

# The 4th International Conference on machine Learning, Optimization & Data science – LOD 2018

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

SIAF Learning Village Tuscany – Volterra, Italy, September 13-16, 2018

<https://lod2018.icas.xyz/>

[lod@icas.xyz](mailto: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 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.

LOD 2018 Best Paper Award. Springer sponsors the **LOD 2018 Best Paper Award** with a cash *prize* of EUR 1,000.

Volterra – Pisa, 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.

## **General Chairs**

**Vincenzo Sciacca**, IBM, Italy

**Renato Umerton**, MIT & Dana-Farber Cancer Institute - Harvard Medical School, USA

## **Program Chairs**

**Giovanni Giuffrida**, University of Catania, Italy, and Neodata Group

**Panos Pardalos**, University of Florida, USA

## **Special Sessions Chair**

**Aris Anagnostopoulos**, Università di Roma "La Sapienza", Italy

## **Publicity Chair**

**Stefano Mauceri**, NCRA, University College Dublin, Ireland

## **Industrial Session Chairs**

**Ilaria Bordino**, UniCredit R&D, Italy

**Marco Firrincieli**, UniCredit R&D, Italy

**Fabio Fumarola**, University of Bari, Italy

**Francesco Gullo**, UniCredit R&D, Italy

## **Organizing Committee**

**Alberto Castellini**, University of Verona, Italy

**Piero Conca**, Fujitsu, Ireland

**Jole Costanza**, Italian Institute of Technology, Milano, Italy

**Giuditta Franco**, University of Verona, Italy

**Giorgio Jansen**, University of Catania, Italy

**Giuseppe Narzisi**, New York University Tandon School of Engineering, USA, and New York Genome Center, USA

## **Steering Committee**

**Giuseppe Nicosia**

**Panos Pardalos**

## **Program Committee**

[More than 230 Program Committee members.](#)

## Registration

The registration desk will be located close to the Main Conference Room and will be open during the following hours:

September 13, 07:30 – 17:00

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.

## 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](mailto:info@siafvolterra.eu) <http://www.siafvolterra.it/wp/en/how-to-reach-us/>

Contact: Dr. Giada Ragoni, [giada.ragoni@siafvolterra.eu](mailto:giada.ragoni@siafvolterra.eu)

## LOD 2018 Plenary Speakers

### Jörg Bornschein

*DeepMind, London, UK*

Advances in Inference and Generation with Hierarchical Latent Variable Models

### Peter Flach

*University of Bristol, UK*

The Value of Evaluation: What Does My Machine Learning Metric Tell Me?

### George Karypis

*University of Minnesota, USA*

Recent Advances in Recommender Systems: Sets, Local Models, Coverage, and Errors

### Panos Pardalos

*University of Florida, USA*

Dynamics of Financial Markets

### Andrey Raygorodsky

*Moscow Institute of Physics and Technology, Russia*

Several Problems in Optimization and Learning: from Pure Mathematics to Industrial Applications

## LOD 2018 Best Paper Award

**Springer** sponsors the *LOD 2018 Best Paper Award* with a cash *prize* of EUR 1,000

## 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](mailto: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](mailto:giovanni.migliorati@gmail.com)

## Thursday, September 13

08:50 – 09:00 Opening

### Session 1

Chair: Giuseppe Nicosia

09:00 – 09:50 Keynote Lecture: **“Advances in Inference and Generation with Hierarchical Latent Variable Models”**  
Jörg Bornschein, DeepMind, London, UK

09:50 – 10:15 **“Feature Based Multivariate Data Imputation”**  
Alessio Petrozziello & Ivan Jordanov.

10:15 – 10:40 **“REFINE: Representation Learning from Diffusion Events”**  
Zekarias Kefato, Nasrullah Sheikh & Alberto Montresor.

10:40 – 11:05 **“A new approach to measuring distances in dense graphs”**  
Fatimah Almulhim, Peter Thwaites & Charles Taylor.

11:05 – 11:35 Coffee Break

### Session 2

Chair: Giovanni Giuffrida

11:35 – 12:00 **“Variable selection and outlier detection in regularized survival models: application to melanoma gene expression data”**  
Eunice Carrasquinha, André Verissimo, Marta B. Lopes & Susana Vinga.

12:00 – 12:25 **“Generating Term Weighting Schemes through Genetic Programming”**  
Ahmad Mazyad, Fabien Teytaud & Cyril Fonlupt.

12:25 – 12:50 **“Big Data Privacy by Design Computation Platform”**  
Rui Claro, José Portêlo, Miguel Pardal & Raquel Pinho.

12:50 – 13:15 **“A GRASP/VND Heuristic for the Max Cut-Clique Problem”**  
Mathias Bourel, Franco Robledo, Pablo Romero, Luis Stabile & Eduardo Canale.

13:15 – 14:30 Lunch

### Session 3

Chairs: Giuseppe Nicosia

14:30 – 14:55 **“Reinforcement Learning Methods for Operations Research Applications: The Order Release Problem”**  
Manuel Schneckenreither & Stefan Häussler.

14:55 – 15:20 **“Augmented Design-Space Exploration by Nonlinear Dimensionality Reduction Methods”**  
Danny D'Agostino, Andrea Serani, Emilio Fortunato Campana & Matteo Diez.

15:20 – 15:45 **“Data Science in the Business Environment: Skills Analytics for Curriculum Development”**  
Jing Lu.

15:45 – 16:10 **“Lookahead Policy and Genetic Algorithm for Solving Nurse Rostering Problems”**  
Peng Shi & Dario Landa-Silva.

16:10 – 16:35 **“Classification and survival prediction in Diffuse Large B-cell Lymphoma by gene expression profiling”**  
Pierangela Bruno, Francesco Calimeri & Aldo Marzullo.

16:35 – 17:05 Coffee Break

### Session 4

Chair: Giovanni Giuffrida

17:05 – 17:30 **“Supervised Learning Approach For Surface-Mount Device Production”**  
Khadija Jabbar, Philippe Besse, Jean-Michel Loubes, Christophe Merle, Nathalie Barbosa Roa & Rémi Dettai.

17:30 – 17:55 ***“A Modelica-Based Simulation Method for Black-Box Optimal Control Problems with Level-Set Dynamic Programming”***

Ping Qiao, Yizhong Wu & Qi Zhang.

17:55 – 19:00 Poster Session

19:30 Welcome Cocktail

## Friday, September 14

### Session 5

Chair: Giuseppe Nicosia

09:00 – 09:50 Keynote Lecture: ***“The Value of Evaluation: What Does My Machine Learning Metric Tell Me?”***  
**Peter Flach**, University of Bristol, UK

09:50 – 10:15 ***“Ant Colony Optimization for Markov Blanket-based Feature Selection. Application for precision medicine”***  
Christine Sinoquet & Clément Niel.

10:15 – 10:40 ***“Improving Traditional Dual Ascent algorithm for the Uncapacitated Multiple Allocation Hub Location Problem: a RAMP approach”***  
Telmo Matos, Fábio Maia & Dorabela Gamboa.

10:40 – 11:05 ***“Nonnegative Coupled Matrix Tensor Factorization for Smart City Spatiotemporal Pattern Mining”***  
Thirunavukarasu Balasubramaniam, Richi Nayak & Chau Yuen.

11:05 – 11:35 Coffee Break

### Session 6

Chair: Giovanni Giuffrida

11:35 – 12:00 ***“A Machine Learning Approach for Line Outage Identification in Power Systems”***  
Jia He, Maggie Cheng, Yixin Fang & Mariesa Crow.

12:00 – 12:25 ***“Bayesian clustering of multivariate immunological data”***  
Alberto Castellini & Giuditta Franco.

12:25 – 12:50 ***“Data-Driven Interactive Multiobjective Optimization using a Cluster-Based Surrogate in a Discrete Decision Space”***  
Jussi Hakanen, Jose Malmberg, Vesa Ojalehto & Kyle Eyvindson.

12:50 – 13:15 ***“Simple learning with a teacher via biased regularized least squares”***  
Sergio Decherchi & Andrea Cavalli.

13:15 – 14:30 Lunch

### Session 7

Chair: Giuseppe Nicosia

14:30 – 15:20

Keynote Speaker: ***“Dynamics of Financial Markets”***  
**Panos Pardalos**, University of Florida, USA

15:20 – 15:45 ***“A Clonal Selection Algorithm for Multiobjective Energy Reduction Multi-Depot Vehicle Routing Problem”***  
Emmanouela Rapanaki, Iraklis-Dimitrios Psychas, Magdalene Marinaki, Yannis Marinakis & Athanasios Migdalas.

15:45 – 16:10 ***“Processing Online SAT Instances with Waiting Time Constraints and Completion Weights”***  
Robinson Duque, Alejandro Arbelaez & Juan Francisco Diaz.

Research Work for Oral Presentation only

16:10 – 16:35 ***“Deep Learning Approach for Performance Prediction of Service-Oriented Architecture”***  
Mohamed Oumri, Christopher Wild & Pierre Garnero.

16:35 – 17:05 Coffee Break

### Session 8 Research Works for Oral Presentation only

Chair: Giovanni Giuffrida

17:05 – 17:30 ***“A nonparametric approach for product assortment with uncertain outcome and customer regret”***  
Soheil Sibdari.

17:30 – 17:55 ***“Methods of Machine Learning for Censored Demand Prediction”***  
Darya Teterina & Evgeniy M. Ozhegov.

17:55 – 18:20 ***“Development of Quality Estimator for Heavy Diesel”***  
Nergiz Haytural & Ertugrul Ural.

18:20 – 18:55 ***“Learning and inversion: connection between problems and convergence rates”***  
Federico Benvenuto & Sabrina Guastavino.

## Saturday, September 15

### Session 9

Chair: Panos Pardalos

09:00 – 09:50 Keynote Lecture: **“Several Problems in Optimization & Learning: from Pure Mathematics to Industrial Applications”**

Andrey Raygorodsky, *Moscow Institute of Physics and Technology, Russia*

09:50 – 10:15 **“Information-Theoretic Feature Selection Using High-Order Interactions”**

Mateusz Pawluk, Paweł Teisseyre & Jan Mielniczuk.

10:15 – 10:40 **“Assessing Accuracy of Ensemble Learning for Facial Expression Recognition with CNNs”**

Alessandro Renda, Marco Barsacchi, Alessio Bechini & Francesco Marcelloni.

10:40 – 11:05 **“Optimization of Neural Network Training with ELM Based on the Iterative Hybridization of Differential Evolution with Local Search and Restarts”**

David Sotelo, Daniela Velásquez, Carlos Cobos, Martha Eliana Mendoza Becerra & Luis Gomez.

11:05 – 11:35 Coffee Break

### Session 10

Chair: Giovanni Giuffrida

11:35 – 12:00 **“A New Distributed and Decentralized Stochastic Optimization Algorithm with Applications in Big Data Analytics”**

Reza Shahbazian, Lucio Grandinetti & Francesca Guerriero.

12:00 – 12:25 **“Image-Based Fashion Product Recommendation with Deep Learning”**

Hessel Tuinhof, Clemens Pirker & Markus Haltmeier.

12:25 – 12:50 **“An Unsupervised Learning Classifier with Competitive Error Performance”**

Daniel Nissani.

12:50 – 13:15 **“Evolutionary Construction of Convolutional Neural Networks”**

Marijn van Knippenberg, Vlado Menkovski & Sergio Consoli.

13:15 – 14:30 Lunch

### Session 11

Chair: Giovanni Giuffrida

14:30 – 14:55 **“Sparse feature extraction model with ISA”**

Radhika Nath & M Manjunathaiah.

14:55 – 15:20 **“Covering arrays to support the process of feature selection in the Random Forest classifier”**

Sebastian Vivas, Carlos Cobos and Martha Eliana Mendoza Becerra.

15:20 – 15:45 **“Strong Duality of the Kantorovich-Rubinstein mass transshipment problem in metric spaces”**

José Rigoberto Gabriel Argüelles, Martha-Lorena Avendaño-Garrido, Luis Antonio Montero Ladrón de Guevara & Juan González Hernández.

15:45 – 16:10 **“Average performance analysis of the projected gradient method for online PCA”**

Stephane Chretien, Christophe Guyeux & Olivier Ho.

16:10 – 16:35 **“Application of Dimensionality Reduction Schemes to Multiobjective Optimization with Multiextremal Criteria”**

Victor Gergel, Vladimir Grishagin & Ruslan Israfilov.

16:35 – 17:05 Coffee Break

### Session 12

Chair: Panos Pardalos

17:05 – 17:30 **“N-gram Representation for Web Service Description Classification”**

Christian Sánchez-Sánchez & Leonid Sheremetov.

17:30 – 17:55 ***“Improving clinical subjects clustering by learning and optimizing feature weights”***  
Sergio Consoli, Monique Hendriks, Pieter Vos, Jacek Kustra, Dimitrios Mavroeidis & Ralf Hoffmann.

Research Works for Oral Presentation only

17:55 – 18:20 ***“A Deep Neural Network Classification Approach for Alzheimer’s Disease diagnosis”***  
El Mehdi Benyoussef, Abdeltif Elbyed & Hind El Hadiri.

18:20 – 18:55 ***“Decision of Neural Networks Hyperparameters with a Population-based Algorithm”***  
Yağız Nalçakan & Tolga Ensari.



## Sunday, September 16

### Session 13

Chair: Panos Pardalos

09:00 – 09:50 Keynote Speaker: **“Recent Advances in Recommender Systems: Sets, Local Models, Coverage, and Errors”**  
George Karypis, *University of Minnesota, USA*

09:50 – 10:15 **“Calibrating the Classifier: Siamese Neural Network Architecture for End-to-End Arousal Recognition from ECG”**  
Andrea Patane' & Marta Kwiatkowska.

10:15 – 10:40 **“Crawling in Rogue’s dungeons with (partitioned) A3C”**  
Andrea Asperti, Daniele Cortesi, Francesco Sovrano.

10:40 – 11:10 Coffee Break

### Session 14

Chair: Giuseppe Nicosia

11:10 – 11:35 **“Speeding Up Budgeted Stochastic Gradient Descent SVM Training with Precomputed Golden Section Search”**  
Tobias Glasmachers & Sahar Qaadani.

11:35 – 12:00 **“A Framework to Automatically Extract Funding Information from Text”**  
Subhradeep Kayal, Zubair Afzal, George Tsatsaronis, Marius Doornenbal, Sophia Katrenko & Michelle Gregory.

12:00 – 12:25 **“Designing Ships using Constrained Multi-Objective Efficient Global Optimization”**  
Roy de Winter, Bas van Stein, Matthys Dijkman & Thomas Bäck.

12:25 – 12:50 **“User preferences in Bayesian multi-objective optimization: the expected weighted hypervolume improvement criterion”**  
Paul Feliot, Julien Bect & Emmanuel Vazquez.

12:50 – 13:15 **“Learning consistent tree-augmented dynamic Bayesian networks”**  
Margarida Sousa & Alexandra M. Carvalho.

Concluding Remarks

13:20 – 14:30 Lunch

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

Departure from SIAF at 14.30.

Arrival at Siena (UNESCO World Heritage Site), meeting with the guide(s).

Guided tour of the town (Approximately 2 hours of tour).

Free time in town.

Dinner.

Return at SIAF after dinner.

### **Poster Session, September 13, 17:55 – 19:00**

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.

**“A Study on Application of Smart Analytics Solution for Industry and Market Information Analysis: Focusing on Public Sector Case”**

Hanguok Kim, Youngseo Park, Jongku Son & Sungjin Kim.

**“A Deep Neural Network Classification Approach for Alzheimer’s Disease diagnosis”**

El Mehdi Benyoussef, Abdeltif Elbyed & Hind El Hadiri.

**“Decision of Neural Networks Hyperparameters with a Population-based Algorithm”**

Yağız Nalçakan & Tolga Ensari.

**“Deep Learning Approach for Performance Prediction of Service-Oriented Architecture”**

Mohamed Oumri, Christopher Wild & Pierre Garnero.

*“A nonparametric approach for product assortment with uncertain outcome and customer regret”*

Soheil Sibdari.

*“Development of Quality Estimator for Heavy Diesel”*

Nergiz Haytural & Ertugrul Ural.

*“Learning and inversion: connection between problems and convergence rates”*

Federico Benvenuto & Sabrina Guastavino.

### **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 LOD 2018 Participants.