Seminar

Title：Functional-Input Gaussian Processes with Applications to Inverse Scattering Problems

Speaker：Prof. Ying Hung（ 洪瑛教授 ）

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Time：10:30 AM~12:00 PM, Monday, Aug 8, 2022

Place：Auditorium, B1F, Institute of Statistical Science

Abstract

Surrogate modeling based on Gaussian processes (GPs) has received increasing attention in the analysis of complex problems in science and engineering. Despite extensive studies on GP modeling, the developments for functional inputs are scarce. Motivated by an inverse scattering problem in which functional inputs representing the support and material properties of the scatterer are involved in the partial differential equations, a new class of kernel functions for functional inputs is introduced for GPs. Based on the proposed GP models, the asymptotic convergence properties of the resulting mean squared prediction errors are derived and the finite sample performance is demonstrated by numerical examples. In the application to inverse scattering, a surrogate model is constructed with functional inputs, which is crucial to recover the reflective index of an inhomogeneous isotropic scattering region of interest for a given far-field pattern.

※ **Online live streaming through Cisco Webex will be available.**

※ **The tea reception will be held at 10:10.**