國 立 中 央 大 學

統 計 研 究 所

學 術 演 講

主 講 人：陳瑞彬教授（國立成功大學統計學系）

講　　題：**Global Optimization of Expensive Functions Using Adaptive RBF-Based Surrogate Model Via Uncertainty Quantification**

時　　間：**108年9月17日（星期二）上午11：00 ～ 12：00**

地　　點：中央大學鴻經館**M429**室

茶　　會：**上午 10：30 ～ 11：00**　　地　點：鴻經館 **510** 室

ABSTRACT

Global optimization of expensive functions has important applications in physical and computer experiments. It is a challenging problem to develop efficient optimization scheme, because each function evaluation can be costly and the derivative information of the function is often not available. We propose a novel global optimization framework using adaptive Radial Basis Functions (RBF) based surrogate model via uncertainty quantification. The framework consists of two iteration steps. It first employs an RBF-based Bayesian surrogate model to approximate the true function, where the parameters of the RBFs can be adaptively estimated and updated each time a new point is explored. Then it utilizes a model-guided selection criterion to identify a new point from a candidate set for function evaluation. The selection criterion adopted here is a sample version of the expected improvement (EI) criterion. We conduct simulation studies with standard test functions, which show that the proposed method is more efficient and stable in searching the global optimizer than two existing methods.

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