Invitation to the talk *Model-driven neural networks: From basics to applications in the calculus of variations* of Prof. Dr. Robert Martin at the GAMM Student Chapter at TU Dortmund University

Place:	Online via Zoom
	Zoom Link: Link
	Meeting ID: 950 0693 7843
	Passcode: 036472

Date:	Tuesday, 19th January 2022
Time:	3:00pm (15:00)

Preliminary agenda

TOP 1: Seminar talk by Prof. Dr. Robert Martin (see abstract below)

TOP 2: Discussion and Questions

Abstract

Model-driven neural networks: From basics to applications in the calculus of variations

Prof. Dr. Robert Martin - University Duisburg Essen

Recently, machine learning techniques have increasingly been used in scientific areas where classical models (such as ODEs, PDEs or variational formulations) would be available, but are considered insufficient by themselves due to high computational complexity, a limited range of applicability or the inability to capture certain effects. Such applications can often benefit from custom adaptations of machine learning methods to the existing classical models. Neural networks are particularly suited for such modifications in a wide variety of cases, reaching from purely computational applications - such as surrogate models or optimization networks - to modifications of data-driven training methods, e.g. with physics-informed or physics-augmented networks.

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1