

ML-MOR-CNTRL 19: Workshop on Machine learning and data-driven methods for model reduction and control, October 14–18, 2019

Program

Monday, October 14

Getting together

Time	Occasion
10:00	Coffee & Registration (in the lobby)
12:00	Lunch (meet in the lobby)
14:00	Tour to Jing An temple (meet in the lobby)
18:00	Visit the Shanghai Tower (meet at the metro station Lu Jia Zui (Exit #6) at 17:30)
20:00	Dinner at Jade36

Tuesday, October 15

Machine Learning

Time	Speaker	Title
09:00 – 09:30	Prof. Dr. Xiaotian Zhang (Associate Vice-President of SHU), Minrui Fei (Dean of the School of Mechatronic, Engineering and Automation at SHU), Peter Benner (Director of MPI Magdeburg)	Welcome addresses
09:30		Group picture & coffee break
10:00 – 11:00	Prof. Dr. Bernd Noack TU Berlin	Turbulence control: Better, faster and easier with machine learning
11:00 – 11:30	Dr. Mario Eduardo Villanueva ShanghaiTech	Moment Based Learning
12:00		Lunch
14:00 – 15:00	Prof. Rolf Findeisen OvGU Magdeburg	Learning supported Predictive Control of Autonomous Systems: Guarantees despite Uncertainty
15:00 – 15:30	Assistant Prof. Dr. Xin Liang Tsinghua University	Convergence Analysis of the Oja-Karhunen Algorithm for Principal Component Analysis
15:30		Coffee
16:00	Associate Prof. Dr. Xiaolong Wang Northwestern	Model order reduction of large

Time	Speaker	Title
– 16:30	Polytechnical University	scale time-delay systems in the time domain
16:30 – 17:00	Dr. Anping Tang & Prof. Dr. Guangda Hu Shanghai University	Low-order Controller Design for High-Order Matrix Differential Systems using Optimization Method

Wednesday, October 16

Data-driven Model Reduction

Time	Speaker	Title
09:00 – 10:00	Prof. Dr. Athanasios Antoulas Jacob University Bremen	Data driven model order reduction
15:00 – 15:30	Prof. Dr. Xun-Lin Zhu Zhengzhou University	Detection of abnormal data in TBM shield construction
10:30		Coffee
11:00 – 11:30	Associate Prof. Dr. Zhihua Xiao Yangtze University	Finite-time balanced truncation for linear and second-order systems via shifted Legendre polynomials
11:30 – 12:00	Assistant Prof. Dr. Kai Luo Beijing Institute of Technology	Model order reduction for flexible multibody systems
12:00		Lunch
14:00 – 14:20	Dr. Lanlin Yu & Prof. Junlin Xiong Westlake University & University of Science and Technology of China	Structure preserving model reduction for linear network systems
14:20 – 14:50	Prof. Dr. Lijian Jiang Tongji University	A model reduction for nonlinear multiscale dynamic systems
14:50 – 15:10	Dr. Carmen Gräßle MPI Magdeburg	POD model order reduction with offline adaptive strategies
15:10 – 15:30	Dr. Zhenzhong Qi Northwest University	Structure-preserving of MOR methods based on general orthogonal polynomials
15:30 – 15:50	Dr. Yongjin Zhang Henan Polytechnic University	Model order reduction for parametrized hyperbolic equations
15:50		Coffee
16:10 – 16:40	Prof. Dr. Victor Sreeram University of Western Australia	Finite-frequency power system reduction
16:40 – 17:00	Dr. Pawan Goyal MPI Magdeburg	Identification of Structured Dynamical Systems via Frequency Response Data

Time	Speaker	Title
17:00 – 17:20	Dr. Victor Gosea MPI Magdeburg	Modeling and reduction of systems with structured nonlinearities from measured data
17:20 – 17:40	Assistant Prof. Dr. Qifeng Liao ShanghaiTech University	An adaptive reduced basis ANOVA method for high-dimensional Bayesian inverse problems
17:40 – 18:00	Associate Prof. Dr. Xin Du Shanghai University	Data driven realization and model order reduction for linear fractional order systems
18:00		Dinner

Thursday, October 17

Machine Learning and Control

Time	Speaker	Title
09:00 – 10:00	Prof. Dr. Zhongsheng Hou Qingdao University	PID and Its Puzzles——MFAC and Progress
10:00 – 10:30	Prof. Dr. Peter Benner MPI Magdeburg	Learning control systems from data - anything new here?
10:30		Coffee
11:00 – 11:30	Prof. Dr. Li Jia Shanghai University	The optimization of batch processes
11:30 – 12:00	Dr. Krithika Manohar CalTech	Data-driven sensor-actuator placement and forecasting
12:00		Lunch
14:00 – 15:00	Prof. Dr. Daniel Quevedo University Paderborn	Deep Reinforcement Learning for Networked Estimation and Control
15:00 – 15:30	Prof. Dr. Junmin Wang Beijing Institute of Technology	Dynamic feedback control of infinite-dimensional systems
15:30		Coffee
16:00 – 16:20	Dr. Zheng Wang & Prof. Dr. Guangda Hu Shanghai University	Low-Order Controller Design using Model Order Reduction for Second-Order Systems
16:20 – 16:40	Prof. Dr. Jan Heiland OvGU Magdeburg	Multidimensional Galerkin-POD for Optimal Control of PDEs with Uncertainties
16:40 – 17:00	Dr. Dan Zhang Shanghai University	Dynamic and Kinetic Study for CVI densification of porous structures by the Lattice-Boltzmann Method
17:00 – 17:20	Dr. Qiu Yue ShanghaiTech	Randomized Low-rank Ensemble Kalman Filter for State Estimation of Nonlinear Networks

Friday, October 18

Machine Learning and Optimization

Time	Speaker	Title
08:30 – 09:30	Prof. Dr. Shiliang Sun East China Normal University	Multi-view Machine Learning: Retrospect and Prospect.
9:30 – 10:00	Prof. Karl Worthmann TU Ilmenau	Surrogate models for microgrids for bilevel optimization
10:00		Coffee
10:30 – 11:30	Prof. Dr. Sanaz Mostaghim OVGU Magdeburg	Multi-Objective Evolutionary Algorithms for Large-Scale Complex Optimization Problems
11:30 – 12:00	Ass. Prof. Dr. Boris Houska ShanghaiTech	Distributed Optimization and Control with ALADIN
12:00	Organizers	Closing Remarks
12:15		Lunch