

Statistical Inference for Functional Data via Simultaneous Confidence Regions

Lijian Yang *

Soochow University, China yanglijian@suda.edu.cn and Michigan State University, USA yang@stt.msu.edu

Over the last decade much has been published on the subject of functional data analysis, while little has been done in the area of simultaneous confidence region for the mean and covariance functions of functional data. In this talk, we review some recent works on the simultaneous confidence band for the mean function of both sparse and dense functional data and its derivatives, as well as the simultaneous confidence envelope of the covariance function of dense functional data. Several real data set examples illustrate the versatility of simultaneous confidence region method in quantifying the uncertainty of making statistical inference on unknown functions.

Key Words: B spline, Extreme value, Functional data, Local Polynomial, Strong approximation