



Einladung zum Oberseminar Mathematik des Maschinellen Lernens und Angewandte Analysis

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

Prof. Dr. Ryan Murray

North Carolina State University, USA

Robust Learning Algorithms, Data Depths, and Hamilton-Jacobi Equations

Learning algorithms have achieved significant advances in recent years, but their robustness and reliability remains problematic. Many mathematical approaches have been proposed for mitigating this issue: the first aim of this talk will be to give an overview of different means used to achieve this goal, described in the language of classical variational problems. The second part of this talk will turn towards a particular approach, stemming from classical statistical theory, which seeks to generalize quantiles and medians to higher dimension: these are known as data depths. Recent work, in collaboration with Martin Molina-Fructuoso, connects certain types of data depths (specifically Tukey/Halfspace depths) with Hamilton-Jacobi equations, a first-order partial differential equation that is fundamental to control theory. We'll discuss various numerical algorithms stemming from this work which enable computation of depth functions in high dimensions, which was previously not feasible. This talk will aim to be accessible to a broad audience in applied math, and will not assume any particular expertise in statistics or partial differential equations.

Ort: Mathematik Ost, Seminarraum 40.01.003

Zeit: Donnerstag, 01.08.2024 10:00

Zu diesem Vortrag laden wir Sie herzlich ein.

gez. Leon Bungert