The 5th International Conference on machine Learning, Optimization & Data science – LOD 2019

Certosa Di Pontignano - Siena, Tuscany, Italy
September 10-13, 2019

https://lod2019.icas.xyz

lod@icas.xyz

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The *International Conference on machine Learning, Optimization, and Data Science - LOD* 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. LOD Conference uses the formula of *25-minute 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.**

LOD 2019 Best Paper Award. **Springer** sponsors the ***LOD 2019 Best Paper Award*** with a cash ***prize*** of EUR 1,000.

Certosa di Pontignano – Siena, Tuscany. The learning experience at the LOD 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 LOD 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 LOD conference.

Registration
The registration desk will be located close to the Main Conference Room and will be open during the following hours:
Monday, September 9, 13:00 – 18:00
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.

Poster Session: For your poster, a 90x70 cm board will be provided. You need to print and bring with you the poster to the conference. Push tacks or tape will be provided at the conference to mount your poster to the board.

Conference Venue
Certosa di Pontignano
Località Pontignano, 5 – 53019, Castelnuovo Berardenga (Siena) – Tuscany – Italy
Phone: (+39) 0577 1521104 Fax: (+39) 0577 1521098
Email: info@lacertosadipontignano.com
Website: http://www.lacertosadipontignano.com/

General Chairs:
Vincenzo Sciacca, *Almawave, Italy*
Renato Umeton, *Department of Informatics, Dana-Farber Cancer Institute, Boston, MA, USA & MIT, Cambridge, MA, USA*

Program Chairs:
    Giovanni Giuffrida, *Neodata Group*
    Panos Pardalos, *University of Florida, USA*

Special Sessions Chairs:
    Giorgio Jansen, *University of Catania, Italy*
    Salvatore Danilo Riccio, *Queen Mary University of London, UK*

Tutorial Session Chair:
    Vincenzo Sciacca, *Almawave, Italy*

Publicity Chair:
    Stefano Mauceri, *NCRA, University College Dublin, Ireland*

Industrial Session Chairs:
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    Marco Firrincieli, *UniCredit R&D, Italy*
    Giovanni Giuffrida, *Neodata Group*
    Francesco Gullo, *UniCredit R&D, Italy*
    Vincenzo Sciacca, *Almawave, Italy*

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    Giuditta Franco, *University of Verona, Italy*
    Marco Gori, *University of Siena, Italy*
    Giorgio Jansen, *University of Catania, Italy*
    Kaisa Miettinen, *University of Jyväskylä, Finland*
    Giuseppe Narzisi, *New York University Tandon School of Engineering, USA, and New York Genome Center, USA*
    Salvatore Danilo Riccio, *Queen Mary University of London, UK*

Steering Committee:
    Giuseppe Nicosia
    Panos Pardalos

Program Committee:
    [More than 350 Program Committee members.](#)

LOD 2019 Keynote Speakers

Michael Bronstein, *Imperial College London, UK*
"Deep learning on graphs and manifolds: going beyond Euclidean data"

Marco Gori, *University of Siena, Italy*
"Backpropagation and Lagrangian Multipliers – New Frontiers of Learning"

Arthur Gretton, *UCL, UK*
"A Kernel Critic for Generative Adversarial Networks"

Arthur Guez, *Google DeepMind, Montreal, UK*
"Rethinking planning in reinforcement learning"

Kaisa Miettinen, *University of Jyväskylä, Finland*
"Interactive Multiobjective Optimization in Decision Analytics with a Case Study"

Panos M. Pardalos, *Center for Applied Optimization, University of Florida, USA*
"Sustainable Interdependent Networks"

Jan Peters, *Computer Science Department, Technische Universitaet Darmstadt* & *Max-Planck Institute for Intelligent Systems, Germany*
"Machine Learning of Robot Skills"

Mauricio G. C. Resende, *Amazon.com Research and University of Washington Seattle, Washington, USA*
"Biased random-key genetic algorithms – Learning intelligent solutions from random building blocks"

Raniero Romagnoli, *Almawave, Italy*
"Building Iride: how to mix deep learning and Ontologies techniques to understand language"

Richard E. Turner, *Department of Engineering, University of Cambridge, UK*
"Extending the frontiers of deep learning using probabilistic modelling"

Keynote Speakers of the previous editions:
   Jörg Bornschein, DeepMind, London, UK
   Nello Cristianini, University of Bristol, UK
   Peter Flach, University of Bristol, UK, and EiC of the Machine Learning Journal
   Yi-Ke Guo, Imperial College London, UK
   George Karypis, University of Minnesota, USA
   Vipin Kumar, University of Minnesota, USA
   George Michailidis, University of Florida, USA
   Stephen Muggleton, Imperial College London, UK
   Panos Pardalos, Center for Applied Optimization, University of Florida, USA
   Jun Pei, Hefei University of Technology, China
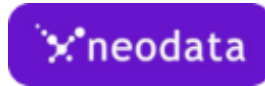   **Tomaso Poggio**, MIT, USA
   Andrey Raygorodsky, Moscow Institute of Physics and Technology, Russia
   Ruslan Salakhutdinov, Carnegie Mellon University, USA, and AI Research at Apple
   Vincenzo Sciacca, IBM, Italy
   My Thai, University of Florida, USA

LOD 2019 Best Paper Award
Springer sponsors the *LOD 2019 Best Paper Award* with a cash *prize* of EUR 1,000

LOD 2018 Best Paper Award
Calibrating the Classifier: Siamese Neural Network Architecture for End-to-End Arousal Recognition from ECG
Andrea Patanè* and Marta Kwiatkowska*
*Department of Computer Science, University of Oxford, UK

LOD 2017 Best Paper Award
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

LOD 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

LOD 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

From	To	TUESDAY, 10	WEDNESDAY, 11	THURSDAY, 12	FRIDAY, 13
09:00	09:25	Michael Bronstein	Jan Peters	Kaisa Miettinen	Mauricio G. C. Resende
09:25	09:50	Michael Bronstein	Jan Peters	Kaisa Miettinen	Mauricio G. C. Resende
09:55	10:20	Deep Learning / Data Science Session (1)	Data Science Session (2) / Combinatorial + Graphs	Prediction and Forecasting / Multi-Objective Optimization	Panos M. Pardalos
10:20	10:45	Deep Learning / Data Science Session (1)	Data Science Session (2) / Combinatorial + Graphs	Prediction and Forecasting / Multi-Objective Optimization	Panos M. Pardalos
10:45	11:25	Coffee Break	Coffee Break	Coffee Break	Coffee Break
11:25	11:50	Deep Learning / Data Science Session (1)	Richard E. Turner	Prediction / Multi-Obj. Opt.	Supervised Learning / Data Science Session (7)
11:50	12:15	Deep Learning / Data Science Session (1)	Unsupervised Learning / Combinatorial + Graphs	Data Science Session (4) / Application In Medicine	Free Time
12:15	12:40	Deep Learning / Data Science Session (1)	Unsupervised Learning / Combinatorial + Graphs	Data Science Session (4) / Application In Medicine	Free Time
12:40	13:05		Unsupervised Learning / Combinatorial + Graphs	Data Science Session (4) / Application In Medicine	Free Time
13:05	15:00	Lunch	Lunch	Lunch	Lunch
15:00	15:25	Arthur Guez	Industrial Session on Machine Learning and Data Science / Combinatorial + Graphs	Arthur Gretton	Tour + Dinner
15:25	15:50	Arthur Guez	Industrial Session on Machine Learning and Data Science / Data Science Session (3)	Arthur Gretton	Tour + Dinner
15:55	16:20	Derivative-Free Optimization / NLP	Industrial Session on Machine Learning and Data Science / Data Science Session (3)	Semisupervised Learning / Data Science Session (5)	Tour + Dinner
16:20	16:45	Derivative-Free Optimization / NLP	Industrial Session on Machine Learning and Data Science / Data Science Session (3)	Semisupervised Learning / Data Science Session (5)	Tour + Dinner
16:45	17:25	Coffee Break + Group Pic.	Coffee Break	Coffee Break	Tour + Dinner
17:25	17:50	Raniero Romagnoli / Poster Session	Industrial Session on Machine Learning and Data Science / Oral Presentations	Marco Gori	Tour + Dinner
17:50	18:15	Raniero Romagnoli / Poster Session	Industrial Session on Machine Learning and Data Science / Oral Presentations	Marco Gori	Tour + Dinner
18:15	18:40	Poster Session	Industrial Session on Machine Learning and Data Science / Oral Presentations	Short Paper Session / Data Science Session (6)	Tour + Dinner
18:40	19:05	Poster Session	Industrial Session – LOD 2020 Challenge	Short Paper Session / Data Science Session (6)	Tour + Dinner
19:05	19:30	Poster Session	Industrial Session – LOD 2020 Challenge	Free Time	Tour + Dinner
19:30	21:30	Dinner	Dinner	Dinner	Tour + Dinner

Tuesday, September 10

08:50 – 09:00 Opening

<div align="center">

Keynote Lecture 1 – Room: *Sala Bracci*
Chair: *Giuseppe Nicosia*

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09:00 – 09:50   *"Deep learning on graphs and manifolds: going beyond Euclidean data"*
Michael Bronstein, *Imperial College London, UK*

Session 1A – Room: *Sala Bracci* Topic: *Deep Learning* Chair: *Giuseppe Nicosia*	Session 1B – Room: *Sala Veranda* Topic: *Data Science Session (1)* Chair: *Helio Barbosa (TBC)*
09:55 – 10:20 **Sean Tao**: *"Deep Neural Network Ensembles"*	09:55 – 10:20 **Ram Bahadur Gurung**: *"Adapted Random Survival Forest for Histograms to Analyze NOx Sensor Failure in Heavy Trucks"*
10:20 – 10:45 **Shokoufeh Monjezi Kouchak** and Ashraf Gaffar: *"Driver Distraction Detection Using Deep Neural Network"*	10:20 – 10:45 **Abbas Haider**, Hui Wang, Bryan Scotney and Glenn Hawe: *"Effect of Market Spread over Reinforcement Learning based Market Maker"*
10:45 – 11:25 Coffee Break	
11:25 – 11:50 **Vittorio Mazzia**, **Angelo Tartaglia**, Dario Gandini and Marcello Chiaberge: *"Deep Learning Algorithms for Complex Patterns Recognition in Ultrasonic Sensors Arrays*	11:25 – 11:50 **Gail Gilboa Freedman**, Alon Patelsky and Tal Sheldon: *"LIA: A Label-Independent Algorithm for Feature Selection for Supervised Learning"*
11:50 – 12:15 **Patrik Reizinger** and Bálint Gyires-Tóth: *"Stochastic Weight Matrix-based Regularization Methods for Deep Neural Networks"*	11:50 – 12:15 **Dave McEwan** and Jose Nunez-Yanez: *"Relationship Detection Measures for Binary SoC Data"*
12:15 – 12:40 Valentina Ghidini, **Alan Perotti** and Rossano Schifanella: *"Quantitative and Ontology-Based Comparison of Explanations for Image Classification"*	12:15 – 12:40 **Aljohara Almulhim**, Vachik S. Dave and Mohammad Al Hasan: *"Network Alignment using Graphlet Signature and High Order Proximity"*
12:40 – 13:05 **Andrea Asperti**: *"About generative aspects of Variational Autoencoders"*	12:40 – 13:05 **Marius Geitle** and Roland Olsson: *"A New Baseline for Automated Hyper-Parameter Optimization"*

13:05 – 15:00   Lunch

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Keynote Lecture 2 – Room: *Sala Bracci*
Chair: *Giuseppe Nicosia*

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15:00 – 15:50   *"Rethinking planning in reinforcement learning"*
Arthur Guez, *Google DeepMind, Montreal, UK*

Session 2A – Room: *Sala Bracci* Topic: *Derivative-Free Optimization* Chair: *Giuseppe Nicosia*	Session 2B – Room: *Sala Veranda* Topic: *Natural Language Processing* Chair: *Alan Perotti (TBC)*
15:55 – 16:20 **Zelda Zabinsky**, Giulia Pedrielli and Hao Huang: *"A Framework for Multi-fidelity Modeling in Global Optimization Approaches"*	15:55 – 16:20 **Apostol Vassilev**: *"BowTie - a deep learning feedforward neural network for sentiment analysis"*
16:20 – 16:45 Jaqueline Angelo, Eduardo Krempser and **Helio Barbosa**: *"Performance Evaluation of Local Surrogate Models in Bilevel Optimization"*	16:20 – 16:45 Tony Beaumont and **Twba Al-Shaghdari**: *"To What Extent Can Text Classification Help with Making Inferences About Students' Understanding"*

16:45 – 17:25   Coffee Break + **Group Picture (@16:45 in the main cloister near the well)**

Keynote Lecture 3 – Room: *Sala Bracci*
Chair: *Giuseppe Nicosia*

17:25 – 18:15   ***"Building Iride: how to mix deep learning and Ontologies techniques to understand language"***
Raniero Romagnoli and **Vincenzo Sciacca**, *Almawave, Italy*

18:15 – 19:30   **Poster Session (see next page for details)**
19:30 – 21:30   Dinner

Poster Session

Margarita Zaleshina and Alexander Zaleshin: *"Identification of sustainable locations in pigeon flights using flow simulation method"*

Juan Pablo Prada Salcedo and Thomas Dandekar: *"Neuron nuclei segmentation from electron microscopy images"*

Dong Wang and Mats Tysklind: *"Implementation of machine learning methods for better process control in Umeå wastewater treatment plant"*

Sudipto Pal: *"Contextual Outlier Detection and Treatment in High-Dimension Data including Categorical Variables"*

David Medina and Alvaro Olivera-Nappa: *"DMAKit: A web service based in a python Library for the analysis of high-dimensional datasets using data mining and pattern recognition techniques"*

Nezahat Başeğmez and Mahmut Ali Gökçe: *"A Novel Combined XGBOOST Regressor and Optimization for Fabric Cutting: A Real-Life Application"*

Ghania Khensous, Abdallah Chouarfia and Bernard Maigret: *"A Cuckoo Search Algorithm for the Flexible Protein-Ligand Docking Problem"*

Jacob Engelbrecht: *"Using statistical models and machine learning for property valuation by the Danish taxation authorities"*

Ju-Won Kim: *"MFL and multi-step pattern-recognition based automated NDE method for escalator steel chain diagnosis"*

Sheena Kohli: *"Analyzing and Visualizing Marine Data using Big Data Technique"*

Nickolay Knyazev: *"Linear regression trees for process optimization"*

Makoto Ohki: *"Many-Objective Evolutionary Programming and A Benchmark Problem for It"*

Igor Griva: *"Analyzing data with Fast Projected Gradient method"*

Soumen Manna, Omar Faisal and Ajay Kulkarni: *"In search of the best ML Model for multiclass class-imbalanced data"*

Laurel McClure: *"THE PRIME/NON PRIME RELATIONSHIP: A new efficient system of deterministic factor generation and primality testing"*

Wednesday, September 11

<div align="center">
Keynote Lecture 4 – Room: Sala Bracci
Chair: Giovanni Giuffrida
</div>

09:00 – 09:50   ***"Machine Learning of Robot Skills"***
Jan Peters, *Computer Science Department, Technische Universitaet Darmstadt Max-Planck Institute for Intelligent Systems, Germany*

Session 3A – Room: *Sala Bracci* Topic: *Data Science Session (2)* Chair: *Giovanni Giuffrida*	Session 3B – Room: *Sala Veranda* Topic: *Combinatorial & Graphs* Chair: *Vincenzo Sciacca*
09:55 – 10:20 **Marko Djukanovic**, Günther Raidl and Christian Blum: *"A Beam Search for the Longest Common Subsequence Problem Guided by a Novel Approximate Expected Length Calculation"*	09:55 – 10:20 Lukas Bach, Carlo Mannino and **Giorgio Sartor**: *"Combinatorial Learning in Traffic Management"*
10:20 – 10:45 **Yannis Marinakis** and Magdalene Marinaki: *"An Adaptive Parameter Free Particle Swarm Optimization Algorithm for the Permutation Flowshop Scheduling Problem"*	10:20 – 10:45 José Eduardo da Silva, Lucas de Souza and **Heder Bernardino**: *"Cartesian Genetic Programming with Guided and Single Active Mutations for Designing Combinational Logic Circuits"*

10:45 – 11:25   Coffee Break

<div align="center">
Keynote Lecture 5 – Room: Sala Bracci
Chair: Giuseppe Nicosia
</div>

11:25 – 12:15   ***"Extending the frontiers of deep learning using probabilistic modelling"***
Richard E. Turner, *Department of Engineering, University of Cambridge, UK*

Session 4A – Room: *Sala Bracci* Topic: *Unsupervised Learning* Chair: *Giuseppe Nicosia*	Session 4B – Room: *Sala Veranda* Topic: *Combinatorial & Graphs* Chair: *Heder Bernardino (TBC)*
12:20 – 12:45 **George Michailidis**: *"Inferring Regulatory Networks using Partial Prior Topological Ordering Information"*	12:20 – 12:45 **Cristina Mayr**, Claudio Risso and Eduardo Grampín: *"Designing an Optimal and Resilient iBGP Overlay with extended ORRTD"*
12:45 – 13:10 **Toshimitsu Aritake** and Noboru Murata: *"Learning Scale and Shift-Invariant Dictionary for Sparse Representation"*	12:45 – 13:10 Nicole Rosenstock, Juan Piccini, **Guillermo Rela**, Pablo Romero and Franco Robledo: *"GRASP Heuristics for the Stochastic Weighted Graph Fragmentation Problem"*

13:10 – 15:00   Lunch

Session 5A – Room: _Sala Bracci_ Industrial Session _on Machine Learning and Data Science_ Chair: _Giovanni Giuffrida_	Session 5.1B – Room: _Sala Veranda_ Topic: _Combinatorial & Graphs_ Chair: _Heder Bernardino (TBC)_
15:00 – 15:25 **Ami Tavory**: _"Unsupervised Estimation of Principal Component Dimensions through the Principle of Minimum Distance Length"_	15:00 – 15:25 **Guillermo Rela**, Pablo Romero and Franco Robledo: _"Uniformly Most-Reliable Graphs and Antiholes"_
15:25 – 15:50 **Erik Berglund**: _"Modelling chaotic time series using recursive deep self-organising neural networks"_	15:25 – 15:50 **Nikolaus Frohner** and Günther Raidl: _"Merging Quality Estimation for BDDs with Binary Classifiers"_
	Session 5.2B – Room: _Sala Veranda_ Topic: _Data Science Session (3)_ Chair: _Vincenzo Sciacca_
15:50 – 16:15 Stéphan Clémençon and **Robin Vogel**: _"On Tree-based Methods for Similarity Learning"_	15:50 – 16:15 **Yuriy Mikheev**: _"The measure of regularities recognition applied to the supervised classification task"_
16:15 – 16:40 **Stefano De Blasi**: _"Active Learning Approach for Safe Process Parameter Tuning"_	16:15 – 16:40 **Jamolbek Mattiev** and Branko Kavšek: _"Simple and Accurate Classification Method Based on Class Association Rules Performs Well on Well-known Datasets"_

16:40 – 17:20   Coffee Break

Session 6A – Room: _Sala Bracci_ Industrial Session _on Machine Learning and Data Science_ Chair: _Giuseppe Nicosia_	Session 6B – Room: _Sala Veranda_ Topic: _Oral Presentations_ Chair: _Vincenzo Sciacca_
17:20 – 17:45 **Anders Sjöberg**, Emil Gustavsson, Ashok Chaitanya Koppisetty and Mats Jirstrand: _"Federated Learning of Deep Neural Decision Forests"_	17:20 – 17:35 **Chi-Chang Chang**: _"Ensemble Feature Learning for Predicting Risk Factors of Secondary Cancer"_ 17:35 – 17:50 **Katharina Bieker**: _"Deep Learning and Model Predictive Control for a Flow Control Problem"_
17:45 – 18:10 **Eva Jabbar**, Philippe Besse, Jean-Michel Loubes and Christophe Merle: _"Conditional Anomaly Detection for Quality and Productivity Improvement of Electronics Manufacturing Systems"_	17:50 – 18:05 **Murat Kirtay**, Matteo Priorelli, Ugo Albanese, Lorenzo Vannucci, Cecilia Laschi and Egidio Falotico: _"The Neurorobotics Platform as a virtual environment for learning agents in the context of spatial navigation experiments"_

18:10 – 18:35 **David Jaidan**, Maxime Carrere, Zakaria Chemli and Rémi Poisvert: *"Data Anonymization for Privacy aware Machine Learning"*	18:05 – 18:20 **Ray Chou**, Tso-Jung Yen and Yu-Min Yen: *"Macroeconomic Forecasting Using Approximate Factor Models with Outliers"* 18:20 – 18:35 **Thibaut Vidal**, Florian Arnold, Italo Santana and Kenneth Sörensen: *"Mining frequent patterns to drive the exploration of high-order neighborhoods"*
18:35 – 19:00 **Thomas Jatschka**, Tobias Rodemann and Günther Raidl: *"Exploiting Similar Behavior of Users in a Cooperative Optimization Approach for Distributing Service Points in Mobility Applications"*	

LOD 2020 Challenge – Room: *Sala Bracci*
Chair: *Giuseppe Nicosia*

19:00 – 19:30   Industrial Session – LOD 2020 Challenge

19:30 – 21:30   Dinner

Thursday, September 12

09:00 – 09:50   *"Interactive Multiobjective Optimization in Decision Analytics with a Case Study"*
Kaisa Miettinen*, University of Jyväskylä, Finland*

Session 7A – Room: *Sala Bracci* Topic: *Prediction and Forecasting* Chair: *Fabio Fabris*	Session 7B – Room: *Sala Veranda* Topic: *Multi-Objective Optimization* Chair: *Giorgio Sartor (TBC)*
09:55 – 10:20 **Anasse Bari**, **Rafael Moraes** and Jiachen Zhu: *"Restaurant Health Inspections and Crime Predict Real Estate Market in NYC"*	09:55 – 10:20 **Tinkle Chugh**, Alma Rahat and Pramudita Satria Palar: *"Trading-off Data Fit and Complexity in Training Gaussian Processes with Multiple Kernels"*
10:20 – 10:45 **Federico Bianchi**, Alberto Castellini, Pietro Tarocco and Alessandro Farinelli: *"Load Forecasting in District Heating Networks: Model Comparison on a Real-World Case Study"*	10:20 – 10:45 Leandro Lima, **Heder Bernardino** and Helio Barbosa: *"Designing Combinational Circuits Using a Multi-objective Cartesian Genetic Programming with Adaptive Population Size"*
10:45 – 11:25 Coffee Break	
11:25 – 11:50 **Carola Gajek**, Alexander Schiendorfer and Wolfgang Reif: *"A Chained Neural Network Model for Photovoltaic Power Forecast"*	11:25 – 11:50 **Deyan Dyankov**, Salvatore Danilo Riccio, Giuseppe Di Fatta and Giuseppe Nicosia: *"Multi-Task Learning by Pareto Optimality"*

Session 8A – Room: *Sala Bracci* Topic: *Data Science Session (4)* Chair: *Gail Gilboa Freedman (TBC)*	Session 8B – Room: *Sala Veranda* Topic: *Application in Medicine* Chair: *Alan Perotti (TBC)*
11:50 – 12:15 Clint Pazhayidam George, Wei Xia and **George Michailidis**: *"Analyses of Multi-collection Corpora via Compound Topic Modeling"*	11:50 – 12:15 **Rosario Delgado**, J. David Nuñez-Gonzalez, Juan Carlos Yébenes and Angel Lavado: *"Vital prognosis of patients in intensive care units using an Ensemble of Bayesian Classifiers"*
12:15 – 12:40 **Elaheh Sobhani**, Pierre Comon, Christian Jutten and Massoud Babaie-Zadeh: *"Text mining with constrained tensor decomposition"*	12:15 – 12:40 **Marta Lopes**, André Veríssimo, Eunice Carrasquinha and Susana Vinga: *"On the role of hub and orphan genes in the diagnosis of breast invasive carcinoma"*
12:40 – 13:05 **Gianluca Bontempi**: *"The induction problem: a machine learning vindication argument"*	12:40 – 13:05 **Thomas Philip Runarsson**: *"Approximating Probabilistic Constraints for Surgery Scheduling using Neural Networks"*

13:05 – 15:00   Lunch

<p style="text-align:center">Keynote Lecture 7 – Room: Sala Bracci
Chair: Vincenzo Sciacca</p>

15:00 – 15:50   ***"A Kernel Critic for Generative Adversarial Networks"***
Arthur Gretton*, UCL, UK*

Session 9A – Room: *Sala Bracci* Topic: *Semisupervised Learning* Chair: *Erik Berglund*	Session 9B – Room: *Sala Veranda* Topic: *Data Science Session (5)* Chair: *Marius Geitle (TBC)*
15:55 – 16:20 **Hong-Bo Xie**, Caoyuan Li, Richard Xu and Kerrie Mengersen: *"Robust kernelized Bayesian matrix factorization for video background/foreground separation"*	15:55 – 16:20 **Robert Kłopotek** and Mieczysław Kłopotek: *"On Probabilistic k-Richness of the k-Means Algorithms"*
16:20 – 16:45 **Li-Chia Yeh** and Chung-Chin Lu: *"Parameter Optimization of Polynomial Kernel SVM from miniCV"*	16:20 – 16:45 **Christoph Lohrmann** and Pasi Luukka: *"Using clustering for supervised feature selection to detect relevant features"*

16:45 – 17:25   Coffee Break

<p style="text-align:center">Keynote Lecture 8 – Room: Sala Bracci
Chair: Vincenzo Sciacca</p>

17:25 – 18:15   ***"Backpropagation and Lagrangian Multipliers – New Frontiers of Learning"***
Marco Gori*, University of Siena, Italy*

Session 10A – Room: *Sala Bracci* Topic: Short Paper Session Chair: *Vincenzo Sciacca*	Session 10B – Room: *Sala Veranda* Topic: *Data Science Session (6)* Chair: *Marius Geitle (TBC)*
18:15 – 18:30 **Sergi Mus**, Norma Gutierréz, Rubén Tous, Beatriz Otero, Leonel Cruz, David Llácer, Leonardo Alvarado and Otilio Rojas: *"Long Short-Term Memory Networks for Earthquake Detection in Venezuelan Regions"* 18:30 – 18:45 **Andreas Griewank** and Angel Rojas: *"Treating Artificial Neural Net Training as a Nonsmooth Global Optimization Problem"*	18:15 – 18:40 **Vladimir Shenmaier**: *"A Structural Theorem for Center-Based Clustering in High-Dimensional Euclidean Space"*
18:45 – 19:00 **Jonatan Poveda-Pena** and Rubén Tous: *"Zero-Shot Fashion Products Clustering on Social Image Streams"*	18:40 – 19:05 Anastasia Stepanova, Sergei Mironov, **Sergei Sidorov** and Alexey Faizliev: *"Modification of the k-MXT Algorithm and Its Application to the Geotagged Data Clustering"*

19:05 – 19:30   Free Time

19:30 – 21:30   Dinner

Friday, September 13

<div align="center">

Keynote Lecture 9 – Room: *Sala Bracci*
Chair: *Vincenzo Sciacca*

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09:00 – 09:50   ***"Biased random-key genetic algorithms – Learning intelligent solutions from random building blocks"***
Mauricio G. C. Resende, *Amazon.com Research and University of Washington Seattle, Washington, USA*

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Keynote Lecture 10 – Room: *Sala Bracci*
Chair: *Vincenzo Sciacca*

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09:50 – 10:40   ***"Sustainable Interdependent Networks"***
Panos M. Pardalos, *Center for Applied Optimization, University of Florida*

10:40 – 11:20   Coffee Break

Session 11A – Room: *Sala Bracci* Topic: Supervised Learning Chair: *Vincenzo Sciacca*	Session 11B – Room: *Sala Veranda* Topic: *Data Science Session (7)* Chair: *Murat Kirtay*
11:20 – 11:45 **Fabio Fabris** and Alex Freitas: *"Analysing the Overfit of the auto-sklearn Automated Machine Learning Tool"*	11:20 – 11:45 **Rishabh Agrawal** and **Paridhi Kothari**: *"CoPASample: A Heuristics based Covariance Preserving Data Augmentation"*
11:45 – 12:10 Giorgio Gnecco and **Federico Nutarelli**: *"Optimal trade-off between sample size and precision of supervision for the fixed effects panel data model"*	11:45 – 12:10 **(TBC)** Mustafa Misir: *"Active Matrix Completion for Algorithm Selection"*

12:10 – 13:00   Free Time

13:00 – 14:45   Lunch

14:45   Guided Tour in Siena + Dinner

Please go next to Certosa reception at 14:45 **(bus will depart at 15:00)**.
19:30   Dinner: "Contrada La Selva". Address: "Via Vallepiatta, 53100, Siena"

If you have any problems during the tour (e.g. missed the bus or got lost in Siena) please contact danilo.icas@gmail.com