Automated machine learning for dynamic energy management using time-series data

Wang, C.

Stellingen

Behorende bij het proefschrift

Automated Machine Learning for Dynamic Energy Management using Time-Series Data

1. Automated machine learning (AutoML) advances rapidly, but lacks tailored solutions for time-series forecasting tasks (Chapter 3).
2. AutoML improves short-term load forecasting by reducing manual effort and enhancing performance (Chapter 4).
3. More information does not always guarantee better performance over models with less information (Chapter 5).
4. Feature and window size selection improve AutoML performance in time-series forecasting (Chapters 5 and 6).
5. Exploring innovative time-series decomposition methods enhances comprehension of underlying trends, seasonality, and irregular components.
6. Integrating ML-driven anomaly detection into time-series forecasting can be helpful to enhance abnormal pattern detection and prediction.
7. Combining traditional statistical methods with ML algorithms can be useful to enhance the accuracy and reliability of time-series forecasting.
8. Deployment of interdisciplinary AutoML can be useful for societal challenges with diverse stakeholders.
9. Data scientists and practitioners should be mindful of ethical dilemmas when using AutoML in real-world applications.
10. Artificial intelligence should be employed for the betterment of humanity, prioritizing beneficial applications while avoiding harmful uses.
11. Academic research institutions should be better funded to better align personal incentives with societal development.

Can Wang
Leiden, dinsdag 28 mei 2024