



Machine Learning in Science

7th Annual Conference 2025

VENUE – Neckawa (Wöhrdstraße 25, 72072 Tübingen)

Poster Session

WEDNESDAY, September 30, 2025 (4:00 to ~6:30 pm)

	Individual Cluster Projects & Research Groups	
1.	Karolin Frohnappfel , Robi Bhattacharjee, Ulrike von Luxburg	How to safely discard features based on aggregate SHAP values
2.	Gege Gao , Andreas Geiger, Bernhard Schölkopf	Object-Centric Image Tokenization
3.	Kyra L. Kadhim , Jonas Beck, Ziwei Huang, Fred Rieke, Thomas Euler, Jakob H. Macke, Michael Deistler, Philipp Berens	Modeling the biophysics of computation in the outer plexiform layer of the mouse retina
4.	Ekaterina Kneschaurek , Ainur Abukaev, Mikhail Romodin, Constantin Völter, Dmitry Lapkin, Alexander Hinderhofer, Vladimir Starostin, Frank Schreiber	Machine Learning for Grazing-Incidence Diffraction (GID): from Raw Data to Crystalline Structure
5.	Sofía Rodríguez-Vidal , Igor Lesanovsky	Quantum Walks on quantum simulators
6.	Siying Xu , Kerstin Hammernik, Daniel Rückert, Sergios Gatidis, Thomas Küstner	Towards a Unified Theoretical Framework for Self-Supervised MRI Reconstruction
7.	Jana Zeller , Thaddäus Wiedemer, Prasanna Mayilvahanan, Wieland Brendel	Reasoning with Visual Rollouts
8.	Caroline Helmus Lehrstuhl für Fundamentaltheologie, Katholisch-Theologische Fakultät	Conscious, embodied, emotional?! AI as a challenge for theological anthropology - Project outline

9.	Florian Kofler , I. Ezhov, F. Isensee, F. Balsiger, C. Berger, M. Koerner, B. Demiray, J. Rackerseder, J. Paetzold, H. Li, S. Shit, R. McKinley, M. Piraud, S. Bakas, C. Zimmer, N. Navab, J. Kirschke, B. Wiestler, B. Menze Hertie Institute for AI in Brain Health	Are We Using Appropriate Segmentation Metrics?
	AIMS Fellows	
10.	Duaa Alshareif , Michael Franke	tbd
11.	Ignatius Boadi , Kerstin Ritter	Longitudinal brain imaging in at risk relatives of SPG4 Patients
12.	Claire Olivie Dongmo , Nicole Ludwig	Impact of extreme weather events on solar energy production
	Cluster Network Projects	
	Modeling and Understanding Spatiotemporal Environmental Interactions (MUSTEIN)	
13.	Florian Ebmeier , Nicole Ludwig, Jannik Thuemmel, Georg Martius, Volker H. Franz	Fault Detection in Solar Thermal Systems using Probabilistic Reconstructions
14.	Jannik Thuemmel , Jakob Schloer, Florian Ebmeier, Nicole Ludwig, Bedartha Goswami	Prior knowledge in deep learning models for weather prediction
15.	Manuel Traub , Martin V. Butz	Rethinking Vision Transformers for Object-Centric Learning
	Medical Imaging	
16.	Jaivardhan Kapoor , Jakob H. Macke, Christian F. Baumgartner	MRExtrap: Longitudinal Aging of Brain MRIs using Linear Modeling in Latent Space

17.	Jan Nikolas Morshuis , Christian Schlarmann, Thomas Küstner, Christian Baumgartner, Matthias Hein	Mind the Detail: Uncovering Clinically Relevant Image Details in Accelerated MRI with Semantically Diverse Reconstructions
	Probabilistic Inference in Mechanistic Models (PIMMs)	
18.	Jonas Beck , Philipp Berens	Hybrid models of Hodgkin Huxley dynamics
19.	Sebastian Bischoff , Pavlin G. Poličar, Soham Mukherjee, Jakob H. Macke, Manfred Claassen, Cornelius Schröder	velotest: Hypothesis Testing for RNA Velocity Visualisations
20.	Guy Moss , Leah Sophie Muhle, Reinhard Drews, Jakob H. Macke, Cornelius Schröder	FNOPE: Simulation-based inference on function spaces with Fourier Neural Operators
21.	Jonathan Schmidt , Luca Schmidt, Felix M. Strnad, Nicole Ludwig, Philipp Hennig	A Generative Framework for Probabilistic, Spatiotemporally Coherent Downscaling of Climate Simulation
	Machine Learning in Education	
22.	Hanqi Zhou , David G. Nagy, Peter Dayan, Charley M. Wu	The Right Chord Between Reuse and Improvisation: Melody Learning as Resource-Rational Program Induction
	Science Communication	
23.	Auguste Schulz	KI macht Schule
24.	Rhet AI	The Future of AI and Science Communication. Insights and Perspectives from the Rhet AI Center
25.	Rhet AI	What's my SciComm Format?
26.	ML Cluster	Science Communication in the Cluster of Excellence "Machine Learning": How you can get involved
27.	Feedback Board	What are your ideas for future outreach activities?