

LTCC Advanced Course

Title: Selective Inference

Basic Details:

- Core Audience: 2nd/3rd year, Statistics.
- Course Format: Extended, 5 x 2hr lectures

Course Description:

- Keywords: Variable selection; inference; regression; data splitting; randomisation.
- Syllabus: This course provides an overview of the main approaches to statistical inference after variable selection. The lectures will be structured as follows:
 1. Problem introduction: motivation; definition of appropriate inferential targets post selection; unconditional vs. conditional inferential guarantees.
 2. The PoSI framework.
 3. The conditional approach.
 4. Information splitting methods: data splitting and randomisation.
 5. Further topics in selective inference: Bayes and selection, variable selection with error control.
- Recommended reading:

Kuchibhotla, Arun K., Kolassa, John E., and Kuffner, Todd A. (2022). Post-selection Inference. *Annual Review of Statistics and Its Application* 9(1), 505-527.
- Prerequisites: Fundamentals of probability and statistical inference.

Format:

- No of discussion/problem sheets: 2
- Electronic lecture notes (these are strongly encouraged, as they will form the core of the individual study of the students): Yes

Lecturer Details:

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