

BIOSTATISTICS SEMINAR



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Estimation and inference on individualized treatment rule in observational data

With the increasing adoption of electronic health records, there is an increasing interest in developing individualized treatment rules (ITRs), which recommend treatments according to patients' characteristics, from large observational data. In this talk, I will first introduce an improved doubly robust estimator of the optimal ITRs. The method enjoys two key properties. First, it is doubly robust, meaning that the proposed estimator is consistent when either the propensity score or the outcome model is correct. Second, it achieves the smallest variance among the class of doubly robust estimators when the propensity score model is correctly specified, regardless of the specification of the outcome model. I will then introduce a penalized doubly robust method to estimate the optimal ITRs from high-dimensional observational data, along with a split-and-pooled de-correlated score to construct hypothesis tests and confidence intervals. This method utilizes the data splitting to conquer the slow convergence rate of nuisance parameter estimations, such as non-parametric methods for outcome regression or propensity models. Simulation and real data analysis are conducted to demonstrate the superiority of the proposed methods.

Thursday November 5, 2020

Pls. Note 3:00 pm - 4:30 pm

Zoom meeting: Please also find a link in the email invite, with the password.

<https://uncsph.zoom.us/j/92138801086?pwd=Y0lINUNQcS9lZERjalVhbVZSZ3AwQT09>



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