Streszczenie w języku angielskim:

This doctoral thesis develops robust electricity price forecasting techniques to aid decision-making in power markets. The research focuses on five interconnected objectives, all utilizing regularization techniques. Firstly, a LASSO-type regularization approach is employed to identify the most relevant explanatory variables. Secondly, a fully automated approach is developed to average a pool of individual forecasts using PCA and LASSO. Thirdly, quantile regression and regularization are utilized to construct more accurate algorithms for probabilistic forecasting of electricity prices. Fourthly, a trading strategy is designed to evaluate the economic value of probabilistic forecasts. Finally, a critical review of forecasting in electricity markets is conducted, and an outlook for future research is provided. The proposed solutions significantly outperform existing literature benchmarks, and the thesis sets up directions for future research in the field.

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