THE UNIVERSITY OF CHICAGO | DEPARTMENT OF STATISTICS

Statistics Colloquium

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"Conditional calibration: controlling FDR under dependence, uniformly improving knockoffs, and estimating model selection FDR"

Monday, November 14, 2022, at 4:30 PM
Jones 303, 5747 S. Ellis Avenue
Refreshments before the seminar at 4:00 PM in Jones 304.

Abstract

Conditional calibration is an approach to controlling the false discovery rate (FDR) under fully or partially known dependence, by separately calibrating a data-dependent rejection rule for each hypothesis. I will discuss the approach in general and describe three concrete applications: (1) the dependence-adjusted Benjamini-Hochberg (dBH) procedure, which uniformly dominates the BH procedure under positive regression dependence and provably controls FDR under general dependence, (2) a calibrated knockoff procedure that uniformly dominates knockoffs, yielding especially large power and stability gains in contexts where knockoff methods underperform, and (3) a conservatively biased estimator for the FDR of a generic model selection algorithm such as the lasso, graphical lasso, or forward stepwise regression. This talk is based on joint work with Lihua Lei and Yixiang Luo.

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