The Third International Conference on Machine learning, Optimization and big Data – MOD 2017

An Interdisciplinary Workshop: Machine Learning, Optimization and Data Science without Borders

SIAF Learning Village Tuscany – Volterra, Italy, September 14-17, 2017

http://www.taosciences.it/mod/

modworkshop2017@gmail.com

Final Version

The *International Conference on Machine learning, Optimization, and big Data - MOD* has established itself as *a premier interdisciplinary conference* in machine learning, computational optimization and data science. It provides an international forum for presentation of original multidisciplinary research results, as well as exchange and dissemination of innovative and practical development experiences.

MOD Conference uses the formula of *30 minutes presentations* for fruitful exchanges between authors and participants.

Proceedings by Springer – Lecture Notes in Computer Science
All accepted **long papers** will be published in a volume of the series on Lecture Notes in Computer Science from Springer **after** the conference.

MOD 2017 Best Paper Award
Springer sponsors the *MOD 2017 Best Paper Award* with a cash *prize* of EUR 1,000

Volterra – Pisa, Tuscany. The learning experience at the MOD conference will *not* stop once outside the lecture hall. The leisure time will not only represent a golden and crucial opportunity for extensive discussions with outstanding Faculties and excellent scientific networking interactions with colleagues, but also a rare opportunity to experience this retreat-like atmosphere in one of the most beautiful places on Earth. Hence the added value of the MOD conference in Tuscany will be the unique opportunity of a full immersion into the Tuscan traditions, arts, wines, and food making it an unforgettable experience of a lifetime.

Unique in the world are Tuscan wines, arts and local foods: a wide array of personalized activities can be arranged focused on the local excellence, according to each participant's or guest's interest. During participants' stay there will be ample time to arrange activities: should participants desire to engage in activities before the MOD conference.

General Chair
Renato Umeton, Harvard University, USA

Program Chairs
Giovanni Giuffrida, University of Catania, Italy & Neodata Group
Giuseppe Nicosia, University of Catania, Italy
Panos Pardalos, University of Florida, USA

Tutorial/Special Sessions Chair
Giuseppe Narzisi, New York University Tandon School of Engineering & New York Genome Center, New York, USA

Industrial Session Chairs
Ilaria Bordino, Marco Firrincieli, Fabio Fumarola & Francesco Gullo, UniCredit R&D, Italy
Moderator: **Aris Anagnostopoulos**, Sapienza University of Rome, Italy

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Piero Conca, CNR, Italy
Jole Costanza, Italian Institute of Technology, Milano – Italy
Giorgio Jansen, University of Catania, Italy
Giuseppe Narzisi, New York Genome Center, USA
Andrea Patanè, University of Oxford, UK
Andrea Santoro, Queen Mary University London, UK

Program Committee
More than 250 Program Committee members.
http://www.taosciences.it/mod/program-committee/

Registration
The registration desk will be located close to the Main Conference Room and will be open during the following hours:
Thursday, September 14, 08:30 – 17:30
Friday, September 15, 08:30 – 12:30
Upon registration at the desk, you will receive your badge, vouchers, and conference materials. To facilitate the process please bring with you your registration confirmation. You are kindly requested to wear your name badge during all events of the conference.

Conference Venue
SIAF – The Learning Village in Tuscany
SP del monte Volterrano, Località – Il Cipresso, 56048 Volterra (Pisa) Tuscany, Italy
Phone: (+39) 0588 81266 or (+39) 0588 86855 Fax: (+39) 0588 86414
Email: info@siafvolterra.eu http://www.siafvolterra.it/wp/en/how-to-reach-us/
Contact: Dr. Giada Ragoni, giada.ragoni@siafvolterra.eu

MOD 2017 Plenary Speakers

- **"*Assimilated Learning: A Framework for Co-analysis of Big Data and Smart Data*"**
  Yi-Ke Guo
  Department of Computing, Faculty of Engineering, Imperial College London, UK
  Founding Director of Data Science Institute

  The importance of combined analysis of big and smart data has been well recognized and ample research has been conducted with the focus on "data integration" or "data fusion". However, the aforementioned imbalance in size, context and richness in semantics made the integration at the data level a hard and unsustainable technology. Although there is some remarkable progresses made in studying the interaction of big and smart data and exploring the advantage of both for the mutual enhancement for their analysis, we still lack a systematic study and uniform approach for the joint analysis of both data types. In this talk, we are introducing Assimilated Learning where smart data and big data will be co-collected and co-analysed in a bi-directionally guided way.

- ***"Quantification of Network Dissimilarities and its Practical Implications"***
  Panos Pardalos
  Department of Systems Engineering, University of Florida, USA
  Director of the Center for Applied Optimization

  In this lecture, we analyze a novel measure that quantifies network dissimilarities by comparing its performance with other well-known tools. The efficacy of this measure, based on Information Theory, depends on the use of rich information extracted from the graphs. We show here that the measure has promising implications in several research areas that include, bioinformatics, climate dynamics, percolation in networks, network robustness and model selection. We perform extensive computational experiments on real and artificial networks. Future research directions, which include applications to multiplex settings, will also be discussed.
  This is joint work with T. Schieber, M.G. Ravetti, and L. Carpi

- ***"Recent Advances in Deep Learning"***
  Ruslan Salakhutdinov
  Machine Learning Department, School of Computer Science at Carnegie Mellon University, USA
  Director of AI Research at Apple

  In this talk I will first introduce a broad class of deep learning models and show that they can learn useful hierarchical representations from large volumes of high-dimensional data with applications in information retrieval, object recognition, and speech perception. I will next introduce models that can find semantically meaningful representations of words, learn to read documents and answer questions about their content. Specifically, I will focus on recurrent neural network models that integrate multi-hop architectures with novel attention mechanism, along with its extensions that make use of external linguistic knowledge. I will further introduce the notion of "*Memory*" as being a crucial part of an intelligent agent's ability to plan and reason in partially observable environments and demonstrate a deep reinforcement learning agent that can learn to store arbitrary information about the environment over long time lags. I will show that on several tasks these models significantly improve upon many of the existing techniques.

- ***"Socialize Strategies for Bots: when incomplete topology meets efficiency"***
  My Thai
  Department of Computer & Information Science & Engineering, University of Florida, USA

  With a huge amount of personal information ripe for the taking in modern Online Social Networks (OSNs), privacy breaches have become a central concern, especially with an introduction of automated attacks by socialbots, which can automatically extract victims' private content by exploiting social behavior to befriend them. In this talk, we explore the social strategies of socialbots and see how they can harvest the most of private information using at most k friend requests, modeled as Max-Crawling. The two main challenges of this problem are how to cope with incomplete knowledge of network topology and how to model users' responses to friend requests. Accordingly, we present an adaptive approximation algorithm using adaptive stochastic optimization. The key feature of our solution lies in the adaptive method, where partial network topology is revealed after each successful friend request. Thus the decision of whom to send a friend request to next is made with the outcomes of past decisions taken into account. Traditional tools break down when attempting to place a bound on the performance of this technique with realistic user models as it is no longer submodular. Therefore, we additionally introduce a novel curvature-based technique to construct an approximation ratio of for a model of user behavior learned from empirical measurements on Facebook.

- ***"Optimization and Management in Manufacturing Engineering"***
  Jun Pei
  Hefei University of Technology, China

  With the continuous development of network technology and global economic integration, the competition in manufacturing becomes more and more fierce. There is increasing awareness of the supply chain participants that they have to reinforce the cooperation between each other to improve the competitiveness of supply chain so as to decrease each operation cost. The development of Internet of Things technology provides an information basis of the cooperation between the participants of supply chain. It can not only return the production information to the management center, but also share the information to other participants. The Internet of Things technology pushes the cooperation between supply chain participants to a new level that by using the information effectively can decrease the production cost, increase the profit, improve the satisfaction of customers, and in the end enhance the competitiveness of the whole supply chain. Besides, introducing the technology of the Internet of Things also broadens the theoretical area of the research on scheduling problems. Therefore, how to transform the information value into economic and social value, and use the information acquired by the Internet of Things to obtain efficient production plans becomes the key issues. Based on the background of Aluminum production manufacturing chain in China, we focus on the issues of Optimization and Management in Manufacturing Engineering.

- ***"The Cloud and Cognitive Industrial Revolution"***
  Vincenzo Sciacca
  Cloud and Cognitive Division - IBM Rome, Italy

  The ability to ask simple questions in natural language, and receive answers based on a huge array of knowledge, intelligently ordered, is opening up a wide range of industries to the benefits of cognitive computing. What is the difference between AI and cognitive? Why Cloud is so important in this new industrial revolution? How humans are involved in the loop? I will talk about cloud and cognitive: a new, emerging industrial trend that leverages on data science, AI technologies and cloud computing.

MOD 2017 Tutorials, September 14th

- "***Scalable Data Mining on Cloud Computing Systems***"
  Domenico Talia
  Dipartimento di Ingegneria Informatica, Modellistica, Elettronica e Sistemistica - Università della Calabria, Italy

  The analysis of the massive and distributed data repositories is a challenging task and it requires the combined use of intelligent data analysis techniques, machine learning algorithms, and scalable architectures to find and extract useful information from them. Parallel computers, distributed systems and Cloud computing platforms offer an effective support for addressing both the computational and data storage needs of Big Data mining and parallel analytics applications. In fact, complex data mining tasks involve data- and compute-intensive algorithms that require large storage facilities together with high performance processors to get results in suitable times. In this tutorial we introduce the most relevant topics and the main research issues in high performance data mining including parallel data mining strategies, distributed analysis techniques, and Cloud-based data mining. We also present some data mining frameworks designed for developing distributed data analytics applications as workflows of services on Clouds. In these environment data sets, analysis tools, data mining algorithms and knowledge models are implemented as single services that are combined through a visual programming interface in distributed workflows. Application design and execution of data analysis use cases are discussed. Programming issues on exascale systems and applications will be also introduced.

- "***Mathematical Analysis of Nature-Inspired Algorithms***"
  Xin–She Yang
  School of Science and Technology Middlesex University London, UK

  Many problems in optimization and computational intelligence are very challenging to solve, and some of these problems can be NP-hard, which means that there are often no efficient algorithms to tackle such hard problems. In many cases, nature-inspired metaheuristic algorithms can be a good alternative and such algorithms include genetic algorithms (GA), particle swarm optimization (PSO), ant colony optimization (ACO) and many others. Over the last two decades, nature-inspired optimization algorithms have become increasingly popular in solving large-scale, nonlinear, global optimization with many real-world applications. They also become an important of part of optimization and computational intelligence. This tutorial will provide a critical analysis of recent algorithms using mathematical theories such as Markov chains, dynamic systems, random walks and self-organization systems. This will provide some insight into these algorithms concerning their convergence rates and stability.

MOD 2017 Industrial Session – 2nd Edition, September 15th, 8:45-12:40

Industrial Session on Machine Learning, Optimization and Data Science for Real-World Applications

Moderator: **Aris Anagnostopoulos**, Sapienza University of Rome, Italy

Panellists:

- ***"A tale of Beauty and Happiness"***
  Luca Maria Aiello
  Nokia Bell Labs, UK

  In social media, attention concentrates on a relatively small number of popular items, while the vast majority of content produced by the crowd is almost neglected. Although popularity can be an indication of the perceived value of an item within its community, previous research has hinted to the fact that popularity is distinct from intrinsic quality. We embarked in a journey to quantitatively measure intangible properties such as quality and beauty using a multidisciplinary approach that ranges from social sciences to deep learning. Our research shows how algorithms that can reliable capture quality can democratise social media, improve our experience of online web services and even help us living a better life in our cities.

- ***"Question Answering for a Language Game and Customer Support"***
  Pierpaolo Basile
  University of Bari, Italy

  Question answering (QA) systems are able to answer questions posed by humans in a natural language. QA is a discipline within the fields of Information Retrieval (IR) and Natural Language Processing (NLP) that involves several machine learning approaches that need to scale on a huge amount of textual data. QA is a complex task that requires to deeply understand the question, search relevant documents and extract the correct answer from the retrieved documents.
  This talk provides a brief introduction to QA focusing on the NLP and machine learning techniques, followed by details about a QA framework called QuestionCube.
  Finally, I will present two different scenarios where QA is successfully applied: a famous language game called "Who Wants to Be a Millionaire?" and a semantic search engine for FAQs developed for supporting customers in a real application.

- ***"Detecting Algorithmic Bias"***
  Carlos Castillo
  Universitat Pompeu Fabra in Barcelona, Spain

  Algorithms and decision making based on Big Data have become pervasive in all aspects of our daily (offline and online) lives. Social media, e-commerce, professional, political, educational, and dating sites, to mention just a few, shape our possibilities as individuals, consumers, employees, voters, students, and lovers. In this process, vast amounts of personal data are collected and used to train machine-learning based systems. These systems are used to classify and rank people, and can discriminate us on grounds such as gender, age, or ethnicity, even without intention, and even if legally protected attributes, such as race, are not explicit in the data. Algorithmic bias exists even when there is no discrimination intention in the developer of the algorithm. Sometimes it may be inherent to the data sources used (software making decisions based on data can reflect, or even amplify, the results of historical discrimination), but even when the sensitive attributes have been suppressed from the input, a well trained machine learning algorithm may still discriminate on the basis of such sensitive attributes because of correlations existing in the data.
  From a technical point of view, efforts at fighting algorithmic bias have led to developing two groups of solutions: (1) techniques for discrimination discovery from data and (2) discrimination prevention by means of fairness-aware data mining, develop data mining systems which are discrimination-conscious by-design. In this talk we mainly focus on the first groups of solutions. This talk is joint work with Sara Hajian and Francesco Bonchi, and an extended version of it was presented as a KDD 2016 tutorial: http://francescobonchi.com/algorithmic_bias_tutorial.html

MOD 2017 Best Paper Award

Springer sponsors the ***MOD 2017 Best Paper Award*** with a cash ***prize*** of EUR 1,000

MOD 2017 Best Paper Award Candidates:

Recipes for Translating Big Data Machine Reading to Executable Cellular Signaling Models
Khaled Sayed, Cheryl Telmer**, Adam Butchy* & Natasa Miskov-Zivanov**
**University of Pittsburgh, USA*
*** Carnegie Mellon University, USA*

Mathematical programming based optimisation approach for QSAR modelling
Jonathan Silva, Lazaros Papageorgiou** & Sophia Tsoka**
**King's College London, UK*
*** University College London, UK*

On the Explicit Use of Enzyme-Substrate Reactions in Metabolic Pathway Analysis
Angelo Lucia, Edward Thomas* & Peter Di Maggio***
** University of Rhode Island, USA*
*** Imperial College London, UK*

Mining Place-Time Affinity to Improve POI Recommendation
Junfei Wang, Jun Chu*, Lu Meng*, Yan Zhang** & Sargur Srihari**
** State University of New York at Buffalo, USA*
*** University of South Carolina, USA*

Refining Partial Invalidations for Indexed Algebraic Dynamic Programming
Christopher Bacher & Günther R. Raidl
TU Wien, Vienna, Austria

Nonlinear Methods for Design-Space Dimensionality Reduction in Shape Optimization
Danny D'Agostino, Andrea Serani**, Emilio F. Campana** & Matteo Diez***
** Sapienza University of Rome, Italy*
*** CNR-INSEAN, Italy*

A Heuristic based on Fuzzy Inference Systems for Multiobjective IMRT Treatment Planning
Joana Dias, Humberto Rocha*, Tiago Ventura**, Brigida Ferreira*** & Maria Do Carmo Lopes***
** University of Coimbra, Portugal*
*** IPOCFG, Medical Physics Department, Coimbra, Portugal*
**** School for Allied Health Technologies, Porto, Portugal*

A Simple and Effective Lagrangean-based Combinatorial Algorithm for S3VMs
Francesco Bagattini, Paola Cappanera & Fabio Schoen
Università di Firenze, Italy

MOD 2016 Best Paper Award
Machine Learning: Multi-site Evidence-based Best Practice Discovery
Eva Lee, Yuanbo Wang and Matthew Hagen
Eva K. Lee, Professor Director, Center for Operations Research in Medicine and HealthCare H. Milton Stewart School of Industrial and Systems Engineering, Georgia Institute of Technology, Atlanta, GA, USA
eva.lee@gatech.edu

MOD 2015 Best Paper Award
Learning with discrete least squares on multivariate polynomial spaces using evaluations at random or low-discrepancy point sets
Giovanni Migliorati
Ecole Polytechnique Fédérale de Lausanne – EPFL, Lausanne, Switzerland
giovanni.migliorati@gmail.com

Thursday, September 14

Plenary Session, room 2
Chairs: Giuseppe Nicosia, Panos Pardalos & Giovanni Giuffrida

08:50 – 09:00 Opening

09:00 – 09:50 Keynote Lecture: "***Assimilated Learning: A Framework for Co-analysis of Big Data and Smart Data***"
Yi-Ke Guo, *Imperial College London, UK*

Session 1, room 2
Chair: Christopher Bacher

09:50 – 10: 20 *Nonlinear Methods for Design-Space Dimensionality Reduction in Shape Optimization*, Danny D'Agostino, Andrea Serani, Emilio F. Campana & Matteo Diez

10:20 – 10:50 *Job Sequencing with One Common and Multiple Secondary Resources: A Problem Motivated from Particle Therapy for Cancer Treatment*, Matthias Horn, Günther Raidl & Christian Blum

Session 2, room 1
Chair: Giuseppe Nicosia

09:50 – 10: 20 *On the Explicit Use of Enzyme-Substrate Reactions in Metabolic Pathway Analysis*, Angelo Lucia, Edward Thomas & Peter Di Maggio

10:20 – 10:50 *Improving Support Vector Machines performance using local search*, Sergio Consoli, Jacek Kustra, Pieter Vos, Monique Hendriks & Dimitrios Mavroeidis

10:50 – 11:20 Coffee Break

Session 3, room 2
Chair: Sergio Consoli

11:20 – 11:50 *A Simple and Effective Lagrangean-based Combinatorial Algorithm for S3VMs*, Francesco Bagattini, Paola Cappanera & Fabio Schoen

11:50 – 12:20 *Evolving Training Sets for Improved Transfer Learning in Brain Computer Interfaces*, Jason Adair, Alexander Brownlee, Fabio Daolio & Gabriela Ochoa

12:20 – 12:50 *Finding Smooth Graphs with Small Independence Numbers*, Benedikt Klocker, Herbert Fleischner & Günther Raidl

Session 4, room 1
Chair: Domenico Talia

11:20 – 11:50 *A Heuristic based on Fuzzy Inference Systems for Multiobjective IMRT Treatment Planning*, Joana Dias, Humberto Rocha, Tiago Ventura, Brigida Ferreira & Maria Do Carmo Lopes

11:50 – 12:20 *AbstractNet: A generative model for high density inputs*, Boris Musarais

12:20 – 12:50 *Multi-modal Network Representation Learning*, Zekarias Kefato, Nasrullah Sheikh & Alberto Montresor

12:50 – 14:20 Lunch

Plenary Session, room 2
Chairs: Giuseppe Nicosia

14:20 – 15:20 Tutorial on "***Scalable Data Mining on Cloud Computing Systems***"
Domenico Talia, *Università della Calabria, Italy*

15:20 – 16:20 Tutorial on "***Mathematical Analysis of Nature – Inspired Algorithms***"
Xin–She Yang, *School of Science and Technology Middlesex University London, UK*

16:20 – 16:50 Coffee Break

Session 5, room 2
Chair: Xin-She Yang

16:50 – 17:20 *Global Optimization in Machine Learning: the design of a Predictive Analytics application*, Antonio Candelieri & Francesco Archetti

17:20 – 17:50 *BRKGA-VNS for parallel-batching scheduling on a single machine with step-deteriorating jobs and release times*, Chunfeng Ma, Min Kong, Jun Pei & Panos Pardalos

17:50 – 18:20 *An elementary approach to the problem of column selection in a rectangular matrix*, Stephane Chretien & Sebastien Darses

18:20 – 18:50 *Robust Reinforcement Learning with Stochastic Value Function*, Reiji Hatsugai & Mary Inaba

18:50 – 19:20 *Dolphin Pod Optimization: A Nature-Inspired Deterministic Algorithm for Simulation-Based Design*, Andrea Serani & Matteo Diez

19:20 – 19:50 *A Data Mining Tool for Water Uses Classification based on Multiple Classifier Systems*, Ivan Dario Lopez, Cristian Heidelberg Valencia & Juan Carlos Corrales

Session 6, room 1
Chair: Sergio Consoli

16:50 – 17:20 *Hybrid Global/Local Derivative-Free Multi-Objective Optimization via Deterministic Particle Swarm with Local Linesearch*, Riccardo Pellegrini, Andrea Serani, Giampaolo Liuzzi, Francesco Rinaldi, Stefano Lucidi, Emilio Fortunato Campana, Umberto Iemma & Matteo Diez

17:20 – 17:50 *Subject Recognition From a Wrist-Worn Triaxial Accelerometer*, Stefano Mauceri, Louis Smith, James Sweeney & James McDermott

17:50 – 18:20 *Refining Partial Invalidations for Indexed Algebraic Dynamic Programming*, Christopher Bacher & Günther R. Raidl

18:20 – 18:50 *Data-driven job dispatching in HPC systems*, Cristian Galleguillos, Alina Sîrbu, Zeynep Kiziltan, Ozalp Babaoglu, Andrea Borghesi & Thomas Bridi

18:50 – 19:20 *Apparel retail analytics combining Machine Learning and Optimization*, Claudio Caremi, Tiziano Parriani, Matteo Pozzi, Daniele Vigo & Sven Wiese

19:50 Welcome Cocktail

Friday September 15

Plenary Session, room 2
Chair: Aris Anagnostopoulos

8:45 – 12:40 **Industrial Session on Machine Learning, Optimization and Data Science for Real-World Applications**
Moderator: ***Aris Anagnostopoulos****, Sapienza University of Rome, Italy*

08:45 – 9:00 Opening

09:00 – 09:50 ***"A tale of Beauty and Happiness"***
Luca Maria Aiello*, Nokia Bell Labs, UK*

09:50 – 10:40 ***"Question Answering for a Language Game and Customer Support"***
Pierpaolo Basile*, University of Bari, Italy*

10:40 – 11:10 Coffee Break

11:10 – 12:00 ***"Detecting Algorithmic Bias"***
Carlos Castillo*, Universitat Pompeu Fabra in Barcelona, Spain*

12:00 – 12:40 Round Table and Concluding Remarks

12:40 – 13:30 Keynote Lecture: ***"Socialize Strategies for Bots: when incomplete topology meets efficiency"***
My Thai, *University of Florida, USA*

13:30 - 14:50 Lunch

Session 7, room 2
Chair: Angelo Lucia

14:50 – 15:20 *Recipes for Translating Big Data Machine Reading to Executable Cellular Signaling Models*, Khaled Sayed, Cheryl Telmer, Adam Butchy & Natasa Miskov-Zivanov

15:20 – 15:50 *Automatic creation of a large and polished training set for sentiment analysis on Twitter*, Stefano Cagnoni, Paolo Fornacciari, Juxhino Kavaja, Monica Mordonini, Agostino Poggi, Alex Solimeo & Michele Tomaiuolo

15:50 – 16:20 *Artificial Bee Colony Optimization to Reallocate Personnel to Tasks Improving Workplace Safety*, Beatrice Lazzerini & Francesco Pistolesi

16:20 – 16:50 *Parallelized Preconditioned-Model-Building Algorithm for Matrix Factorization*, Kamer Kaya, Ş. İlker Birbil, Mehmet Kaan Öztürk & Amir Gohari,

Session 8, room 1
Chair: My Thai

14:50 – 15:20 *A Differential Evolution Algorithm to Semivectorial Bilevel Problems*, Maria João Alves & Carlos Henggeler Antunes

15:20 – 15:50 *Honey Yield Forecast Using Radial Basis Functions*, Humberto Rocha & Joana Dias

15:50 – 16:20 *Improving feature selection stability leveraging on big data heterogeneity*, Barbara Di Camillo

16:20 – 16:50 *Deep Statistical Comparison Applied on Quality Indicators to Compare Multi-objective Stochastic Optimization Algorithms*, Tome Eftimov, Peter Korošec & Barbara Koroušić Seljak

16:50 – 17:20 Coffee Break

Session 9, room 2
Chair: Stefano Cagnoni

17:20 – 17:50 *SQG-Differential Evolution for difficult optimization problems under a tight function evaluation budget*, Ramses Sala, Niccolò Baldanzini & Marco Pierini

17:50 – 18:20 *Multi-objective Genetic Algorithm for Interior Lighting Design*, Alice Plebe & Mario Pavone

18:20 – 18:50 *Projection-Approximation based Quasi-Newton methods*, Aleksander Senov

18:50 – 19:20 *GRASP Heuristics for a Generalized Capacitated Ring Tree Problem*, Gabriel Bayá, Antonio Mauttone, Franco Robledo & Pablo Romero

19:20 – 19:50 *Age and Gender Classification of Tweets using Convolutional Neural Networks*, Roy Khristopher Bayot & Teresa Gonçalves

Session 10, room 1
Chair: Alberto Castellini

17:20 – 17:50 *A Parallel Framework for Multi-population Cultural Algorithm and its Applications in TSP*, Olgierd Unold & Radosław Tarnawski

17:50 – 18:20 *Forecasting natural gas flows in large networks*, Mauro Dell'Amico, Natalia Selini Hadjidimitriou, Thorsten Koch & Milena Petkovic

18:20 – 18:50 *Intra-Feature Random Forest Clustering*, Michael Cohen

18:50 – 19:20 *Estimating Dynamics of Honeybee Population Densities with Machine Learning Algorithms*, Ziad Salem, Gerald Radspieler, Karlo Griparic & Thomas Schmickl

19:20 – 19:50 *Data-Driven Machine-Learning Approach for predicting missing values in large data sets: A comparison Study*, Ogerta Elezaj, Sule Yildirim & Edlira Kalemi

Saturday, September 16

Plenary Session, Room 2
Chair: Giuseppe Nicosia

09:00 – 09:50 Keynote Speaker: ***"Quantification of Network Dissimilarities and its Practical Implications"***
Panos Pardalos, *University of Florida, USA*

Session 11, room 2
Chair: Giovanni Giuffrida

09:50 – 10:20 *Evaluating the dispatching policies for a regional network of emergency departments exploiting health care big data*, Roberto Aringhieri, Davide Dell'Anna, Davide Duma & Michele Sonnessa

10:20 – 10:50 *Petersen Graph is Uniformly Most-Reliable*, Guillermo Rela, Franco Robledo & Pablo Romero

Session 12, room 1
Chair: Christopher Bacher

09:50 – 10:20 *Dual Convergence Estimates for a Family of Greedy Algorithms in Banach Spaces*, Sergei Sidorov, Michael Pleshakov & Sergei Mironov

10:20 – 10:50 *Detection of age-related changes in networks of B cells by multivariate time-series analysis,* Alberto Castellini & Giuditta Franco

10:50 – 11:20 Coffee Break

Session 13, room 2
Chair: Stefano Cagnoni

11:20 – 11:50 *Contraction Clustering (RASTER): A Big Data Algorithm for Density-Based Clustering in Constant Memory and Linear Time*, Gregor Ulm, Emil Gustavsson & Mats Jirstrand

11:50 – 12:20 *A Quantitative Analysis on Required Network Bandwidth for Large-Scale Parallel Machine Learning*, Mingxi Li, Yusuke Tanimura & Hidemoto Nakada

12:20 – 12:50 *Bilevel optimization models and algorithms to deal with demand response in electricity retail markets*, Carlos Henggeler Antunes & Maria João Alves

Session 14, room 1
Chair: Stephane Chretien

11:20 – 11:50 *Can differential evolution be an efficient engine to optimize neural networks?* Marco Baioletti, Gabriele Di Bari, Valentina Poggioni & Mirco Tracolli

11:50 – 12:20 *Graph Fragmentation Problem for Natural Disaster Management*, Natalia Castro, Graciela Ferreira, Pablo Romero and Franco Robledo

12:20 – 12:50 *A computational comparison of different algorithms for very large p-median problems*, Pascal Rebreyend, Laurent Lemarchand & Reinhardt Euler

12:50 – 14:20 Lunch

14:30 Departure from SIAF To San Gimignano: Social Tour and Dinner in San Gimignano – UNESCO World Heritage Site.

Departure from SIAF at 14.30.
Arrival at San Gimignano (UNESCO World Heritage Site), meeting with the guide.
Guided tour of the town (Approximately 2 hours of tour).
Free time in town.
Transfer from the town to the restaurant (Approximately 10 minutes by bus).
Dinner with live music.
Return at SIAF after dinner.

Sunday, September 17

Plenary Session, Room 2
Chair: Giuseppe Nicosia

09:00 – 09:50 Keynote Speaker: ***"Optimization and Management in Manufacturing Engineering"***
Jun Pei*, Hefei University of Technology, China*

Session 15, room2
Chair: Giovanni Giuffrida

09:50 – 10:20 *Computing principled leverage indicators for robust large scale regression*, Salvador Flores

10:20 – 10:50 *Application of machine learning models to real-life HVAC systems*, Cheol Soo Park & Seonjung Ra

Session 16, room1
Chair: Carlos Henggeler Antunes

09:50 – 10:20 *A Differential Evolution Algorithm to Develop Strategies for the Iterated Prisoner's Dilemma*, Manousos Rigakis, Dimitra Trachanatzi, Magdalene Marinaki & Yannis Marinakis

10:20 – 10:50 *A Comparative Study on Term Weighting Schemes for Text Classification*, Ahmad Mazyad, Fabien Teytaud & Cyril Fonlupt

10:50 – 11:20 Coffee Break

Session 17, room2
Chair: Carlos Henggeler Antunes

11:20 – 11:50 *Visual perception of mixed homogeneous textures in flying pigeons*, Margarita Zaleshina, Alexander Zaleshin & Adriana Galvani

11:50 – 12:20 *Approximate Dynamic Programming With Combined Policy Functions for Solving Multi-Stage Nurse Rostering Problem*, Peng Shi & Dario Landa-Silva

Plenary Session, room 2
12:20 – 13:20 **Poster Session**

13:20 – 14:50 Lunch

Plenary Session, Room 2
Chair: Giovanni Giuffrida

14:50 – 15:40 Keynote Speaker: ***"Recent Advances in Deep Learning"***
Ruslan Salakhutdinov
Machine Learning Department, School of Computer Science at Carnegie Mellon University
USA
Director of AI Research at Apple

15:40 – 16:30 Keynote Speaker: ***"The Cloud and Cognitive Industrial Revolution"***
Vincenzo Sciacca
IBM, Italy

16:30 Concluding Remarks

Poster Session, room 2, September 17, 12:20 – 13:20

Poster will be on display in the Poster Session Conference Room. Presenters in Poster Sessions should set up their posters during the morning of the first day of the Conference, and take them down the evening of the last day.

Unravelling brain mechanisms underlying fatigue by machine learning
Maria Goñi, Neil Basu, Alison Murray & Gordon Waiter

A Machine Learning Framework for Detecting Market Abuse
Monica Minelli, Alessandro Nastasi, Antonio Candelieri & Roberto Grande

Detection of age-related changes in networks of B cells by multivariate time-series analysis
Alberto Castellini & Giuditta Franco

The TAIGA astrophysical observatory growing into the Astrophysical Data Life Cycle Initiative
Evgeny Postnikov

Reinforcement Learning for automatic stock trading in a simulated HFT context
Federico Ricciuti

Combined Optimization Algorithm for Parallel Machines Scheduling Problem: Application to Cyclic Steam Stimulation
Leonid Sheremetov, Jorge Martinez-Munoz & Manuel Chi-Chim1

A Hybrid Supervised Learning Approach to detect Fraudulent Transactions
Nidhi Pillai,Pushpa & Anagha Deshpande

Hash Semi Join Map Reduce
Marwa Hussien Mohamed & Mohamed Helmy Khafagy

Efficiency Validation of Classification and Clustering Algorithms in a Large Dataset
P. Hemavathy & S. Senthamarai Kannan

A Comparative Study on Time Series Analysis for Forecasting Domestic Civil Aviation Passenger Volume in India
Raghav Lakhotia & Harmeet Singh

Multi-Objective Analysis of a network with homogeneous traffic using Radio Cognitive paradigm– Underlay
Octavio Salcedo Parra

Methodology of Privacy Information Obtained from the Measurement Variables Electrical Equipment for Smart Meters
Octavio Salcedo Parra

A Method for Optimal Solution of Intuitionistic Fuzzy Transportation Problems via Centroid and ATM
Darunee Hunwisai, Poom Kuman &Wiyada Kumam

BSIM Clustering
Patcharaporn Paokanta

Humanitarian Medical Cloud Computing System
Amira Buz Khallouf

Pricing in Cloud Computing
Baris Selcuk, Ozgur Ozluk & Tonguc Unluyurt

Internet WI–FI
Internet WI–FI connection is available everywhere inside the SIAF Campus. During the check in, we will assign you a personal passphrase that can be used on every device you have. The network is "SIAF Guests" and the password is siaf3cnjpsep1 Internet WI-FI connection is free for the MOD 2017 Participants.

Social Tour and Social Dinner in San Gimignano
September 16, 14:30 Departure from SIAF To San Gimignano: Social Tour and Dinner in San Gimignano – UNESCO World Heritage Site.

Departure from SIAF at 14.30.
Arrival at San Gimignano (UNESCO World Heritage Site), meeting with the guide.
Guided tour of the town (Approximately 2 hours of tour).

Free time in town.

Departure from San Gimignano h18.45

Transfer from the town to the restaurant.

Arrival at Fattoria San Donato

Restaurant: Fattoria San Donato
San Donato 6, 53037, San Gimignano, Italia
Tel. +39 0577 941616 / +39 0577 942281 – Mobile Phone: +39 335 7258010
http://www.sandonato.it/english/home.html
info@sandonato.it

Visit of the farm and explanation of the activities.

Dinner with live music Trio.

Return at SIAF after dinner.