2012 SIAM Conference on Uncertainty Quantification

Part of MS13 UQ for Model Calibration, Validation and Predictions - Part I of II
Sparse Bayesian Techniques for Surrogate Creation and Uncertainty Quantification

Abstract. We develop a multi-output, Bayesian, generalized linear regression model with arbitrary basis functions. The model automatically excludes redundant basis functions while providing access to the full Bayesian predictive distribution of the statistics. By employing a sequentially built tree structure, we are able to demonstrate that it is capable of identifying discontinuities in the response surface. We demonstrate our claims numerically using various basis functions that vary from localized kernels to numerically build Generalized Polynomial Chaos basis.

Authors

• Nicholas Zabaras, Cornell University, USA, zabaras@cornell.edu
• Ilias Bilionis, Cornell University, USA, ib227@cornell.edu

SIAM Conference Participation System
Corrections or problems using this system? Email wilden@siam.org.
Bug reports to duggan@siam.org.