Orientation Seminar

Title：Statistical analysis of greedy algorithms: Unit-root time series and distributed multi-task learning

Speaker：Mr. Shuo-Chieh Huang

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Time：10:30 ~ 12:00, Wednesday, January 3, 2024

Place：Auditorium, B1F, Institute of Statistical Science

Abstract

In this talk, I will demonstrate the usefulness of greedy algorithms both in highly persistent time series and in big, distributed computing architecture. First, we propose a greedy-based algorithm, FHTD, for consistent variable selection of the high-dimensional unit-root ARX model, in which a fully general but unknown unit-root structure is allowed. Second, for estimating a multi-task linear regression with feature-distributed (or vertically partitioned) data, we employ the two-stage relaxed greedy algorithm (TSRGA). Because of its low communication complexity, which does not scale with the ambient dimension, TSRGA is computationally attractive in this setup. In both cases, the key theoretical ingredient is to characterize the rate of convergence along the iteration path. Finally, the methods are shown to outperform commonly-used benchmarks when applied to real-world economic data.

※ Tea reception starts at 10：10.

※ The seminar is exclusively in-person.