



Causal Inference Program Opening Workshop December 9-11, 2019

SPEAKER TITLES/ABSTRACTS

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“Fisher Randomization Test: A Confidence Distribution Perspective and Applications to Large Experiments”

Fisher randomization tests (FRT) are flexible tools because they are a model free, permit assessment of causal effects of interventions on ANY type of response for ANY assignment mechanism using ANY test statistic. The tremendous development of computing resources has recently sparked a huge interest in using FRT to test complex causal hypotheses that can arise from massive studies. In spite of its wide applicability and recent surge of interest, several aspects of the theoretical properties of randomization tests still remain unclear, somewhat limiting its applicability. This research provides a theoretical inferential framework for FRT by combining two fundamental ideas: potential outcomes and confidence distributions. It also demonstrates how such a connection can be exploited to combine causal inference from multiple experiments with different structures and complexities and also to “divide and conquer” randomization-based inference arising from large experiments. (Based on joint work with Minge Xie, Xiaokang Luo, and Regina Liu.)