THE UNIVERSITY OF CHICAGO | DEPARTMENT OF STATISTICS

PhD Dissertation Presentation

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"Testing on the Edge"

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Jones 303, 5747 S. Ellis Avenue

Abstract

In this presentation, we formulate local false discovery rates (Efron et. al. 2001) for non-exchangeable test statistics, building on definitions by Yekutieli and Weinstein (2019, 2021). A calibration interpretation is developed, which relates directly to the frequentist model under consideration (as opposed to an imagined Bayesian model). An error criterion for multiple testing is defined, called the boundary false discovery rate (bFDR), which describes the rate of false discoveries near the rejection threshold and is a local analogue to the highly influential FDR concept of Benjamini and Hochberg (1995). We discuss bFDR control in finite-samples and asymptotically under relaxed null assumptions. In the last part of the talk, we specialize to the convolutional model and discuss signal identification under the main assumption of sparsity.