

**MDAI 2014**

modeling decisions

**The 11th International Conference on  
Modeling Decisions for Artificial Intelligence**

**Tokyo, Japan, October 29-31, 2014**

<http://www.mdai.cat/mdai2014>

**October 29th, Wednesday**

**10:30 – 11:45 Registration**

**11:45 – 12:00 Opening session**

**12:00 – 13:00 Plenary talk**

Uncertain Information Representation for Decision-Making: Emerging Approaches

Prof. Ronald R. Yager

Chair: V. Torra

**13:00 – 14:20 Lunch**

**14:20 – 15:40 Parallel Sessions**

**Session A. Clustering**

Chair: Laszlo Szilagy

Fuzzy c-Means with Quadratic Penalty-Vector Regularization Using Kullback-Leibler Information for Uncertain Data

Naohiko Kinoshita, Yasunori Endo, Yukihiro Hamasuna

On Kernelization for a Maximizing Model of Bezdek-like Spherical Fuzzy c-Means Clustering

Yuchi Kanzawa

A Note on Objective-based Rough Clustering with Fuzzy-Set Representation

Ken Onishi, Naohiko Kinoshita, Yasunori Endo

Semi-supervised Hard and Fuzzy c-Means with Assignment Prototype Term

Yukihiro Hamasuna, Yasunori Endo

**Session B. Aggregation Operators**

Chair: Aoi Honda

Single-Preference Consensus Measures Based on Models of Ecological Evenness

Gleb Beliakov, Simon James, Laura Smith

Aggregation of Dynamic Risk Measures in Financial Management

Yuji Yoshida

A new solution concept: acceptable payoffs in the core via coalition formation

Katsushige Fujimoto

Inequalities for Choquet integral with respect to a submodular non additive measure

Yasuo Narukawa, Vicenç Torra

## **15:40 – 16:10 Coffee break**

## **16:10 – 16:40 Invited paper**

Chair: [Guillermo Navarro-Arribas](#)

Electronic road pricing system for low emission zones to preserve driver privacy  
Roger Jordi-Cedo, Macia Mut-Puigserver, M. Magdalena Payeras-Capella, Jordi Castella-Roca,  
Alexandre Viejo

## **16:40 – 17:20 Parallel Sessions**

### **Session A. Applications I**

Chair: [Jordi Casas](#)

Rank swapping for data streams  
Guillermo Navarro, Vicenç Torra

Reinforcement learning using BAMDP-based prior knowledge for dynamic environment  
Takeshi Shibuya

### **Session B. Decision Making**

Chair: [Simon James](#)

Visual consensus feedback mechanism for group decision making with complementary linguistic preference relations  
Francisco Chiclana, Jian Wu, Enrique Herrera-Viedma

Bias and variance in  $k$ -additive fuzzy measures learning  
Daniel Abril, Vicenç Torra, Eva Armengol

## **17:20 – 18:00 Parallel Sessions**

### **Session A. Social Networks**

Chair: [Jordi Castellà](#)

Towards the Cloudification of the Social Networks Analytics  
Daniel Cea, Jordi Nin, Ruben Tous, Jordi Torres, Eduard Ayguadé

Privacy-Preserving on Networks using Randomization and Edge-Relevance  
Jordi Casas

### **Session B. Aggregation Operators and Decision**

Chair: [Katsushige Fujimoto](#)

On the distributivity equation  $I(x, U1(y,z)) = U2(I(x,y), I(x,z))$  for decomposable uninorms (in interval-valued fuzzy sets theory) generated from conjunctive representable uninorms  
Michal Baczynski, Wanda Niemyska

On the entropy for non additive measures  
Vicenç Torra, Yasuo Narukawa

## October 30th, Thursday

### 9:30 – 10:30 Plenary talk

Framework of Entertainment Computing and Its Applications

Prof. Junichi Hoshino

Chair: Y. Endo

### 10:30 – 11:30 Parallel Sessions

#### Session A. Clustering

Chair: Sadaaki Miyamoto

About the application of the transferable belief to multicriteria ordered clustering

Yves De Smet, Ayman Boujelben

Hard and Fuzzy c-means Algorithms with Pairwise Constraints by Non-metric Terms

Yasunori Endo, Kinoshita, Iwakura, Hamasuna

Application of the Fuzzy-Possibilistic Product Partition in Elliptic Shell Clustering

Laszlo Szilagy, Zsuzsa Reka Varga, Sandor Miklos Szilagy

#### Session B. Doctoral Consortium: Graphs and social networks

Chair: Yuchi Kanzawa

c-Regression Models on Vertices for Graphs

Tatsuya Higuchi, Sadaaki Miyamoto

Asymmetric K-Medoids

Yousuke Kaizu, Sadaaki Miyamoto

Comparing Different Methods on Clustering Follow-Follower Relations on

Twitter

Keisuke Minakawa, So Miyahara, Yusuke Tamura, Sadaaki Miyamoto

### 11:30 – 12:00 Coffee break

### 12:00 – 13:00 Parallel Sessions

#### Session A. Applications II

Chair: Yuchi Kanzawa

A Note on Estimating Tangential Force in Brake Systems for Railways

Toru Sano, Yasunori Endo, Shin-ichi Nakazawa, Daisuke Hijikata

Study on Learning Support of Musical Representation Using Knowledge of Musical Expression

Generation

Mio Suzuki, Takeshi Onizawa

A Study on Story Reading System Reflecting Impression of Story Scene

Kiriko Ogino, Takehisa Onisawa

#### Session B. Doctoral Consortium: Clustering

Chair: Vicenç Torra

Even-sized Clustering Algorithm Based on Optimization

Tsubasa Hirano, Naohiko Kinoshita, Yasunori Endo, Yukihiro Hamasuna

A Note on Visualization of Asymmetric Data

Yu Shiraishi, Akira Sugawara, Naohiko Kinoshita, Yasunori Endo

On Relation Between Kernelization and Quadratic-Regularization in Hard Non-Metric Model

Kuniaki Iwakura, Yasunori Endo, Naohiko Kinoshita, Sadaaki Miyamoto

### 13:00 – 14:20 Lunch

## **14:20 – 15:40 Parallel Sessions**

### **Session A. Reasoning and Applications**

**Chair: Gábor Gosztolya**

Exchange or not Exchange: a Mechanism for Perfect Information  
Ray-Ming Chen

Relational Division in Ranked-Aware Databases: An Overview, Issues, and New Directions  
Ondrej Vaverka, Vilem Vychodil

Towards Armstrong-style Inference System for Attribute Implications with Temporal Semantics  
Jan Triska, Vilem Vychodil

An Approximate Dynamic Programming Approach for the Online Knapsack Problem  
Hajer Ben-Romdhane, Sihem Ben Jouda, Saoussen Krichen

### **Session B. Doctoral Consortium**

**Chair: Yukihiro Hamasuna**

The Strategies for Local Optimality Test in Bilevel Linear  
Optimization with Ambiguous Objective Function of the Follower  
Puchit Sariddichainunta, Masahiro Inuiguchi

Constrained Mountain  $c$ -Regression Models  
Hengjin Tang, Sadaaki Miyamoto, Yasunori Endo

## **18:30 – xx:xx Conference Dinner**

## **October 31th, Friday**

### **9:30 – 10:30 Plenary Talk**

Recursive Capacitary Kernel

Prof. Hiroyuki Ozaki

Chair: Y. Narukawa

### **10:30 – 11:30 Session**

#### **Session A. Machine Learning**

Chair: Ondrej Vaverka

A Multiobjective Evolutionary Optimized Recurrent Neural Network for Defects Detection on Flat Panel Displays

H. A. Abeysundara, Hiroshi Hamori, Takeshi Matsui, Masatoshi Sakawa

Applying Representative Uninorms for Phonetic Classifier Combination

Gábor Gosztolya, József Dombi

On Radius-incorporated Multiple Kernel Learning

Xinwang Liu, Jianping Yin and Jun Long

### **11:30 – 12:00 Coffee break**

### **12:00 – 13:00 Session**

#### **Session A. Aggregation and Preferences**

Chair: Yuji Yoshida

Towards a robust multiple criteria aggregation procedure for mixed evaluations

Sarah BenAmor

Enhancing Robust Preference Relations by Ratio Data in Pairwise Comparisons

Tomo Sugiyama, Masahiro Inuiguchi

Modeling Complex Nonlinear Utility Spaces using Utility Hyper-graphs

Rafik Hadfi, Takayuki Ito

### **13:00 – 13:30 Closing Session**