FAU Friedrich-Alexander-Universität
Research Center for
Mathematics of Data | MoD

Sebastian Peitz

UNIVERSITÄT PADERBORN

**Using system knowledge
for improved sample efficiency
in data-driven modeling and control
of complex technical systems**

WED. MAY 15, 2024 • 14:00H

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Using system knowledge for improved sample efficiency in data-driven modeling and control of complex technical systems

Speaker: Prof. Dr. **Sebastian Peitz**
Universität Paderborn

Organizer: FAU MoD, Research Center for Mathematics of Data at
FAU, Friedrich-Alexander-Universität Erlangen-Nürnberg

Modern technical systems such as autonomous vehicles, the electric grid or nuclear fusion reactors are extremely complex, which requires powerful techniques for predicting or controlling their behavior. As in almost all areas of science as well as our daily lives, machine learning has had a huge impact on the area of modeling and control of technical systems in recent years. However, the complexity of these systems renders the learning very data-hungry. The aim of this talk is thus to discuss different approaches to leverage system knowledge – and in particular symmetries – such that we can significantly improve the sample efficiency. Our discussion ranges from learning the dynamics from data to reinforcement learning. We will emphasize the benefits of exploiting knowledge using various examples from fluid mechanics.

WHEN?

Wednesday **May 15, 2024**
14:00H

WHERE?

On-site / Online

Room **H13 – Johann-Radon-Hörsaal**
FAU. Friedrich-Alexander-Universität Erlangen-Nürnberg
Felix-Klein building. Department Mathematik
Cauerstraße 11, 91058 Erlangen (Germany)

Zoom link: https://shorturl.at/evR04
Meeting ID: **624 1094 3213** | PIN code: **694096**

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