

Long talk: Kernel based sensitivity analysis for set-valued models (Chair Andrés Felipe Lopez Lopera))

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The goal of this work is to use goal-directed sensitivity analysis in order to reduce the cost of solving a robust optimization problem. Specifically, we focus on quantifying the impact of uncertain inputs on feasible sets, which are subsets of the design domain. While most sensitivity analysis methods deal with scalar outputs, we introduce a novel approach for performing sensitivity analysis with setvalued outputs. We propose a kernel designed for set-valued outputs and use the Hilbert-Schmidt Independence Criterion (HSIC) . The proposed methodology is implemented to carry out an uncertainty analysis for time-averaged concentration maps of pollutants using a Gaussian Process Regression as an emulator.

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