Cluster of Excellence
Machine Learning:
New Perspectives for Science

www.ml-in-science.uni-tuebingen.de

Machine Learning in Science

Virtual Cluster Conference on July 12 and July 13, 2021

The conference will take place virtually on Zoom.

Registration is required, separate for each day.

Monday, July 12 | 2:00 pm – 6:00 pm | **Registration Link**
followed by an online theater at 7:30 pm

Tuesday, July 13 | 2:00 pm – 6:00 pm | **Registration Link**

The **theater** on Monday evening is open to the public, further information here. The play will be performed in English and will be streamed live on Youtube. Afterwards, there will be a discussion with the actors and some researchers from our cluster. **Registration is not required.**

Links:

For the play: https://tinyurl.com/SiliconWoman

For the discussion afterwards on Zoom: https://zoom.us/j/91670801978

PROGRAM

All times are given in CEST, Central European Summer Time.

Monday, July 12, 2021

14:00 – 14:15	**Ulrike von Luxburg, Philipp Berens** Speakers of the Cluster of Excellence "Machine Learning", University of Tübingen ***Opening Remarks***
14:15 – 14:45	**Robert Bamler** Department of Computer Science and Cluster of Excellence "Machine Learning", University of Tübingen ***Maintaining Individual Agency in the Age of Big Data: Baby Steps***
14:45 – 15:15	**Caterina De Bacco** Max Planck Institute for Intelligent Systems (MPI-IS), Tübingen ***Learning Reciprocity and Community Patterns in Networks***
15:15 – 15:30	*Break*
15:30 – 16:00	**Konstantin Genin** Department of Computer Science and Cluster of Excellence "Machine Learning", University of Tübingen ***Clinical Equipoise and Causal Discovery***
16:00 – 16:45	*Spotlight Presentations* *Innovation Fund Projects of the Cluster of Excellence "Machine Learning"*
	16:00 – 16:10 **David Künstle** ***Machine Learning Approaches for Psychophysics with Ordinal Comparisons***
	16:10 – 16:20 **Thomas Gläßle / Kerstin Rau** ***Interpretable Spatial Machine Learning for Environmental Modelling***
	16:20 – 16:30 **Daniel Weber** ***Human-Robot Interface with Eye-Tracking***
	16:30 – 16:40 **Valentyn Boreiko** ***Counterfactual Explanations of Decisions of Deep Neural Networks with Applications in Medical Diagnostics***
16:45 – 17:00	*Break*
17:00 – 17:30	*Spotlight Presentations* *Innovation Fund Projects of the Cluster of Excellence "Machine Learning"*
	17:00 – 17:10 **Susanne Zabel** ***Visualizing Uncertainty from Data, Model and Algorithm in Large-Scale Omics Data***

	17:10 – 17:20 **Lukas Fischer / Michael Nagel** ***Modelling Behavioral Responses to Emotional Cues in Sports - A Bayesian Approach***
	17:20 – 17:30 **Francesco Carnazza** ***Understanding Quantum Effects in Neural Network Models through ML***
17:30 – 18:00	**Manfred Claassen** Clinical bioinformatics & Machine learning in translational single-cell biology, Universitätsklinikum Tübingen ***(Weakly) Supervised Learning of Disease Associated Cell States and Dynamics***
18:00 – 19:30	*Break*
19:30 – 20:15	**Theater** ***Silicon Woman – the Singing Cyborg***

Tuesday, July 13, 2021

14:00 – 14:50	Keynote Lecture **Neil Lawrence** The DeepMind Professor of Machine Learning, University of Cambridge ***Machine Learning and the Physical World***
14:50 – 15:20	**Samira Samadi** Max Planck Institute for Intelligent Systems (MPI-IS), Tübingen ***Socially Fair k-Means Clustering***
15:20 – 15:30	*Break*
15:30 – 16:30	*Spotlight Presentations* *Innovation Fund Projects of the Cluster of Excellence "Machine Learning"*
	15:30 – 15:40 **Matthias Karlbauer** ***Short-to-Mid Scale Weather Forecasting with a Distributed, Recurrent CNN***
	15:40 – 15:50 **Pablo Sanchez Martin** ***Extracting Expertise from Tweets: Exploring the Boundary Conditions of Ambient Awareness***

	15:50 – 16:00 **Zohreh Ghaderi / Hassan Shahmohammadi** ***Enhancing Machine Learning of Lexical Semantics with Image Mining***
	16:00 – 16:10 **Jonathan Fuhr** ***Applied Causal Inference in Social Sciences and Medicine***
	16:10 – 16:20 **Jonas Ditz** ***Extending Deep Kernel Approaches for Better Prediction and Understanding of ADME Phenotypes and Related Drug Response***
	16:20 – 16:30 **Alessandro Simon** ***Analytic Classical Density Functionals from an Equation Learning Network***
16:30 – 16:45	*Break*
16:45 – 17:15	**Peter Ochs** Department of Mathematics, University of Tübingen ***Optimization for Machine Learning***
17:15 – 17:45	**Enkelejda Kasneci** Department of Computer Science and Cluster of Excellence “Machine Learning”, University of Tübingen ***Learning from Human Experts: Machine Learning for Perceptual User***
17:45 – 18:00	**Ulrike von Luxburg, Philipp Berens** Speakers of the Cluster of Excellence “Machine Learning”, University of Tübingen ***Closing Remarks***