



Einladung zum Oberseminar Mathematik des Maschinellen Lernens und Angewandte Analysis

Julius-Maximilians-Universität Würzburg
Professur für Mathematik des Maschinellen Lernens

M.Sc. Christoph Smoch

Universität Bonn, Institut für Numerische Simulation

A hybrid minimizing movement and neural network approach to Willmore flow

We present a hybrid method combining a minimizing movement scheme with neural operators for the simulation of phase-field-based Willmore flow. The minimizing movement component is based on a standard optimization problem on a regular grid whereas the functional to be minimized involves a neural approximation of mean curvature flow proposed by Bretin et al. Numerical experiments confirm stability for large time step sizes, consistency and significantly reduced computational cost compared to a traditional finite element method. Moreover, applications demonstrate its effectiveness in surface fairing and reconstructing of damaged shapes. Thus, the approach offers a robust and efficient tool for geometry processing.

Ort: Mathematik Ost, Seminarraum 40.01.003

Zeit: Mittwoch, 14.05.2025 14:15

Zu diesem Vortrag laden wir Sie herzlich ein.

gez. Leon Bungert