中央研究院統計科學研究所
學 術 演 講

講 題：When Finance Meets AI

演 講 人：Prof. Yi-Shian Dong（董奕賢 助理教授）
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時 間：2025-06-18（Wed.）10:30-12:00

地 點：Auditorium, B1F, Institute of Statistical Science；The tea reception will be held at 10:10.

備 註：Online live streaming through Microsoft Teams will be available.

Abstract

Determination of the decision variables such as the inspection period, number of measurements, and sample size is crucial for planning an efficient degradation test. For widely used stochastic processes, the necessary and sufficient conditions for the explicit expression of optimal decision variables can be derived by minimizing the approximate variance of an estimator of interest under a limited budget. The importance of the decision variable is proposed to study the rate at which the objective function improves with the decision variable. The necessary and sufficient conditions for determining the importance of the optimal decision variables are theoretically investigated to elucidate the effect of the experimental costs and model parameters. Furthermore, the relative rankings of the importance of the optimal decision variables are illustrated through numerical examples.

This work cooperated with Chien-Yu Peng (Academia Sinica).

Keywords: constrained optimization; interaction; sensitivity analysis; step-stress accelerated degradation test; Tweedie process.