

MICHIGAN STATE UNIVERSITY
Department of Statistics and Probability

COLLOQUIUM

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Scaling Up Multi-Objective Bayesian Optimization

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Zoom

Abstract

Bayesian optimization (BO) aims at efficiently optimizing expensive black-box functions, such as hyperparameter tuning problems in machine learning. Frequently, there is more than one objective to consider, in which case Pareto dominance is used to identify the set of optimal compromises between objectives. This task becomes increasingly complex as the number of design variables and objectives increases. In this talk we first introduce multi-objective Bayesian optimization with Gaussian processes. Then we discuss ideas to tackle a moderate to high number of variables. Finally we introduce the Kalai-Smorodinski solution, originating from game theory, to handle more than just a few objectives and describe its computation in practice. Illustrations are provided throughout on several examples.

Zoom details can be found at: <https://stt.natsci.msu.edu/stt-colloquium-zoom-info/>

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