MICHIGAN STATE UNIVERSITY
Department of Statistics and Probability

COLLOQUIUM

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Causal Spatial Analysis in the Presence of Unmeasured Confounders

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10:20 AM - 11:10 AM
Refreshments 10:00 AM
C405 Wells Hall

Abstract

Adjusting for an unmeasured confounder is generally an intractable problem, but in the spatial setting it may be possible under certain conditions. We begin by formalizing spatial regression using counterfactual outcomes and derive necessary conditions on the coherence between the covariate of interest and the unmeasured confounders that ensure the causal effect of the covariate is estimable. We propose a sequence of confounder adjustment methods that range from parametric adjustments based on the Matern coherence function to more robust semiparametric methods that use smoothing splines. These ideas are applied to areal and geostatistical data for both simulated and real datasets.

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