering**

**Session A. Privacy I (Assembly Hall)**

**Chair: Julián Salas**

Data Anonymization with Imprecise Rules and Its Performance Evaluations

*Masahiro Inuiguchi, Hiroki Ichida, Vicenç Torra*

Attacker models with a variety of background knowledge of payment history

*Satoshi Ito, Hiroaki Kikuchi, Hiroshi Nakagawa*

On rounding for statistical disclosure control: initial results

*Navoda Senavirathne, Vicenç Torra*

**Session B. Clustering I (Classroom 5, 1<sup>st</sup> floor)**

**Chair: László Szilágyi**

k-CCM: A Center-Based Algorithm for Clustering Categorical Data with Missing Values

*Duy-Tai Dinh, Van-Nam Huynh*

An Objective-Based Clustering Algorithm whose Cluster Partition is Homotopy Equivalent to Weighted  $\alpha$ -Complex

*Yasunori ENDO, Kanata HOSHINO, Yukihiro HAMASUNA*

## **October 16<sup>th</sup>, 2018**

**08:30 – 09:30 Plenary. Dr. Jordi Nin (Assembly hall)**

**Chair: Vicenç Torra**

**Assessing the risk of default propagation in interconnected sectorial financial networks**

**09:30 – 10:30 Parallel sessions**

**Session A. Aggregation operators (Assembly hall)**

**Chair: Radko Mesiar**

Characterization of k-Choquet integrals

*Lubomira Horanska, Zdenko Takac*

Natural negations associated to discrete t-subnorms

*Sebastià Massanet, Juan Vicente Riera and Joan Torrens*

Fuzzy type powerset operators and F-transforms

*Jiri Mockor*

**Session B. Data science I (Classroom 5, 1<sup>st</sup> floor)**

**Chair: Jordi Nin**

KGraph: Isolated and highly connected community detection in graphs

*Héctor Muñoz, Eloy Vicente, Alfonso Mateos, and Antonio Jiménez*

Anomaly detection in telecommunication networks using topic models

*H. Joe Steinhauer, Tove Helldin, Gunnar Mathiason, Alexander Karlsson*

Predicting student's early dropout in e-learning scenarios

*Jordi Casas-Roma and Julia Minguillon*

**10:30 – 11:00 Coffee Break**

**11:00 – 12:00 Plenary. Prof. Jozo Dujmovic (Assembly hall)**

**Chair: Pilar Dellunde**

**Graded Logic Aggregation**

**12:00 – 13:00 Parallel Sessions**

**Session A. Fuzzy measures and integrals (Assembly hall)**

**Chair: Sebastià Massanet**

On k-pseudo-additive Aggregation Functions

*Fateme Kouchakinejad, Anna Kolesarova, Radko Mesiar*

Sugeno integrals and the commutation problem

*Didier Dubois, Hélène Fargier, Agnès Rico*

On some algebraic properties of discrete Sugeno integrals: composition and associativity

*Radomír Halas, Jozef Pócs*

**Session B. Data science II (Classroom 5, 1<sup>st</sup> floor)**

**Chair: Miguel Nuñez del Prado**

A Practical Examination on Imbalanced Learning for Corporate Credit Scoring

*Hung Ba, Van-Nam Huynh*

Bibliometrics in Computer Science: an institution analysis

*Carles Mulet-Forteza, José M. Merigó, Gustavo Zurita, Valeria Lobos-Ossadón*

Social Network Analysis Tools in the Fight Against Fiscal Fraud and Money Laundering

*Ignacio González, Alfonso Mateos*

**13:00 – 15:00 Lunch**

**15:00 – 16:00 Plenary. Dr. Zoe Falomir (Assembly hall)**

**Chair: H. Joe Steinhauser**

**Improving Spatial Reasoning in Intelligent Systems: Challenges**

**16:00 – 16:40 Parallel sessions**

**Session A. Security and privacy (Assembly hall)**

**Chair: Hiroaki Kikuchi**

Anonymization of Unstructured Data Via Named-Entity Recognition

*Fadi Hassan, Josep Domingo-Ferrer and Jordi Soria-Comas*

Inter-group Data Usage under Consideration of Privacy in Interval Date Envelopment Analysis

*Tomoe Entani*

**Session B. Fuzzy sets and systems (Classroom 5, 1<sup>st</sup> floor)**

**Chair: Eva Armengol**

Probabilistic metric spaces built from fuzzy measures

*Vicenç Torra, Yasuo Narukawa*

Fuzzy Positive Primitive Formulas

*Pilar Dellunde*

**17:30 Visit to Palma de Mallorca (including visit to the Cathedral)**

**19:30 – 21:30 Berenar (snack) at Can Oleo,**

## October 17<sup>th</sup>, 2018

**9:30 – 10:30 Plenary. Prof. Michio Sugeno (Assembly hall)**

**Chair: Yasuo Narukawa**

**Towards Distorted Statistics based on Choquet Calculus**

**10:30 – 11:00 Coffee Break**

**11:00 – 12:00 Parallel sessions**

**Session A. Aggregation functions and decision (Assembly hall)**

**Chair: Katsushige Fujimoto**

Implicative weights as Importance Quantifiers in Evaluation Criteria

*Jozo Dujmovic*

Interval UTA method handling highly probable preference between alternatives estimated by stochastic multicriteria acceptability analysis

*Masahiro Inuiguchi, Yuji Mukai, Roman Slowinski, Salvatore Greco*

Constructing an outranking relation with weighted OWA for multi-criteria decision analysis

*Jonathan A. Orama, Aida Valls*

**Session B. Privacy II (Classroom 5, 1<sup>st</sup> floor)**

**Chair: Jordi Casas**

On the Application of SDC Stream Methods to Card Payments Analytics

*Miguel Nuñez-del-Prado, Jordi Nin*

Privacy Preserving Collaborative Fuzzy Co-clustering of Three-mode Co-occurrence Data

*Katsuhiko Honda, Shotaro Matsuzaki, Seiki Ubukata, Akira Notsu*

An example in collaborative filtering to compare k-anonymity and differential privacy

*Julián Salas, Jordi Soria-Comas*

**12:00 – 13:00 Parallel sessions**

**Session A. Aggregation and decisions (Assembly hall)**

**Chair: Masahiro Inuiguchi**

Learning fuzzy measures for aggregation in fuzzy rule-based models

*Emran Saleh, Aida Valls, Antonio Moreno, Pedro Romero-Aroca, Vicenç Torra, Humberto Bustince*

Coherent Risk Measures Derived from Utility Functions

*Yuji Yoshida*

Fuzzy Hit-or-Miss Transform Using Uninorms

*Pedro Bibiloni, Manuel González-Hidalgo, Sebastia Massanet, Arnau Mir, Daniel Ruiz-Aguilera*

**Session B. Applications (Classroom 5, 1<sup>st</sup> floor)**

**Chair: Aránzazu Jurío**

From Qualitative Spatial Features of Motion towards Narratives for Video Description

*Zoe Falomir and Naruedon Wattanakul*

Grading Operator Skill Based on Ordinal Logistic Regression

*Thanh Quynh Le Song and Van Nam Huynh*

Association Analysis on Interval-valued Fuzzy Sets

*Petra Murinová, Viktor Pavliska, Michal Burda*

**13:00 – 15:00 Lunch**

**15:00 – xx:xx Excursion to Valldemossa and the Cartoixa (Valldemossa Charterhouse)**

**21:30 – xx:xx Dinner**

## October 18<sup>th</sup>, 2018

**9:30 – 10:30 Plenary. Dr. Martí Sánchez-Fibla (Assembly hall)**

**Chair: Vicenç Torra**

**Studying the emergence of coordination among embodied learning agents.**

**10:30 – 11:00 Coffee Break**

**11:00 – 12:00 Parallel sessions**

**Session A. Fuzzy measures and set functions (Assembly hall)**

**Chair: Aïda Valls**

Coalition formation and sub-population monotonic allocation schemes

*Katsushige Fujimoto*

An axiomatisation of the Banzhaf value and interaction index for multichoice games

*Mustapha Ridaoui, Michel Grabisch, Christophe Labreuche*

Event-based Transformations of Set Functions and The Consensus Requirement

*Andrey G. Bronevich, Igor N. Rozenberg*

**Session B. Clustering II (Classroom 5, 1<sup>st</sup> floor)**

**Chair: Van Nam Huynh**

On Cluster Number Estimation for Network Clustering By Using x-medoids

*Yukihiro Hamasuna, Ryo Ozaki, Daiki Kobayashi, Yasunori Endo*

Fuzzy clustering with interval-valued membership degrees

*Aranzazu Jurio, Humberto Bustince, Vicenç Torra*

Basic Level Concepts as a Means to Better Interpretability of Boolean Matrix Factors and their Application to Clustering

*Petr Krajca, Martin Trnecka*

**12:00 – 13:00 Parallel sessions**

**Session A. Clustering III (Assembly hall)**

**Chair: Petr Krajca**

Optimal Clustering with Twofold Memberships

*Sadaaki Miyamoto, Jong Moon Choi, Yasunori Endo, Van Nam Huynh*

Dual Exclusive Partition Model for MMMs-induced Fuzzy Co-clustering

*Katsuhiko Honda, Yoshiki Hakui, Seiki Ubukata, Akira Notsu*

A self-tuning possibilistic c-means clustering algorithm

*László Szilágyi, Szidónia Lefkovits, Zsolt Levente Kucsván*

**Session B. Data science III (Classroom 5, 1<sup>st</sup> floor)**

**Chair: Zoe Falomir**

Extraction of Patterns to support Dairy Culling Management

*M. Lopez-Suarez, E. Armengol, S. Calsamiglia, L. Castillejos*

Moderating Twitter debates using sentiment analysis procedures

*J. A. Morente-Molinera, G. Kou, Y. Peng, C. Torres-Albero, E. Herrera-Viedma*

Balancing Assembly Lines and Matching Demand through Worker Reallocations

*Randall Mauricio Pérez-Wheelock, Van-Nam Huynh*

**13:00 – 13:15 Closing (Assembly hall)**

**13:15 – 14:30 Lunch**

## *Wifi Information*

**WIFI:** EDUROAM

**USER:** artificial.intelligence@wifi.uib.es

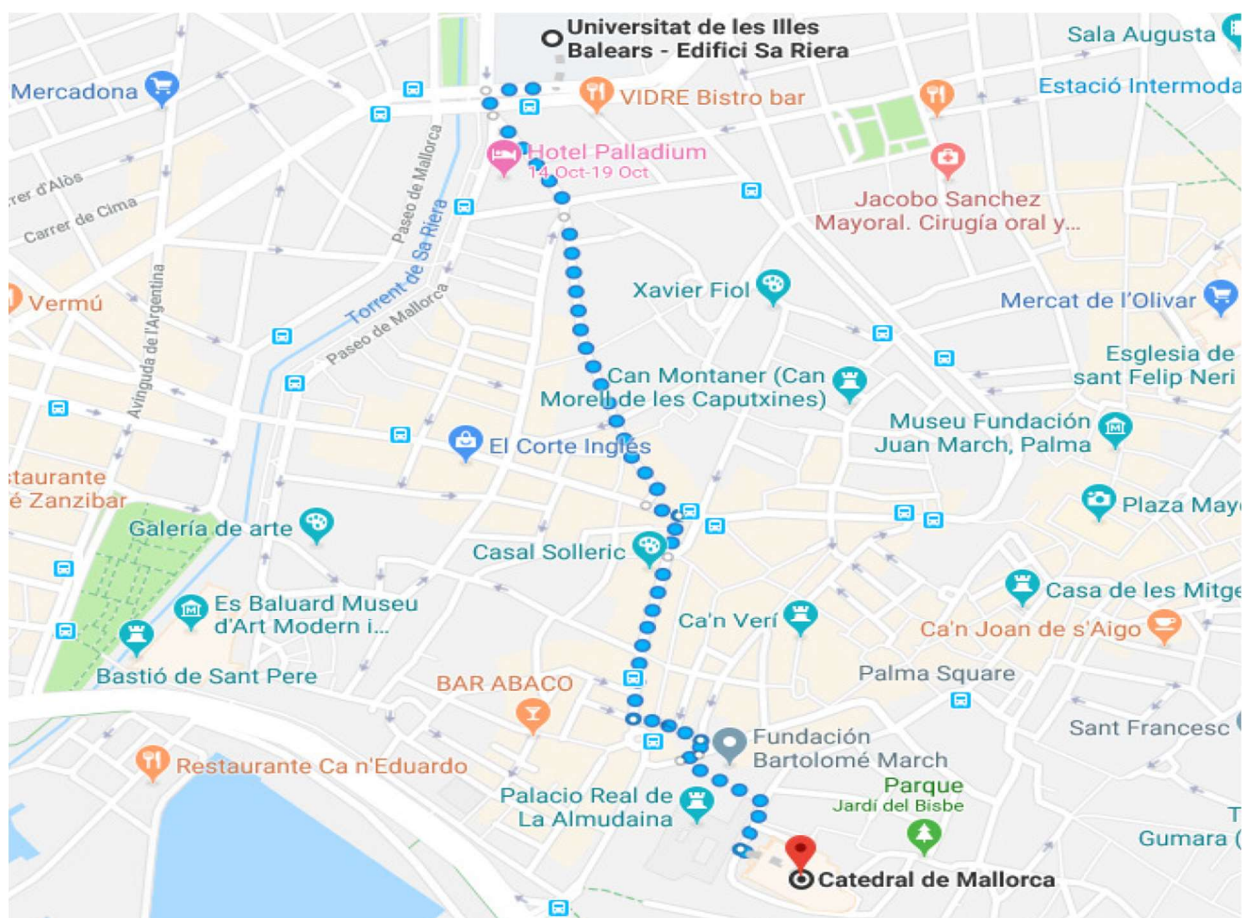
**PWD:** 101085

*October 16<sup>th</sup>, 2018*

17:30 Visit to the Cathedral.

19:15 Snack at Ca n'Oleo Building

Map from Sa Riera Building to Cathedral of Palma (1,2 Km, 16 min)



**Download the app: "Cartoixa de Valldemossa".** It is a virtual visit in five languages. It serves as an audio guide.

The application is designed to improve your visit to the monumental and museographic collection of the Cartoixa de Valldemossa, help you to keep abreast of the latest news and offer you the option to bring with you all your memories of the visit home. Explore the exhibitions through self-guided tours, and learn about the history of the Cartuja de Valldemossa and its population.

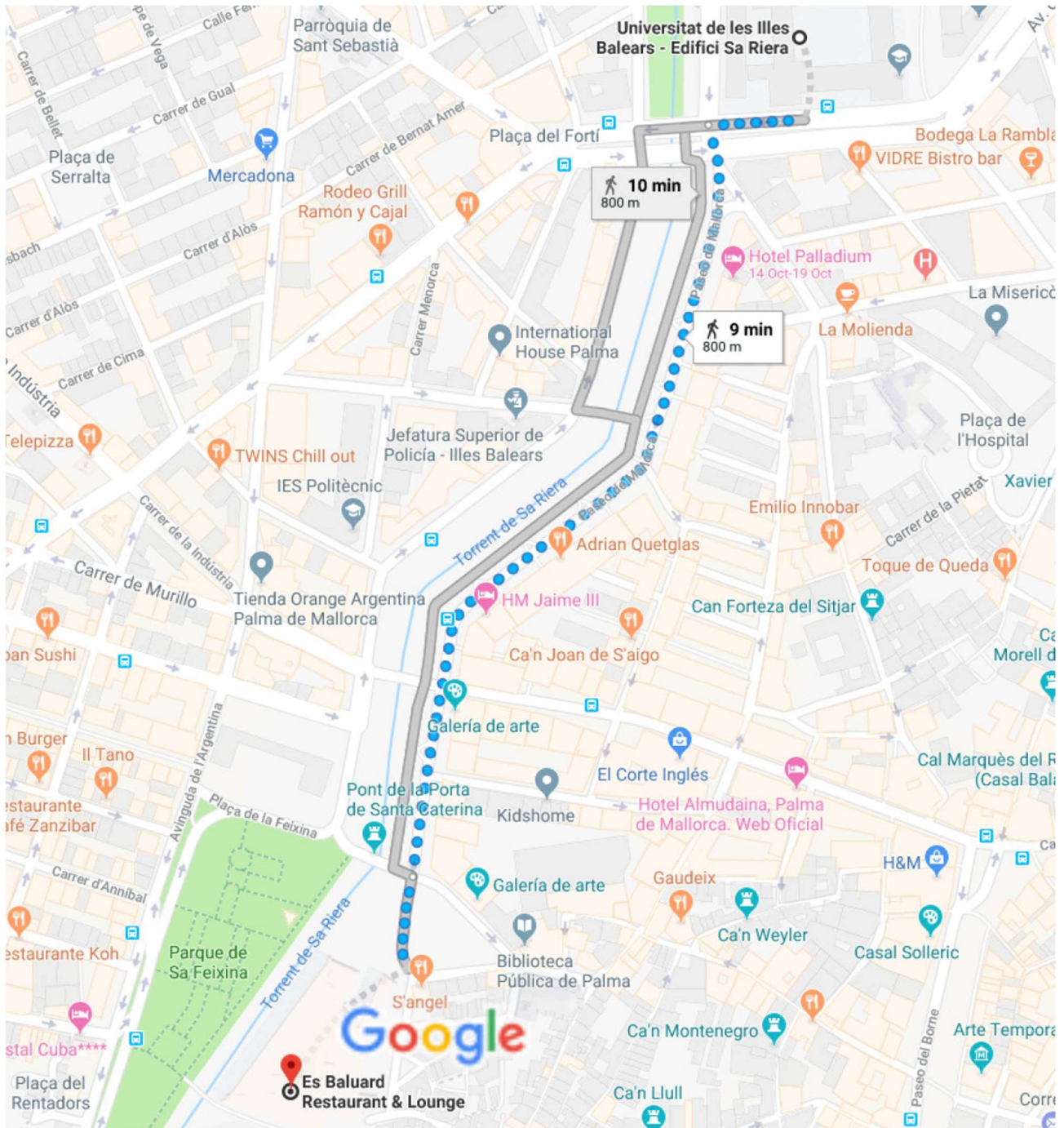
*October 17<sup>th</sup>, 2018*

15:00 Excursion to Valldemossa and the Cartoixa (Valldemossa Charterhouse).

18:30 See the sunset in “Son Marroig”.

21:00 Dinner at “Es Baluard”

Map from Sa Riera Building to Es Baluard (800 m, 9 min)



## Map from Sa Riera to HM Jaime III

Hotel address: Passeig de Mallorca, 14 B, 07012 Palma, Illes Balears (600 m, 7 min)

