

Sensitivity Analysis for Observational Studies

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ABSTRACT

Sensitivity analysis is widely recognized as a critical step in an observational study but is seldom found in applications. One reason for its underuse is the various forms of model, inference, and interpretation in divergent literatures. This talk aims to provide a unified overview of sensitivity analysis for observational studies and clarify some important concepts. We will first define sensitivity models as a parametric family of distributions on the full data involving counterfactual variables and use observational equivalence (same induced distribution on the observed data) to classify sensitivity models. We will then review three principled ways to augment statistical models for sensitivity analysis and two notions of statistical inference---point identification and partial identification. Although point identified sensitivity analysis usually amounts to just treating the sensitivity parameter as an offset in the primary analysis, partially identified problems are substantially more challenging because the inference needs to be simultaneous for a range of sensitivity parameters. We will describe several methods to handle partial identification in increasing generality. Finally, we will discuss how one can improve the interpretability of sensitivity analysis. (This talk is based on joint work with Bo Zhang, Ting Ye, Dylan Small, and Joseph Hogan.)

12:00 Noon Eastern Time, Tuesday, September 8, 2020

Join us by zoom:

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Meeting ID: 924 2187 3334 - Password: 471602

or Telephone: 203-432-9666 (2-ZOOM if on-campus) or 646 568 7788

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