

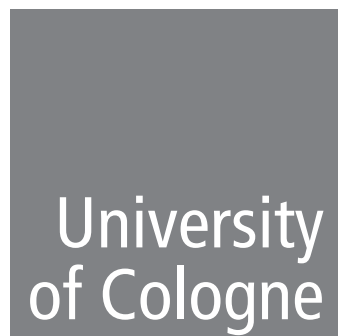


GAMM Workshop

Computational and Mathematical
Methods in Data Science



May 4–5, 2023
Center for Data and Simulation Science
University of Cologne
Cologne, Germany



Thursday – May 4		Chair
12:00 – 12:20	Registration & Opening	
12:20 – 13:15	Alexander Heinlein: Neural networks with physical constraints — Domain decomposition-based network architectures, and model order reduction	A. Klawonn
13:15 – 13:35	<i>20 Minute Break</i>	
13:35 – 14:00	Claudia Drygala: Learning from Chaos	A. Heinlein
14:00 – 14:25	Renzhi Tian: Data-driven turbulence modelling using Gene Expression Programming	A. Heinlein
14:25 – 14:55	<i>30 Minute Break</i>	
14:55 – 15:50	Karen Veroy-Grepl: Model Order Reduction in the Multi-Scale Materials Setting	S. Peitz
15:50 – 15:55	<i>5 Minute Break</i>	
15:55 – 16:20	Janine Weber: A Domain Decomposition-Based CNN-DNN Architecture for Model Parallel Training Applied to Image Recognition Problems	M. Stoll
16:20 – 16:45	Kira Maag: Out-of-Distribution Segmentation via Pixel-wise Gradient Uncertainty	M. Stoll
16:45 – 17:00	<i>15 Minute Break</i>	
17:00 – 17:25	Reyhaneh Abbasi: An improved detection and classification method for mouse ultrasonic vocalizations	A. Klawonn
17:25 – 17:50	Martin Stoll: Efficient linear algebra for training Gaussian processes	A. Klawonn
17:50 – 18:15	Darlington S. David: Breast Cancer Prediction using Machine Learning Algorithms — A Deep Learning Approach (<i>cancelled</i>)	A. Klawonn
18:15 – 18:30	Meeting of the GAMM Activity Group “Computational and Mathematical Methods in Data Science”	
19:30	<i>Dinner (Brauerei Püffgen)</i>	

Friday – May 5		Chair
09:00 – 09:55	Aleksandar Bojchevski: Machine Learning with Guarantees	H. Gottschalk
09:55 – 10:00	<i>5 Minute Break</i>	
10:00 – 10:25	Pierre-François Massiani: Safe Value Functions	A. Bojchevski
10:25 – 10:50	Hanno Gottschalk: LU-Net: Invertible Neural Networks Based on Matrix Factorization	A. Bojchevski
10:50 – 11:10	<i>20 Minute Break</i>	
11:10 – 11:35	Christian Staerk: Adaptive sampling and variable selection strategies for high-dimensional genetic data	M. Lanser
11:35 – 12:00	Paolo Climaco: Investigating the effects of minimising the training set fill distance in machine learning regression	M. Lanser
12:00 – 12:05	<i>5 Minute Break</i>	
12:05 – 13:00	Sebastian Peitz: Sample efficiency in data-driven Model Predictive Control and Reinforcement Learning	M. Stoll
13:00	<i>Farewell & Light Lunch</i>	