

**Workshop on Algorithmic Optimization and Data Science**  
**20.7.-22.7.2022**  
**Trier University, Lecture Hall HS 9 (E Building)**

**Program**

**Wednesday: 20. July 2022**

8:00	<i>Registration</i>	<i>Foyer, E Building</i>
8:50 – 9:00	Welcome	
9:00 – 9:30	<i>Clemens Zeile</i> : A Gauss-Newton-based Decomposition Algorithm for Nonlinear Mixed-Integer Optimal Control Problems	
9:30 – 10:00	<i>Jan Sokolowski</i> : Robust Parameter Estimation for Dynamical Systems with Convolutional Neural Networks	
10:00 – 10:30	<i>Lena Sembach</i> : Riemannian Optimization for Variance Estimation in Linear Mixed Models	
10:30 – 11:00	<i>Coffee Break</i>	<i>Room E 51</i>
11:00 – 11:30	<i>Lukas Mich</i> : Neural Networks Approximation for Stochastic Optimal Control Problems in the Context of Optimal Investment	
11:30 – 12:00	<i>Ivan Oseledets</i> : Geometry, Tensors and Optimization	
12:00 bis 14:00	<i>Lunch</i>	<i>Mensa</i>
<b>14:00 – 15:00</b>	<b>Invited Presentation: <i>Sebastian Pokutta</i> “Structured ML Training via Conditional Gradients”</b>	
15:00 – 15:30	<i>Coffee Break</i>	<i>Room E 51</i>
15:30 – 16:00	<i>Carina Moreira Costa</i> : Mixed-Integer Programming Techniques for the Minimum Sum-of-Squares Clustering Problem	
16:00 – 16:30	<i>Benjamin Schwendinger</i> : Holistic Generalized Linear Models	
16:30 – 17:00	<i>René Pinnau</i> : Optimal Control of Free Boundary Problems	
17:00 – 17:30	<i>Cristina Cipriani</i> : A Mean-Field Optimal Control Approach to the Training of NeurODEs	
17:30	<i>Welcome Reception/Meet and Greet</i> <span style="float: right;"><i>Room E 51</i></span>	

**Thursday: 21 July 2022**

8:30	<i>Late Registration</i>	<i>Foyer, E Building</i>
9:00 – 9:30	<i>Nadja Vater</i> : A Preconditioner for Least Squares Problems with Application to Neural Network Training	
9:30 – 10:00	<i>Sebastian Hofmann</i> : An Optimal Control Based Supervised Learning Algorithm for Training Runge-Kutta Structured Neural Networks	
10:00 – 10:30	<i>Coffee Break</i>	<i>Room E 51</i>
<b>10:30 – 11:30</b>	<b>Invited Presentation: <i>Gitta Kutyniok</i> “The World of Deep Learning: From the Mystery of Training to Foundational Limitations”</b>	
11:30 bis 13:30	<i>Lunch</i>	<i>Mensa</i>
13:30 – 14:00	<i>Maximilian Würschmidt</i> : Convergence Rates for a Deep Learning Algorithm for Semilinear PDE's	
14:00 – 14:30	<i>Jens Püttschneider</i> : Turnpikes in Deep Learning	
14:30 – 15:00	<i>Coffee Break</i>	<i>Room E 51</i>
<b>15:00 – 16:00</b>	<b>Invited Presentation: <i>Enrique Zuazua</i> “Control and Machine Learning”</b>	
17:00	<i>Guided City Tour</i> <i>Meet at Tourist Info, Porta Nigra</i>	

19:00

*Wine tasting followed by Conference Dinner  
„Wirtshaus zur Glocke“ in Trier*

**Friday: 22 July 2022**

8:30 – 9:00	<i>Konstantin Riedl: Consensus-Based Optimization: Theory and Application</i>
9:00 – 9:30	<i>Ayush Tiwari: Data Science and Optimization in Scale: A study of changing landscape</i>
9:30 – 10:00	<i>Moritz Link: Multiobjective Optimization of Decentralized Energy Supply Networks</i>
10:00 – 10:30	<i>Coffee Break</i> <span style="float: right;"><i>Room E 51</i></span>
10:30 – 11:00	<i>Alfio Borzi: The Sequential Quadratic Hamiltonian Algorithm in Action: PDE Optimal Control and Inverse Problems</i>
11:00 – 11:30	<i>Jan Bartsch: A Stochastic Gradient Approach for the Calibration of Stochastic Nonlinear Bath Models</i>
11:30 - 13:30	<i>Lunch</i> <span style="float: right;"><i>Mensa</i></span>
13.30 – 14:30	<b>Invited Presentation: <i>Suvrit Sra</i></b> <b>“Some Surprising Gaps between Optimization Theory and Practice in Machine Learning“</b>
14:30 – 15:00	Closing Comments