Estimation and Inference for Functional Linear Regression Models with Varying Regression Coefficients

ABSTRACT:

In this work, motivated by a real data example, we present a class of functional linear regression models of a functional response on one or multiple functional predictors and scalar predictors. In particular, the approach can accommodate a densely or sparsely sampled functional response as well as multiple scalar and functional predictors. It also allows for the integration of continuous or categorical covariates. Tensor product B-spline basis is proposed for the estimation of the bivariate coefficient functions. We show that our estimators hold asymptotic consistency and normality. Several numerical examples demonstrate a superior performance of the proposed methods against several existing approaches. The proposed method is also applied to the motivating example.

ABOUT THE SPEAKER:

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