

**6<sup>th</sup> International Conference on machine Learning, Optimization & Data science – LOD 2020**  
**Certosa di Pontignano – Siena, Tuscany, Italy**  
**19 – 23 July 2020**

Program Ver.9 – July 12 – 13 pages

**Time Zone: Central European Summer Time (CEST), Offset: UTC+2, Example City: Rome – (GMT+2:00) Rome**

	Sun, 19 July	Mon, 20 July	Tue, 21 July	Wed, 22 July	Thu, 23 July	
07:30 – 09:00	Breakfast	Breakfast	Breakfast	Breakfast	Breakfast	
09:00 – 09:45	Opening & Jan Peters	Raniero Romagnoli	Marta Kwiatkowska	8:30 Social Tour  Guided Visit of Siena	Free Time	
09:45 – 10:30	Session 1   Session 2	Session 7   Session 8	Session 19   Session 20			
10:30 – 11:00	Coffee break	Coffee break	Coffee break			
11:00 – 11:45	Session 3   Session 4	Session 9   Session 10	Session 21   Session 22			
11:45 – 12:30	Session 5   Session 6	Session 11   Session 12	Session 23   Session 24			
12:30 – 13:15	V. Sciacca Tutorial	Session 13   Session 14	Session 25   Session 26			
13:15 – 14:40	Lunch	Lunch	Lunch	Lunch	Lunch	
14:40 – 15:25	Starting time: 15 :00 Workshop on “Biologically Plausible Learning” * Yoshua Bengio * Tommy Poggio * Pierre Baldi	Isabel Valera	Maria Schuld	Bettina Berendt	Workshop on “Integrative Machine Learning” * Welcome Michelangelo Diligenti * Luc De Raedt * Andrea Passerini * Michelangelo Diligenti * Francesco Giannini	
15:25 – 16:10		Short Papers Session 15	Poster Presentations Session 16	Angelo Lucia		Session 35   Session 36
16:10 – 16:40	Coffee break	Coffee break	Coffee break	Coffee break	Coffee break	
16:40 – 17:25	Workshop on “Biologically Plausible Learning” * Naftali Tishby * Cristina Savin * Marco Gori	Oral Presentations Session 17	Oral Presentations Session 18	Session 27   Session 28	Ruth Uerner	Workshop on “Integrative Machine Learning” * Artur d'Avila Garcez * Michele Lombardi * Round Table/Marco Gori
17:25 – 18:10		17:25 Guided Visit of the Certosa di Pontignano, & 18:25 Wine Tasting	Session 29   Session 30	Session 37   Session 38		
18:10 – 18:25			Pause	Pause		
18:25 – 19:10			Session 31   Session 32	Pierre Baldi		
19:10 – 19:55			Session 33   Session 34	Session 39 & Closing   Session 40		
19:55 – 21:30	Dinner	Dinner	Dinner	Dinner	Social Dinner	

**Arrival: July 18 (Dinner at 20:30)**

**Departure: July 24 (Breakfast 07:30-09:00)**

**REGISTRATION**

The registration desk will be located close to the Main Conference Room.

Upon registration at the desk, you will receive your badge, vouchers, and conference materials. To facilitate the process please bring with you the *registration confirmation*. You are kindly requested to wear your name badge during all events of the conference.

**ZOOM: for LOD 2020 participants using remote connection**

As you know, LOD 2020 is a hybrid event: in person for those who can come to Tuscany, and online for those who want to attend virtually. LOD 2020 (for participants using remote connection) will use Zoom (<https://zoom.us>). The online lectures and tutorials (e.g., live presentations or recorded ones) will be made possible. LOD 2020 virtual participants will receive the link and the password.

**PRESENTATIONS GUIDE**

A quick reference on all presentation-related elements of LOD 2020. We will share an allocation schedule asap.

- **Long Papers & Oral Presentations**
  - Long Papers and Poster Presentations are **13 mins long, with an additional 2 mins for questions.**
- **Short Papers & Poster Presentations**
  - Short papers and Poster Presentations are 4 mins long, **with an additional 1 min for questions.**

**WiFi Name:** Silver (it is an open Wi-Fi); if you have login and password you can use Eduroam.

**SOCIAL ACTIVITIES: Visit of the Certosa di Pontignano, Tour in the Tuscan Countryside and Wine Tasting**

- Guided tour of the Certosa di Pontignano, guided visit to the famous Certosa Chapel (called the Sistine Chapel of Siena).
- Guided tour of Siena.
- Wine Tasting of Tuscan Wines (e.g., Chianti Classico, Chianti Classico Riserva, Chianti Classico Gran Selezione, Brunello di Montalcino) produced in Siena, in general, and in the surroundings of the Certosa di Pontignano, in particular.

**GENERAL CHAIRS**

*Vincenzo Sciacca, Almwave, Italy*

*Renato Umeton, Department of Informatics, Dana-Farber Cancer Institute, Boston, MA, USA & MIT, Cambridge, MA, USA*

**PROGRAM CHAIRS**

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

*Varun Ojha, University of Reading, UK*

*Panos Pardalos, University of Florida, USA*

**KEYNOTE SPEAKERS:**

*Pierre Baldi, University of California Irvine, USA*

*Yoshua Bengio, Université de Montréal, Canada - A.M. Turing Award 2018*

*Bettina Berendt, Technische Universität Berlin, Germany*

*Artur d'Avila Garcez, City University London, UK*

*Luc De Raedt, KU Leuven, Belgium*

*Marta Kwiatkowska, University of Oxford, UK*

*Angelo Lucia University of Rhode Island, USA*

*Andrea Passerini University of Trento, Italy*

*Jan Peters, Technische Universität Darmstadt & Max-Planck Institute for Intelligent Systems, Germany*

*Tomaso Poggio, MIT, USA*

*Raniero Romagnoli, Almwave, Italy*

*Cristina Savin Center for Neural Science, New York University, USA*

*Maria Schuld, Xanadu & University of KwaZulu-Natal, South Africa*

*Naftali Tishby, Hebrew University, Israel*

*Ruth Urner, York University, Toronto, Canada*

*Isabel Valera, Saarland University, Saarbrücken & Max Planck Institute for Intelligent Systems, Tübingen, Germany*

**TUTORIAL SPEAKER:**

*Vincenzo Sciacca, Almwave, Italy*

**STEERING COMMITTEE**

*Giuseppe Nicosia, University of Cambridge, UK & University of Catania, Italy*

*Panos Pardalos, University of Florida, USA*

## Sunday, 19 July

- 09:00 – 09:45 *Plenary Session: Keynote Talk*  
*Room: Lecture Hall 1*  
*Opening*  
**“Machine Learning of Robot Skills”**  
*Jan Peters, Technische Universität Darmstadt & Max-Planck Institute for Intelligent Systems, Germany*  
*Chair: Giuseppe Nicosia*
- 09:45 – 10:30 **Session 1 - Special Session on Big data in Economics & Finance**  
*Virtual Room: Lecture Hall 1 (Real Room: Sala Bracci)*  
*Chairs: Vincenzo Sciacca & Sergio Consoli*
- 09:45 – 10:00 Salvatore Mario Carta, Sergio Consoli, Luca Piras, Alessandro Sebastian Podda and Diego Reforgiato Recupero, *Dynamic Industry-specific Lexicon Generation for Stock Market Forecast*
- 10:00 – 10:15 Vittorio Bellini, Massimo Guidolin and Manuela Pedio, *Can Big Data Help to Predict Conditional Stock Market Volatility? An Application to the Brexit Vote*
- 10:15 – 10:30 Giorgio Gnecco, Stefano Amato, Alessia Patuelli and Nicola Lattanzi, *Machine learning application to family business status classification*
- 09:45 – 10:30 **Session 2**  
*Virtual Room: Lecture Hall 2*  
*Chair: Varun Ojha*
- 09:45 – 10:00 Alberto Cenzato, Alberto Testolin and Marco Zorzi, *Long-term prediction of physical interactions: a challenge for deep generative models (onsite talk)*
- 10:00 – 10:15 Laura Selicato, Nicoletta Del Buono and Flavia Esposito, *Methods for Hyperparameters Optimization in Learning Approaches: an over*
- 10:15 – 10:30 Antonella Falini, Graziano Castellano, Cristiano Tamborrino, Francesca Mazzia, Rosa Maria Mininni, Annalisa Appice and Donato Malerba, *Novel Reconstruction Errors for Saliency Detection in Hyperspectral Images (screen sharing)*
- 10:30 – 11:00 **Coffee break**
- 11:00 – 11:45 **Session 3 - Special Session on Big data in Economics & Finance**  
*Room: Lecture Hall 1*  
*Chair: Vincenzo Sciacca & Sergio Consoli*
- 11:00 – 11:15 Sergio Consoli, Luca Tiozzo Pezzoli and Elisa Tosetti, *Using the GDELT dataset to analyse the Italian bond market*
- 11:15 – 11:30 Quaini, Korsaye and Trojani, *Smart Stochastic Discount Factors view*
- 11:30 – 11:45 Iulia Igescu, *Monitoring Location Shifts with One-Class Support Vector Machines (onsite talk)*
- 11:00 – 11:45 **Session 4**  
*Room: Lecture Hall 2*  
*Chair: Varun Ojha*
- 11:00 – 11:15 Cláudia Constantino, Alexandra M. Carvalho and Susana Vinga, *Sparse consensus classification for discovering novel biomarkers in rheumatoid arthritis*
- 11:15 – 11:30 Sasho Nedelkoski, Mihail Bogojeski and Odej Kao, *Learning more expressive joint distributions in multimodal variational methods (screen sharing)*
- 11:30 – 11:45 Dhekra Bousnina, Wellington de Oliveira and Peter Pflaum, *A stochastic optimization model for frequency control and energy management in a microgrid*
- 11:45 – 12:30 **Session 5 - Special Session on Big data in Economics & Finance**  
*Room: Lecture Hall 1*  
*Chair: Vincenzo Sciacca & Sergio Consoli*
- 11:45 – 12:00 Salvatore Carta, Diego Reforgiato Recupero, Maria Stanciu and Roberto Saia, *A General Framework for Risk Controlled Trading Based on Machine Learning and Statistical Arbitrage*
- 12:00 – 12:15 Thomas Cook and Taeyoung Doh, *Assessing Macroeconomic Tail Risks in a Data-Rich Environment*
- 12:15 – 12:20 Luca Barbaglia, Sergio Consoli and Sebastiano Manzan, *Fine-grained, aspect-based semantic sentiment analysis on news for economic forecasting and nowcasting*
- 11:45 – 12:30 **Session 6**  
*Room: Lecture Hall 2*  
*Chair: Varun Ojha*
- 11:45 – 12:00 David Llácer, Beatriz Otero, Rubén Tous, Marisol Monterrubio-Velasco, José Carlos Carrasco-Jiménez and Otilio Rojas, *Optimal Random Forests Parameterization for Earthquake Catalog Generation*

## Sunday, 19 July

- 12:00 – 12:15 Federico Bianchi, Pietro Tarocco, Alberto Castellini and Alessandro Farinelli, *Convolutional Neural Network and Stochastic Variational Gaussian Process for Heating Load Forecasting*
- 12:15 – 12:30 Mauro Maria Baldi, Elisabetta Fersini and Enza Messina, *Relational Bayesian Model Averaging for Sentiment Analysis in Social Networks*
- 12:30 – 13:15 *Plenary Session: Tutorial Talk*  
*Room: Lecture Hall 1*  
**“Natural Language Processing and Deep Learning”**  
*Vincenzo Sciacca, Almatave, Italy*  
*Chair: Giuseppe Nicosia*
- 13:15 – 15:00 **Lunch**
- 15:00 – 19:55 *Plenary Session*  
*Room: Lecture Hall 1*  
Workshop on “Biologically Plausible Learning”  
\* **Yoshua Bengio**  
\* **Tommy Poggio**  
\* **Pierre Baldi**  
\* **Naftali Tishby**  
\* **Cristina Savin**  
\* **Marco Gori**
- 19:55 **Dinner**

## Monday, 20 July

- 09:00 – 09:45 *Plenary Session: Keynote Talk*  
Room: Lecture Hall 1  
**“NLP for Close Domain Applications with Real World Data: a hybrid approach to jointly leverage prior domain knowledge, reasoning techniques and deep learning”**  
**Raniero Romagnoli, Almawave, Italy**  
Chair: Giuseppe Nicosia
- 09:45 – 10:30 **Session 7 - Special Session on Big data in Economics & Finance**  
Room: Lecture Hall 1  
Chair: Vincenzo Sciacca & Sergio Consoli
- 09:45 – 10:00 Massimo Guidolin, Roland Fuess and Christian Koeppel, Sentiment Risk Premia in the Cross-Section of Global Equity (pre-recorded video)
- 10:00 – 10:15 Viktor Burján and Bálint Gyires Tóth, *GPU Accelerated Data Preparation for Limit Order Book Modeling*
- 10:15 – 10:30 Stefano Scalone, Giorgio Scricco, Michael Brauning and Despo Malikidou, *A new approach to Early Warning Systems for small European banks*
- 09:45 – 10:30 **Session 8**  
Room: Lecture Hall 2  
Chair: Varun Ojha
- 09:45 – 10:00 Federico Espositi and Andrea Bonarini, *Gradient Bias to solve the Generalization Limit of Genetic Algorithms through hybridization with Reinforcement Learning*
- 10:00 – 10:15 Francesco Craighero, Fabrizio Angaroni, Alex Graudenzi, Fabio Stella and Marco Antoniotti, *Investigating the Compositional Structure of Deep Neural Networks*
- 10:15 – 10:30 Bruno Galuzzi, Enza Messina, Antonio Candelieri and Francesco Archetti, *Optimal Scenario-Tree Selection for Multistage Stochastic Programming*
- 10:30 – 11:00 **Coffee break**
- 11:00 – 11:45 **Session 9**  
Room: Lecture Hall 1  
Chair: Vincenzo Sciacca
- 11:00 – 11:15 Charul Giri, Morten Goodwin and Ketil Oppedal, *Deep 3D Convolution Neural Network for Alzheimer’s Detection*
- 11:15 – 11:30 Ondrej Slowik, David Leh and Drahomír Novák, *Combinatorial reliability-based optimization of nonlinear finite element model using an artificial neural network-based approximation (onsite talk)*
- 11:30 – 11:45 Rishab Gupta and Rohit Parimi, *Driving Subscriptions Through User Behavior Modelling and Prediction at Bloomberg Media (pre-recorded video)*
- 11:00 – 11:45 **Session 10**  
Room: Lecture Hall 2  
Chair: Varun Ojha
- 11:00 – 11:15 Jamolbek Mattiev and Branko Kavsek, *CMAC: Clustering class association rules to form a Compact and Meaningful Associative Classifier*
- 11:15 – 11:30 Andrea Asperti, *Variance Loss in Variational Autoencoders*
- 11:30 – 11:45 Nicolas Bach, Andrew Melnik, Malte Schilling, Timo Korthals and Helge Ritter, *Learning to Move Through a Combination of Policy Gradient Algorithms: DDPG, D4PG, and TD3*
- 11:45 – 12:30 **Session 11**  
Room: Lecture Hall 1  
Chair: Vincenzo Sciacca
- 11:45 – 12:00 Milad Mokhtardoost and Mehmet Gönen, *Identifying Key miRNA–mRNA Regulatory Modules in Cancer Using Sparse Multivariate Factor Regression (screen sharing)*
- 12:00 – 12:15 Emmanouela Rapanaki, Iraklis-Dimitrios Psychas, Magdalene Marinaki, Nikolaos Matsatsinis and Yannis Marinakis, *A Krill Herd Algorithm for the Multi-objective Energy Reduction Multi-Depot Vehicle Routing Problem*
- 12:15 – 12:30 Michele Fraccaroli, Evelina Lamma and Fabrizio Riguzzi, *Automatic Setting of DNN Hyper-Parameters by Mixing Bayesian Optimization and Tuning Rules (onsite talk)*
- 11:45 – 12:30 **Session 12**  
Room: Lecture Hall 2  
Chair: Varun Ojha
- 11:45 – 12:00 Stephane Chretien and Benjamin Guedj, *Revisiting clustering as matrix factorisation on the Stiefel manifold*

## Monday, 20 July

- 12:00 – 12:15 Norma Gutierrez, Eva Rodriguez, Sergi Mus, Beatriz Otero and Ramón Canal, *Privacy preserving Deep Learning framework in Fog computing*
- 12:00 – 12:15 Mickael Febrissy and Mohamed Nadif, *Wasserstein Embeddings for Nonnegative Matrix Factorization*
- 12:30 – 13:15 **Session 13**  
Room: Lecture Hall 1  
Chair: Vincenzo Sciacca
- 12:30 – 12:45 Federico Bianchi, Francesco Masillo, Alberto Castellini and Alessandro Farinelli, *XM HeatForecast: Heating Load Forecasting in Smart District Heating Networks*
- 12:45 – 13:00 Andrea Borghesi, Federico Baldo, Michele Lombardi and Michela Milano, *Injective Domain Knowledge in NNs for Transprecision Computing*
- 13:00 – 13:15 Moiz Khan Sherwani, Paolo Zaffino, Pierangela Bruno, Maria Francesca Spadea and Francesco Calimeri, *Evaluating the Impact of Training Loss on MR to Synthetic CT Conversion*
- 12:30 – 13:15 **Session 14**  
Room: Lecture Hall 2  
Chair: Varun Ojha
- 12:30 – 12:45 Maurizio Boccia, Antonio Diglio, Adriano Masone and Claudio Sterle, *A location-routing based solution approach for reorganizing postal collection operations in rural areas*
- 12:45 – 13:00 Alexandre Maciel-Guerra, Graziela P. Figueredo and Jamie Twycross, *Dynamic selection of classifiers applied to high-dimensional small-instance data sets: problems and challenges*
- 13:00 – 13:15 Mirco Tracoli, Marco Baiocchi, Valentina Poggioni and Daniele Spiga, *Caching suggestions using Reinforcement Learning*
- 13:15 – 14:40 **Lunch**
- 14:40 – 15:25 *Plenary Session: Keynote Talk*  
Room: Lecture Hall 1  
**“Technical challenges of Ethical ML”**  
**Isabel Valera, Saarland University, Saarbrücken & Max Planck Institute for Intelligent Systems, Tübingen, Germany**  
Chair: Giuseppe Nicosia
- 15:25 – 16:10 **Session 15 – Short Papers**  
Room: Lecture Hall 1  
Chair: Vincenzo Sciacca
- 15:25 – 15:30 Adel Rahimi, Tetiana Kodliuk and Othman Bencheikroun, *Using Hessians as a Regularization Technique* (*pre-recorded video*)
- 15:30 – 15:35 Falco Joannes Bargagli-Stoffi, Gustavo Cevolani and Giorgio Gnecco, *Should simplicity be always preferred to complexity in supervised machine learning?*
- 15:35 – 15:40 Maria Alexandra Ramalho de Oliveira, Luís Guimarães and José Borges, *Understanding production process productivity in glass container industry: a big data approach*
- 15:40 – 15:45 Alessandro Zonta, Ali El Hassouni, David W. Romero and Jakub Tomczak, *Generative Fourier-based Auto-Encoders: Preliminary Results*
- 15:45 – 15:50 Hamid Mousavi, Jakob Drefs and Jörg Lücke, *A Double-Dictionary Approach Learns Component Means and Variances for VI Encoding*
- 15:50 – 15:55 Giorgia Franchini, Valeria Ruggiero and Luca Zanni, *Steplength and mini-batch size selection in Stochastic Gradient Methods*
- 15:55 – 16:00 Gail Gilboa Freedman, Yair Amichai-Hamburger and Dotan Castro, *Who Accepts Information Measures*
- 15:25 – 16:10 **Session 16 – Poster Presentations**  
Room: Lecture Hall 2  
Chair: Varun Ojha
- 15:25 – 15:30 Filippo Maria Castelli, Giacomo Mazzamuto, Matteo Roffilli, Irene Costantini, Ludovico Silvestri and Francesco Saverio Pavone, *Semantic Segmentation of Neuronal Bodies in Fluorescence Microscopy Using a 2D+3D CNN Training Strategy with Sparsely Annotated Data*
- 15:30 – 15:35 Igor Griva, *Analyzing Data with Lagrange multipliers methods*
- 15:35 – 15:40 Federico Esposito and Andrea Bonarini, *Policy Feedback in Deep Reinforcement Learning to exploit expert knowledge*
- 15:40 – 15:45 Alessandro Rossi and Nicola Pacchiani, *BcRAIN: A Deep Learning based approach for B-cell repertoire description*
- 15:45 – 15:50 Young Hee Geum, *Study on the class of Jarratt-like iterative methods*

## Monday, 20 July

- 15:50 – 15:55 Giulia Lo Dico, Verónica Carcelén and Maciej Haranczyk, *Accelerating development of natural porous materials assisted by statistical machine learning*
- 16:10 – 16:40 **Coffee break**
- 16:40 – 17:25 **Session 17 – Oral Presentations**  
*Room: Lecture Hall 1*  
*Chair: Vincenzo Sciacca*
- 16:40 – 16:55 Giorgia Franchini, Luca Zanni and Valeria Ruggiero, *Adaptive rule for the steplength selection in Stochastic Gradient Methods*
- 16:55 – 17:10 Vera Kalinichenko and Garima Garg, *From Business Curated Products to Algorithmically Generated (pre-recorded video)*
- 17:10 – 17:25 Raul Villamarin Rodriguez, *Future of HR from 2020: Machine Learning*
- 16:40 – 17:25 **Session 18 – Oral Presentations**  
*Room: Lecture Hall 2*  
*Chair: Varun Ojha*
- 16:40 – 16:55 Nikita Benkovich, Roman Dedenok and Dmitry Golubev, *Deep Quarantine for Suspicious Mail*
- 16:55 – 17:10 Nikita Benkovich, Alan Savushkin and Dmitry Golubev, *Neural Random Projection: From the Initial Task to the Input Similarity Problem*
- 17:10 – 17:25 Thu Dinh, Bao Wang, Andrea Bertozzi, Stanley Osher and Jack Xin, *Sparsity Meets Robustness: Channel Pruning for the Feynman-Kac Formalism Principled Robust Deep Neural Nets*
- 17:25 **Guided Visit of the Certosa di Pontignano,**
- 18:25 **Wine Tasting**
- 19:55 **Dinner**

## Tuesday, 21 July

- 09:00 – 09:45 *Plenary Session: Keynote Talk*  
Room: Lecture Hall 1  
**“Safety and Robustness for Deep Learning with Provable Guarantees”**  
Marta Kwiatkowska, University of Oxford, UK  
Chair: Giuseppe Nicosia
- 09:45 – 10:30 **Session 19**  
Room: Lecture Hall 1  
Chair: Vincenzo Sciacca
- 09:45 – 10:00 Ali Hassouni, Mark Hoogendoorn, Gusz Eiben and Vesa Muhonen, *Structural and Functional Representativity of GANs for Data Generation in Sequential Decision Making*
- 10:00 – 10:15 David Jaidan and Le Toan Duong, *Image Features Anonymization for Privacy aware Machine Learning*
- 10:15 – 10:30 Mika Rantonen and Joni Korpihalkola, *Prediction of Spot prices in Nord Pool's Day-ahead market using Machine and Deep learning*
- 09:45 – 10:30 **Session 20**  
Room: Lecture Hall 2  
Chair: Varun Ojha
- 09:45 – 10:00 Arun Pandey, Joachim Schreurs and Johan Suykens, *Robust Generative Restricted Kernel Machines using Weighted Conjugate Feature Duality*
- 10:00 – 10:15 Tomás Dlask, *Unit Propagation by Means of Coordinate-Wise Minimization*
- 10:15 – 10:30 Gabriele Iommazzo, Claudia D'Ambrosio, Antonio Frangioni and Leo Liberti, *A learning-based mathematical programming formulation for the automatic configuration of optimization solvers* (screen sharing)
- 10:30 – 11:00 **Coffee break**
- 11:00 – 11:45 **Session 21**  
Room: Lecture Hall 1  
Chair: Vincenzo Sciacca
- 11:00 – 11:15 Francesco Branda, Fabrizio Marozzo and Domenico Talia, *Discovering Travelers' Purchasing Behavior from Public Transport Data*
- 11:15 – 11:30 Elisa Marcelli and Renato De Leone, *Multi-Kernel Covariance Terms in Multi-Output Support Vector Machines* (pre-recorded video)
- 11:30 – 11:45 Riste Stojanov, Gorjan Popovski, Nasi Jofce, Dimitar Trajanov, Barbara Korousic Seljak and Tome Eftimov, *FoodViz: Visualization of Food Entities Linked Across Different Standards*
- 11:00 – 11:45 **Session 22**  
Room: Lecture Hall 2  
Chair: Varun Ojha
- 11:00 – 11:15 Julia Krützmann, Alexander Schiendorfer, Sergej Beratz, Judith Moosburger-Will, Wolfgang Reif and Siegfried Horn, *Learning Controllers for Adaptive Spreading of Carbon Fiber Tows*
- 11:15 – 11:30 Alper Yegenoglu, Sandra Diaz Pier, Kai Krajsek and Michael Herty, *Ensemble Kalman Filter optimizing Deep Neural Networks: An alternative approach to non-performing Gradient Descent*
- 11:30 – 11:45 Christofer Fellicious, Thomas Weißgerber and Michael Granitzer, *Effects of random seeds on the accuracy of Convolutional Neural Networks*
- 11:45 – 12:30 **Session 23**  
Room: Lecture Hall 1  
Chair: Vincenzo Sciacca
- 11:45 – 12:00 Jimiama Mafeni Mase, Peter Chapman, Graziela Figueredo and Mercedes Torres Torres, *Benchmarking Deep Learning Models for Driver Distraction Detection*
- 12:00 – 12:15 Leandro L. Lorente-Leyva, M.M.E. Alemany, Diego Hernán Peluffo-Ordoñez and Israel David Herrera Granda, *A Comparison of Machine Learning and Classical Demand Forecasting Methods: A Case Study of Ecuadorian Textile Industry*
- 12:15 – 12:30 Nima Nabizadeh, Martin Heckmann and Dorothea Kolossa, *Target-aware Prediction of Tool Usage in Sequential Repair Tasks*
- 11:45 – 12:30 **Session 24**  
Room: Lecture Hall 2  
Chair: Varun Ojha
- 11:45 – 12:00 Per-Arne Andersen, Morten Goodwin and Ole-Christoffer Granmo, *Safer Reinforcement Learning for Agents in Industrial Grid-Warehousing*
- 12:00 – 12:15 Jon Vadillo, Roberto Santana and Jose A. Lozano, *Exploring Gaps in DeepFool in Search of More Effective Adversarial Perturbations*

## Tuesday, 21 July

- 12:15 – 12:30 Israel Herrera, Leandro Lorente, Diego Peluffo, Maria Del Mar Alemany and Israel Herrera, *A forecasting model to predict the demand of roses in an Ecuadorian small business under uncertain scenarios*
- 12:30 – 13:15 **Session 25**  
Room: Lecture Hall 1  
Chair: Vincenzo Sciacca
- 12:30 – 12:45 Sara Atito Ali Ahmed, Berrin Yanikoglu, Cemre Zor, Muhammad Awais and Josef Kittler, *Skin Lesion Diagnosis with Imbalanced ECOC Ensembles*
- 12:45 – 13:00 Jinglai Li, Yuzhou Gao and Tengchao Yu, *Bayesian Optimization with Local Search*
- 13:00 – 13:15 Helge Spieker and Arnaud Gotlieb, *Learning Objective Boundaries for Constraint Optimization Problems*
- 12:30 – 13:15 **Session 26**  
Room: Lecture Hall 2  
Chair: Varun Ojha
- 12:30 – 12:45 Michela Quadrini, Sebastian Daberdaku and Carlo Ferrari, *Hierarchical Representation and Graph Convolutional Networks for the Prediction of Protein-Protein Interaction Sites* (onsite talk)
- 12:45 – 13:00 Petia Koprinkova-Hristova and Nadejda Bocheva, *Brain-inspired Spike Timing Model of Dynamic Visual Information Perception and Decision Making with STDP and Reinforcement Learning* (screen sharing)
- 13:00 – 13:15 Aynalem Misganaw and Sabine Roller, *PlattForm: Parallel Spoken Corpus of Middle West German Dialects with Web-Based Interface* (screen sharing)
- 13:15 – 14:40 **Lunch**
- 14:40 – 15:25 *Plenary Session: Keynote Talk*  
Room: Lecture Hall 1  
**“Machine Learning with quantum computers”**  
**Maria Schuld, Xanadu & University of KwaZulu-Natal, South Africa**  
Chair: Giuseppe Nicosia
- 15:25 – 16:10 *Plenary Session: Keynote Talk*  
Room: Lecture Hall 1  
**“Viral Metabolic Reprogramming”**  
**Angelo Lucia, University of Rhode Island, USA**  
Chair: Giuseppe Nicosia
- 16:10 – 16:40 **Coffee break**
- 16:40 – 17:25 **Session 27**  
Room: Lecture Hall 1  
Chair: Vincenzo Sciacca
- 16:40 – 16:55 Günther Schindler, Wolfgang Roth, Franz Pernkopf and Holger Fröning, *Parameterized Structured Pruning for Deep Neural Networks*
- 16:55 – 17:10 Majid Jahani, Mohammadreza Nazari, Sergey Rusakov, Albert Solomon Berahas and Martin Taká, *Scaling Up Quasi-Newton Algorithms: Communication Efficient Distributed SRI*
- 17:10 – 17:25 Franco Robledo, Pablo Rodríguez-Bocca and Pablo Romero, *Optimal Broadcast Strategy in Homogeneous Point-to-Point Networks*
- 16:40 – 17:25 **Session 28**  
Room: Lecture Hall 2  
Chair: Varun Ojha
- 16:40 – 16:55 Astrid Merckling, Alexandre Coninx, Loic Cressot, Stéphane Doncieux and Nicolas Perrin, *State Representation Learning from Demonstration*
- 16:55 – 17:10 Abhay Harpale, *Chronologically guided deep network for remaining useful life estimation*
- 17:10 – 17:25 Rommel Regis, *High-Dimensional Constrained Discrete Multi-Objective Optimization Using Surrogates*
- 17:25 – 18:10 **Session 29**  
Room: Lecture Hall 1  
Chair: Vincenzo Sciacca
- 17:25 – 17:40 Mayumi Ohta, Nathaniel Berger, Artem Sokolov and Stefan Riezler, *Sparse Perturbations for Improved Convergence in SZO Optimization*
- 17:40 – 17:55 Guido Lagos and Pablo Romero, *On the Reliability of Dynamical Stochastic Binary Systems*
- 17:55 – 18:10 Vladimir Soloviev, Nikita Titov and Elena Smirnova, *Coking coal railway transportation forecasting using ensembles of ElasticNet, LightGBM, and Facebook Prophet*

## Tuesday, 21 July

- 17:25 – 18:10 **Session 30**  
Room: Lecture Hall 2  
Chair: Varun Ojha
- 17:25 – 17:40 Mayowa Ayodele, Richard Allmendinger and K. Nadia Papamichail, *Heuristic Search in LegalTech: Dynamic Allocation of Legal Cases to Legal Staff*
- 17:40 – 17:55 Jose Cruz, Wilson Mamani, Christian Romero and Ferdinand Pineda, *Multi-parameter Regression of Photovoltaic Systems using Selection of Variables with the Method: Recursive Feature Elimination for Ridge, Lasso and Bayes*
- 17:55 – 18:10 Abhay Harpale, *Automatic curriculum recommendation for employees*
- 18:10 – 18:25 **Pause**
- 18:25 – 19:10 **Session 31**  
Room: Lecture Hall 1  
Chair: Vincenzo Sciacca
- 18:25 – 18:40 Marcin Orchel and Johan Suykens, *Fast hyperparameter tuning for support vector machines with stochastic gradient descent (onsite talk)*
- 18:40 – 18:55 Abhinav Raj and Subhankar Mishra, *Lottery Ticket Hypothesis: Placing the k-orrect bets*
- 18:55 – 19:10 Yaodong He and Shiu Yin Yuen, *Black Box Algorithm Selection by Convolutional Neural Network*
- 18:25 – 19:10 **Session 32**  
Room: Lecture Hall 2  
Chair: Varun Ojha
- 18:25 – 18:40 Giovanna Fortez, Franco Robledo, Pablo Romero and Omar Viera, *A Fast Genetic Algorithm for the Max Cut-Clique Problem*
- 18:40 – 18:55 Hyaejung Lim and Chang-Kyo Suh, *The Intellectual Structure of Business Analytics: 2002~2019*
- 18:55 – 19:10 Jacques Egmont Knoll and Thorsten Schmidt-Dumont, *Reinforcement Learning for Playing WrapSlide*
- 19:10 – 19:55 **Session 33**  
Room: Lecture Hall 1  
Chair: Vincenzo Sciacca
- 19:10 – 19:25 Richard Ball, Hennie Kruger and Lynette Drevin, *A Unified Approach to Anomaly Detection*
- 19:25 – 19:40 Alma Rahat and Michael Wood, *On Bayesian Search for the Feasible Space Under Computationally Expensive Constraints*
- 19:40 – 19:55 Daniel Nissani -Nissensohn, *Unsupervisedly Learned Representations – Should the Quest be Over?*
- 19:55 – 20:10 Alexey Marchenko, Alexey Utki-Otki and Dmitry Golubev, *Efficient text processing via Context Triggered Piecewise Hashing algorithm for spam detection*
- 19:10 – 19:55 **Session 34**  
Room: Lecture Hall 2  
Chair: Varun Ojha
- 19:10 – 19:25 Jake Williams, Abel Tadesse, Tyler Sam, Huey Sun and George Montanez, *Limits of Transfer Learning (pre-recorded video)*
- 19:25 – 19:40 Sani Aji, Poom Kumam, Punnarai Siricharoen and Ali Maina Bukar, *Automatic Classification of low Angle Fuze-Quick Craters Using Deep Learning*
- 19:40 – 19:55 Galina Samigulina and Zarina Samigulina, *Machine learning for big data analysis in drug design (pre-recorded video)*
- 19:55 – 20:10 Carla Freitas, Silveira Netto, Mohsen Bahrami, Vinicius Brei, Burcin Bozkaya, Selim Balcisoy and Alex 'sandy' Pentland, *Gravitational Forecast Reconciliation*
- 20:10 **Dinner**

## Wednesday, 22 July

- 08:30 – 13:15 **Social Tour: Guided Visit of Siena**
- 13:15 – 14:40 **Lunch**
- 14:40 – 15:25 *Plenary Session: Keynote Talk*  
*Room: Lecture Hall 1*  
**“Title TBA”**  
**Bettina Berendt, Technische Universität Berlin, Germany**  
**Weizenbaum Institute for the Networked Society, Germany**  
*Chair: Giuseppe Nicosia*
- 15:25 – 16:10 **Session 35**  
*Room: Lecture Hall 1*  
*Chair: Vincenzo Sciacca*
- 15:25 – 15:40 Harry Wang and Brian Denton, *Pareto-Weighted-Sum-Tuning: Learning-to-Rank for Pareto Optimization Problems*
- 15:40 – 15:55 Filippo Portera, *A Generalized Quadratic Loss for SVM and Deep Neural Networks (onsite talk)*
- 15:55 – 16:10 Florin Tim Peters and Robin Hirt, *A Transfer Machine Learning Matching Algorithm for Source and Target (TL-MAST)*
- 15:25 – 16:10 **Session 36**  
*Room: Lecture Hall 2*  
*Chair: Varun Ojha*
- 15:25 – 15:40 Cole Smith, Andrii Dobroshynskiy and Suzanne McIntosh, *Quantifying Local Energy Demand through Pollution Analysis*
- 15:40 – 15:55 Marius Bommert and Günter Rudolph, *Reliable Solution of Multidimensional Stochastic Problems Using Metamodels*
- 15:55 – 16:10 Gideon Mbiydzennyuy, *Univariate Time Series Anomaly Labelling Algorithm*
- 16:10 – 16:40 **Coffee break**
- 16:40 – 17:25 *Plenary Session: Keynote Talk*  
*Room: Lecture Hall 1*  
**“Title TBA”**  
**Ruth Urner, York University, Toronto, Canada**  
*Chair: Giuseppe Nicosia*
- 17:25 – 18:10 **Session 37**  
*Room: Lecture Hall 1*  
*Chair: Vincenzo Sciacca*
- 17:25 – 17:40 Anahit Sargsyan, Areg Karapetyan, Wei Lee Woon and Aamena Alshamsi, *Explainable AI as a Social Microscope: A Case Study on Academic Performance*
- 17:40 – 17:55 Zahra Jandaghi and Liming Cai, *On Graph Learning with Neural Networks*
- 17:55 – 18:10 Nicholas Mandarano, Rommel Regis and Elizabeth Bloom, *Machine Learning and Statistical Models for the Prevalence of Multiple Sclerosis*
- 17:25 – 18:10 **Session 38**  
*Room: Lecture Hall 2*  
*Chair: Varun Ojha*
- 17:25 – 17:40 Jorio Cocola and Paul Hand, *Global Convergence of Sobolev Training for Overparametrized Neural Networks*
- 17:40 – 17:55 Natalya Selitskaya, Stanislav Selitskiy and Nikolaos Christou, *Challenges in Real-Life Face Recognition With Heavy Makeup and Occlusions Using Deep Learning Algorithms (pre-recorded video)*
- 17:55 – 18:10 Nicolas Bach, Andrew Melnik, Federico Rossetto and Helge Ritter, *Distributed supervised learning of dynamic models*
- 18:10 – 18:25 **Pause**
- 18:25 – 19:10 *Plenary Session: Keynote Talk*  
*Room: Lecture Hall 1*  
**“Virtualization and Deep Learning”**  
**Pierre Baldi, University of California Irvine, USA**  
*Chair: Giuseppe Nicosia*
- 19:10 – 19:55 **Session 39 – Oral Presentations**  
*Room: Lecture Hall 1*  
*Chair: Vincenzo Sciacca*

## Wednesday, 22 July

- 19:10 – 19:25 Georg Hahn, Sharon Marie Lutz, Nilanjana Laha and Christoph Lange, *A fast and efficient smoothing approach to LASSO regression and an application in statistical genetics: polygenic risk scores for Chronic obstructive pulmonary disease (COPD)* (pre-recorded video)
- 19:25 – 19:40 Stefan Silva and José Crispim, *An application of Machine Learning to study utilities expenses in the Brazilian Navy*
- 19:40 – 19:55 Andrea Bommert and Jörg Rahnenführer, *Adjusted Measures for Feature Selection Stability for Data Sets with Similar Features*
- 19:55 – 20:10 Seyed Amin Tabatabaei, Jan Klein and Mark Hoogendoorn, *Estimating the F1 score for Learning from Positive and Unlabeled Examples* (pre-recorded video)
- Closing*
- 19:10 – 19:55 **Session 40 – Oral Presentations**  
*Room: Lecture Hall 2*  
*Chair: Varun Ojha*
- 19:10 – 19:25 Anwaya Aras, Manisha Mundhe and Anna He, *The Speech Processing Platform at Uber*
- 19:25 – 19:40 Mahdi Jammal, Stephane Canu and Maher Abdallah, *Robust and Sparse Support Vector Machines via Mixed Integer Programming* (pre-recorded video)
- 19:40 – 19:55 Mahdi Jammal, Stephane Canu and Maher Abdallah, *l1 Regularized Robust and Sparse Linear Modeling Using Discrete Optimization* (pre-recorded video)
- 19:55 – 20:10 Diogo R. Ferreira, Teresa Scholz and Rune Prytz, *Importance Weighting of Diagnostic Trouble Codes for Anomaly Detection*
- 20:10 **Dinner**

## Thursday, 23 July

- 09:00 – 13:15*      **Free Time**
- 13:15 – 14:40*      **Lunch**
- 14:40*              Workshop on “Integrative Machine Learning”  
\* **Welcome Michelangelo Diligenti**  
\* **Luc De Raedt**  
\* **Andrea Passerini**  
\* **Michelangelo Diligenti**  
\* **Francesco Giannini**  
\* **Artur d'Avila Garcez**  
\* **Michele Lombardi**  
\* **Round Table/Marco Gori**
- 19:55*              **Social Dinner**