

SEMINÁŘ

Katedry matematické analýzy a aplikací matematiky

v úterý 10. října v 13:30

v posluchárně č. 5.068 v budově PŘF UPOL, 17. listopadu č. 12.

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A Regression Model for Bounded Responses and Functional Covariates

Abstract: Complex data arise in many applications and require the development of ad hoc statistical techniques. For example, a recent spectrometric analysis of milk specimens raised the problem of predicting the percentage of fat with respect to the observed reflectance curves. Standard parametric regression models are unsuitable to deal with such complex data, as they are not designed to handle either bounded continuous responses or functional covariates. This issue motivated the introduction of a novel functional regression model that is the functional flexible beta regression. The model is tailored for bounded responses being based on a special mixture of beta distributions, which proved to fit well many data patterns such as bimodality, heavy tails, and outlying observations. Moreover, the model admits the inclusion of functional covariates in the regression model of the conditional mean of the response, which is bounded as well. Estimation issues are dealt with through a combination of standard basis expansion and MCMC techniques. The selection of the most significant coefficients of the expansion is performed through Bayesian variable selection methods that take advantage of shrinkage priors. The effectiveness of the proposal is illustrated with simulation studies and the application on the milk spectrometric data.

K účasti jsou zváni jak členové katedry, tak všichni učitelé, vědečtí pracovníci a studenti, kteří mají o problematiku zájem.

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