



Einladung zum Oberseminar Mathematik des Maschinellen Lernens und Angewandte Analysis

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Robust Bayesian Optimization with an Application to Material Science

In many applications, optimization models are affected by uncertainties, and optimization under uncertainty is an actively studied research area. In order to maintain quality guarantees, often a robust protection is sought. In this talk, we consider grey-box optimization problems. We propose a novel framework for robust minimax Bayesian optimization of uncertain black-box functions by utilizing online optimization. While Bayesian optimization is well-suited for data-efficient optimization of expensive objectives, its standard form can be sensitive to hidden or varying parameters. To address this issue, we consider a min–max robust counterpart of the optimization problem and develop a practically efficient solution algorithm based on a decomposition approach. The method ensures asymptotic convergence to robust solutions. Furthermore, we successfully apply our method to the robust optimization of organic solar cell performance.

This is joint work with Sebastian Denzler, Kevin Aigner, Larry Lüer, and Christoph Brabec.

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Zu diesem Vortrag laden wir Sie herzlich ein.

gez. Leon Bungert