

MASTER'S THESIS PRESENTATION

Efficient Conditional Permutation Test via Grouping and Weighting

WHEN

July 20, 2022

1:00 PM

WHERE

Zoom Meeting

For ZOOM presentations, details will be provided in an email announcement for this seminar.

**Yang Liu, MS candidate**

The conditional permutation test (CPT) is a general method for testing the conditional independence of a response variable Y and a covariate X given a potentially high-dimensional random vector Z . Entries of X are permuted non-uniformly to account for the dependence of X on Z . However, implementation of CPT is challenging and usually relies on a Markov Chain Monte Carlo sampler. In this work, we propose an Importance-Sampling based version of CPT, where we permute X within groups and define a weighted p-value. Theoretical analysis shows that our proposed test controls the Type I error rate and is robust to model misspecification. We show in simulations that the new test is computationally more efficient than the original CPT while maintaining comparable power.

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