

Building Surrogates of Very Expensive Computer Codes: Applications to Uncertainty Quantification

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To account for the epistemic uncertainty induced by the finite number of evaluations of a computer code, we define a probability measure over the space of possible surrogates. Each sample from this measure is a candidate surrogate for the code. By quantifying the informational content of the input space, we devise active learning schemes that are able to enhance the quality of the surrogate for particular tasks. Non-stationary (localized features, discontinuities) can be captured by employing binary tree models.