Technische Universität Braunschweig

MUSEN

Data-driven Modeling and Simulation of Mechanical Systems

Lecture of

Jun.-Prof. Dr.-Ing. Henning Wessels
Institute for Computational Modeling in Civil Engineering
TU Braunschweig

12. August 2021, 17.00 Uhr

Webex Meeting:

https://bit.ly/musen-kolloquium-wessels
Meeting number: 121 991 1859
Passwort: ViX5nESmK48

In the last decades, modeling and simulation has become indispensable in engineering practice. Despite great success, purely physics-driven approaches are sometimes restricted by the available computational resources, e.g. in multi-scale problems or when subject to (real)-time constraints. Moreover, the parametrization of complex physical models to match experimental results can be tedious.

At the same time, digitization leads to an ever-increasing amount of data. While this data can be interpreted with machine learning algorithms, purely data-driven approaches are often criticized for their lack of interpretability referred to as black-box behavior. This talk addresses recent advances in scientific machine learning, i.e. approaches to incorporate data into engineering models with respect to physical constraints.