Type: Minisymposium Contribution

Quasi-Monte Carlo methods for Bayesian optimal experimental design

Tuesday, August 13, 2024 5:00 PM (30 minutes)

Bayesian optimal experimental design (OED) seeks to maximize the expected information gain for the reconstruction of unknown quantities in an experiment by optimizing the placement of measurements. The objective function in the resulting optimization problem contains a high-dimensional integral with respect to the posterior distribution. We will approximate these high-dimensional integrals using tailored quasi-Monte Carlo methods to reduce the computational burden associated with Bayesian OED problems governed by partial differential equations. Numerical experiments showcase the theoretical results.

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