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Semiparametric predictive modeling of the electricity prices

Wednesday, 18 September 2024 14:40 (20 minutes)

We formulate a semiparametric regression approach to short-term prediction (48 to 72 hours ahead horizons) of electricity prices in the Czech Republic. It is based on complexity penalized spline implementation of GAM hence it allows for flexible modeling of dynamics of the process, important details of the hourly + weekly periodic components (which are salient for both point prediction and its uncertainty), as well as external influences or long-term moods. Importantly, the models are highly structured allowing for extracting and checking plausibility of the components instead of black-box style predictions. We will demonstrate and compare the performance of several competing models of this class on long-term real data featuring highly nonstationary behavior. We will also show advantages of functional data approaches to the prediction problem –both from modeling and computational perspectives.

Type of presentation

Talk

Classification

Both methodology and application

Keywords

Electricity price, GAM, complexity penalization, dynamic model, short term prediction

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