

Efficient nested integration estimators for optimal experimental design

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

Measuring the expected information gain (EIG) of an experiment allows for comprehensive design optimization. Efficiently estimating the EIG is crucial when data are scarce or costly to obtain. We propose several estimators combining the randomized quasi-Monte Carlo method with Laplace-based importance sampling, and showcase their efficiency both theoretically and via numerical examples.

Author: BARTUSKA, Arved

Co-authors: Dr CARLON, André (Computer, Electrical and Mathematical Sciences and Engineering, KAUST); ES-PATH, Luis (Faculty of Science, University of Nottingham, United Kingdom); TEMPONE, Raúl (Computer, Electrical and Mathematical Sciences and Engineering, KAUST, and Alexander von Humboldt professor in Mathematics of Uncertainty Quantification, RWTH Aachen University); KRUMSCHEID, Sebastian (Steinbuch Center for Computing and Institute for Applied and Numerical Mathematics, Karlsruhe Institute of Technology)

Presenter: BARTUSKA, Arved

Session Classification: MS 04: Correlation-based passive imaging and optimal experimental design

Track Classification: Minisymposia: MS 04: Correlation-based passive imaging and optimal experimental design