Lecture 10.1 (02:00-02:25)

Concurrent functional linear regression via plug-in empirical likelihood

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This talk introduces new simultaneous inference methods for concurrent functional linear regression. We construct a simultaneous confidence band for a functional covariate effect of interest. Our approach is based on a powerful nonparametric likelihood ratio method, with plug-in estimates for those regression coefficient functions we deem as less important. A simulation study shows that the proposed likelihood ratio-based procedure outperforms a competing Wald-type procedure. We apply the proposed methods to studying the effect of age on the occupation time curve derived from wearable device data obtained in an NHANES study.

This talk is based on joint work with Dr. Ian W. McKeague.