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Olmsted Hall 420
October 16th 2018
3:45-4:45pm
Reception in Olmsted 1331 at 3:15 P.M.

“ESTIMATING MANN-WHITNEY-TYPE CAUSAL EFFECTS”

FOR MORE INFORMATION ABOUT THIS SEMINAR, VISIT STATISTICS.UCR.EDU/COLLOQUIA.HTML
Abstract

Mann-Whitney-type causal effects are generally applicable to outcome variables with a natural ordering, have been recommended for clinical trials because of their clinical relevance and interpretability, and are particularly useful in analyzing an ordinal composite outcome that combines an original primary outcome with death and possibly treatment discontinuation. This talk is concerned with robust and efficient estimation of such causal effects in randomized and observational studies. For randomized studies, where an empirical estimator is readily available, we consider augmented estimators that are consistent, asymptotically normal, and locally efficient in the sense of attaining the nonparametric information bound when a working model is correctly specified. For observational studies, we propose and compare several estimators: regression estimators based on an outcome regression model or a generalized probabilistic index model, an inverse probability weighted estimator based on a propensity score model, as well as doubly robust, locally efficient estimators. We also extend these methods and results to survival outcomes subject to right censoring. The methods are compared in simulation experiments and illustrated with real applications.

Biography

Dr. Zhiwei Zhang is Associate Professor in the Department of Statistics at the University of California, Riverside. Dr. Zhang received his PhD in Biostatistics in 2004 from the University of Pittsburgh. Before joining UCR in 2016, he spent a total of 11 years in the federal government, 9 years at the Food and Drug Administration and 2 years at the National Institutes of Health. Dr. Zhang has conducted statistical research in causal inference, precision medicine, clinical trials, and several other areas in biostatistics and regulatory science. He has also collaborated extensively with epidemiologists, behavioral scientists, lab scientists, and other medical researchers. His research has produced over 80 peer-reviewed articles, mostly in statistical journals. Dr. Zhang is an elected fellow of the American Statistical Association and an elected member of the International Statistical Institute.