

國立中央大學

統計研究所

學術演講

主講人：洪瑛教授 (Department of Statistics, Rutgers University, USA)

講題：A Sequential Split-Conquer-Combine Approach for Gaussian Process Modeling in Computer Experiments

時間：105年12月27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

Gaussian process (GP) models are widely used in the analysis of computer experiments. However, two critical issues remain unresolved. One is the computational issue in GP estimation and prediction and the other is how to improve the naive plug-in predictive distribution which is known to underestimate the uncertainty. In this article, we introduce an unified framework that can tackle both issues simultaneously. It consists of a sequential split-conquer (SSC) procedure, an information combining technique using confidence distributions (CDs), and a CD-based predictive distribution. This framework provides an estimate and a predictor that dramatically reduces the computation and achieves the same asymptotic efficiency as the conventional method. It is also shown that the CD-based predictive distribution provides better quantification of the prediction uncertainty compared with the plug-in predictive distribution. Simulations are conducted to evaluate the finite sample performance. The proposed method is illustrated by a real example based on tens of thousands of computer experiments generated from a simulator.

◎敬請張貼

歡迎參加◎