Universität
Konstanz

Fachbereich Mathematik und Statistik

Prof. Dr. S. Volkwein und JunProf. Dr. G. Ciaramella

Wir laden recht herzlich zu einem Vortrag im Rahmen des

Oberseminars Numerische Optimierung

ein:

Prof. Dr. Karl Kunisch

(Universität Graz)

Semiglobal optimal Feedback stabilization of autonomous systems via deep neural network approximation

Dienstag, 12. Januar 2021

Beginn: **16:00 Uhr**
Raum: **BigBlueButton Room: https://bbb.uni-konstanz.de/b/gab-nez-v4u**
Interessenten sind herzlich willkommen!

S. Volkwein

Abstract:
    A learning approach for optimal feedback gains for nonlinear continuous time control systems is proposed and analysed. The goal is to establish a rigorous framework for computing approximating optimal feedback gains using neural networks. The approach rests on two main ingredients. First, an optimal control formulation involving an ensemble of trajectories with 'control' variables given by the feedback gain functions. Second, an approximation to the feedback functions via realizations of neural networks. Based on universal approximation properties we prove the existence and convergence of optimal stabilizing neural network feedback controllers. The talk is based on joint work with Daniel Walter.

(eingeladen von Prof. Dr. Stefan Volkwein)