The IADIS European Conference on Data Mining 2012 took place in Lisbon, Portugal, 21-23 July, 2012. This conference was part of the Multi Conference on Computer Science and Information Systems 2012 (MCCSIS), 17 - 23 July 2012, which had a total of 1036 submissions.

The IADIS European Conference on Data Mining (ECDM’12) aimed to gather researchers and application developers from a wide range of data mining related areas such as statistics, computational intelligence, pattern recognition, databases and visualization. ECDM’12 had the goal to advance the state of the art in data mining field and its various real world applications. It provided opportunities for technical collaboration among data mining and machine learning researchers around the globe.

The IADIS European Conference on Data Mining 2012 received 58 submissions from more than 19 countries. Each submission had been anonymously reviewed by an average of four independent reviewers, to ensure that the final accepted submissions were of a high standard. Consequently only 8 full papers were published which meant an acceptance rate of 14%. A few more papers were accepted as short papers, reflection papers and posters. The best paper author was invited to publish an extended version of his paper in the IADIS International Journal on Computer Science and Information Systems (ISSN: 1646-3692).

The submissions were accepted under the following areas of interest:

**Core Data Mining Topics**
- Parallel and distributed data mining algorithms
- Data streams mining
- Graph mining
- Spatial data mining
- Text video, multimedia data mining
- Web mining
- Pre-processing techniques
- Visualization
- Security and information hiding in data mining

**Data Mining Applications**
- Databases
- Bioinformatics
- Biometrics
- Image analysis
- Financial modeling
- Forecasting
- Classification
- Clustering
- Social Networks
- Educational data mining

Besides the presentation of full papers, short papers, reflection papers and posters, the conference also included one keynote presentation from a internationally distinguished researcher, Dr. Alfredo Cuzzocrea, from the ICAR-CNR & University of Calabria, Italy.


Overall the Conference offered an opportunity to all their participants to discuss with success the most significant aspects regarding the theme Data Mining. It served as a forum that gathered researchers, practitioners, students and anyone that was working or studying in the field of the Data Mining.
Keynote Presentation:

K.1 – OLAPing Exact and Uncertain Multidimensional Data Streams by Dr. Alfredo Cuzzocrea, from the ICAR-CNR & University of Calabria, Italy

Abstract:

Multidimensional data streams are playing a leading role in next-generation DSMS. This essentially because real-life data streams are inherently multidimensional, multi-level and multi-granular in nature, hence opening the door to a wide spectrum of applications ranging from environmental sensor networks to monitoring and tracking systems, and so forth. As a consequence, there is a need for innovative models and algorithms for representing and processing such streams. Moreover, supporting OLAP analysis and mining tasks is a “first-class” issue in the major context of knowledge discovery from streams, for which above-mentioned models and algorithms are baseline components. This issue becomes more problematic when uncertain and imprecise multidimensional data streams are considered. Inspired by these critical research challenges, in this talk we will present innovative techniques for supporting OLAP over multidimensional data streams, in the two distinct cases represented by exact and uncertain streams, respectively.

Best Paper:

- EFFICIENT MAX-MARGIN METRIC LEARNING by Caiming Xiong, David Johnson and Jason Corso, SUNY at Buffalo, USA

Abstract:

Efficient learning of an appropriate distance metric is an increasingly important problem in machine learning. However, current methods are limited by scalability issues or are unsuited to use with general similarity/dissimilarity constraints. In this paper, we propose an efficient metric learning method based on the max-margin framework with pairwise constraints that has strong generalization guarantees. First, we reformulate the max-margin metric learning problem as a structured support vector machine which we can optimize in linear time via a cutting-plane method. Second, we propose a kernelized extension to the method, with a linear-time-computable approximation based on a matching pursuit algorithm. We find our method to be comparable to or better than state of the art metric learning techniques at a number of machine learning and computer vision classification tasks.

Committees:

Program Chair: Ajith P. Abraham, School of Computer Science, Chung-Ang University, South Korea

Conference Co-Chairs:

- Piet Kommers, University of Twente, The Netherlands
- Pedro Isaías, Universidade Aberta (Portuguese Open University), Portugal

Committee Members:

- Abdel-Badeeh M. Salem, Ain Shams University, Egypt
- Adil Bagirov, University Of Ballarat, Australia
- Akihiro Inokuchi, Osaka University, Japan
- Aleksandar Lazarevic, Travelers, USA
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- Alessandro Fiori, Politecnico Di Torino, Italy
- Alessia Visconti, University Of Turin, Italy