



Causal Inference Program Opening Workshop December 9-11, 2019

SPEAKER TITLES/ABSTRACTS

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“Causal Inference under Approximate Neighborhood Interference”

This paper studies causal inference in randomized experiments with network interference. To reduce the dimensionality of the problem, most of the existing literature assumes that the treatment assigned to alters only affect the ego's response through a low-dimensional exposure mapping. We instead study models satisfying a substantially weaker approximate neighborhood interference assumption in which the dependence of the ego's response on treatments assigned to alters outside of the ego's K -neighborhood is increasingly negligible as K grows. We show that this assumption is satisfied for well-known models of social interactions, in contrast to the exposure mapping approach. We then prove that standard Horovitz-Thompson estimators used in the literature consistently estimate causal effects and are asymptotically normal under restrictions on the network topology. For practical inference, we show that an estimator based on a wild bootstrap conservatively estimates the variance. Finally, we illustrate our results in a simulation study and empirical application.