

# ISDA 2015 Special Session on

## Data pre-processing techniques for industrial applications

### Call for papers

#### Scope

Data pre-processing is an important task in machine learning and data mining applications. Many real-world datasets are affected by problems such as the presence of outliers and variable redundancy that may have a detrimental effect in the development of accurate models based on such data. Data pre-processing techniques are particularly important when treating industrial datasets where the number of potential input features and measurements could be very high. Removing irrelevant, redundant or noisy data improves data mining algorithms speed, predictive accuracy and increase the comprehensibility of the phenomenon under consideration.

The aim of this special session is to gather contributions which highlight the effectiveness of appropriate data pre-processing analysis applied to real-world industrial datasets, putting into evidence their practical benefits. It is important that the contributions provide a synthetic but clear view of the problem under consideration, together with a clear description of the pre-processing technique used. The papers could also focus on a comparison between some novel proposed approach and state-of-the-art traditional techniques by underlying the achieved advantages.

#### Topics

Topics of the special session include (but are not limited to) application of Intelligent Systems for:

- Variable selection and feature extraction
- Data reduction
- Data filtering
- Data integration
- Data transformation
- Data discretization
- Anomaly detection
- Image data pre-processing

**Paper Submission:** Please follow the instructions given at the corresponding section.

**Conference website** <http://www.mirlabs.net/isda15/welcome.php>

#### Session Chair and Contacts

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#### Reviewers panel (to be further expanded)

Dr. Valentina Colla: [colla@sssup.it](mailto:colla@sssup.it) Scuola Superiore Sant'Anna

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### **Short Biography of Dr. Valentina Colla**

V. Colla obtained her Master Degree in Telecommunication Engineering in 1994 at the University of Pisa and her PhD. in Robotics in 1998 at Scuola Superiore Sant'Anna (SSSA) of Pisa. Since 2000 She has been researcher at SSSA and since 2008 She is now Technical Research Manager at SSSA, where she is currently coordinator of a research team (more than 20 members) focused on modeling, simulation and control of industrial processes (especially within process and manufacturing industry).

Her research interests concern the development and application of and AI-based techniques for data processing and mining, knowledge extraction and exploitation aimed at modeling and control within industrial applications. She works also on multi-objective optimization techniques applied to smart data treatment, optimization of high-level simulation systems, production scheduling and management of complex industrial processes.

She participated to 46 projects funded by the European Union (17 currently ongoing), within 3 of them in the role of project coordinator and she is author of more than 200 publications in International Journals, Conferences and Workshops (an almost complete list is available at [https://www.researchgate.net/profile/Valentina\\_Colla/](https://www.researchgate.net/profile/Valentina_Colla/)).