

Functional Latent Feature Models With Interactions

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Abstract

In this talk, we will focus on regression analysis that links functional covariate processes to a primary endpoint. We assume that the response depends on a finite number of latent features in the functional predictor as well as other predictors. We focus on the scenario where the basis functions are data driven, such as with functional principal components. Asymptotic properties are developed. Notably, we show that when the functional features are data driven, the parameter estimates have an increased asymptotic variance, due to the estimation error of the basis functions. Besides present the general methods, we will also present a new interaction models that accommodate the interactions among the functional and regular predictors. Numerical outcomes from simulation and data analysis studies are used to illustrate our findings. This is joint work with Yehua Li and Raymond J. Carroll.