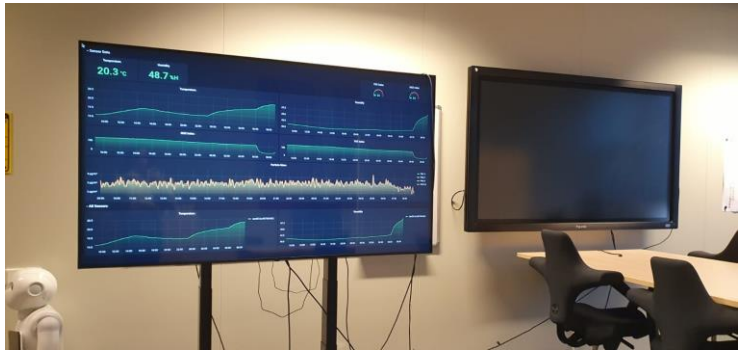
Explainable MLOps:
An application-oriented methodological framework

Annemarie Jutte

22-05-2025

Data+AI Lab

Physical space



Knowledge base

- Data science
- AI

- MLOps
- Explainable AI

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DEMAND

AI

Model

Available energy tomorrow

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AI

Can we trust our model?

Model

Available energy tomorrow

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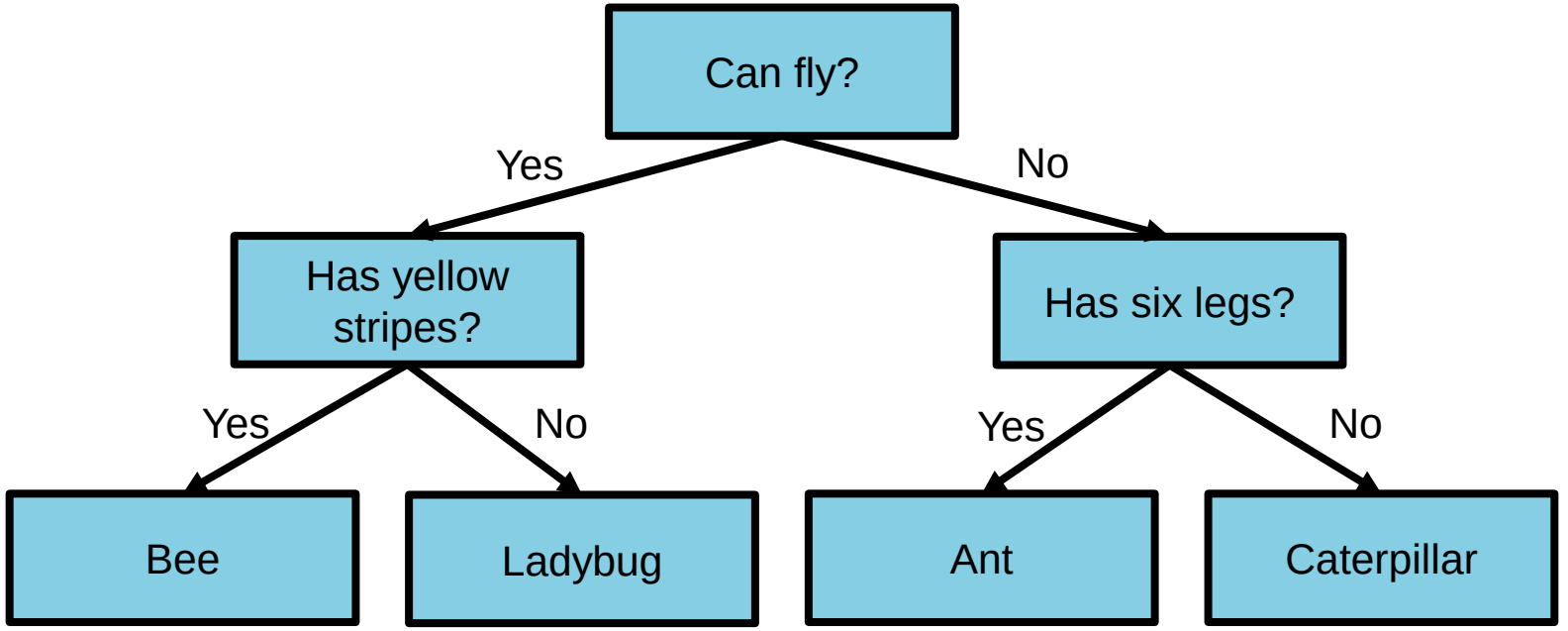
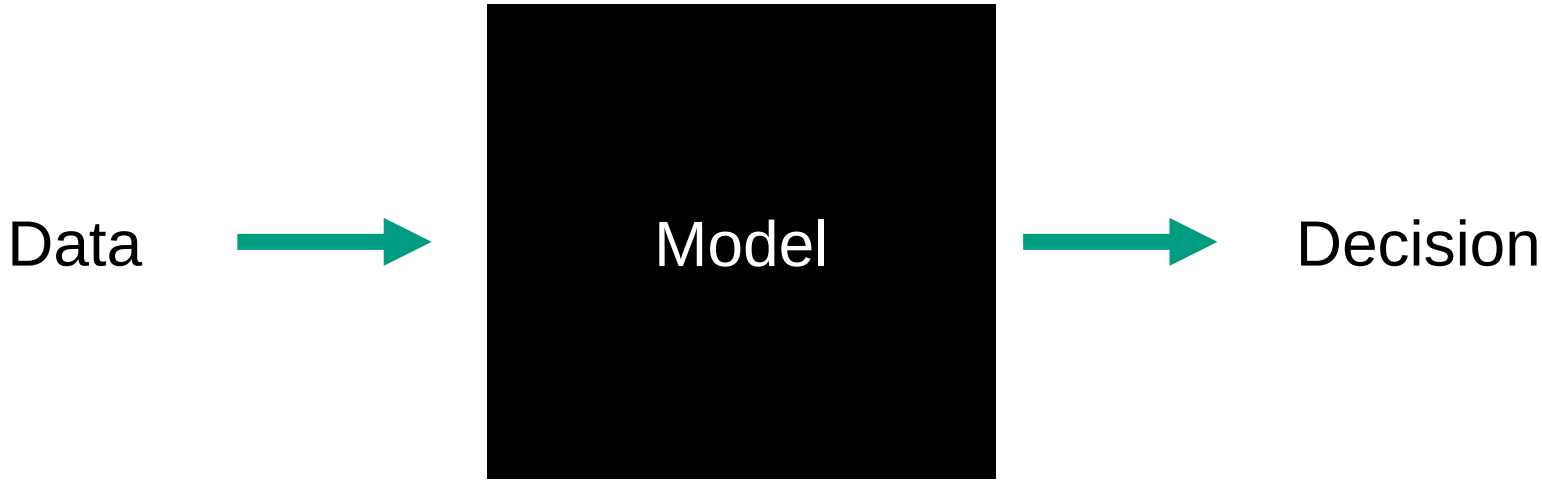
Traditional AI



Decision tree

Data-driven AI



Can we rely on our AI model?

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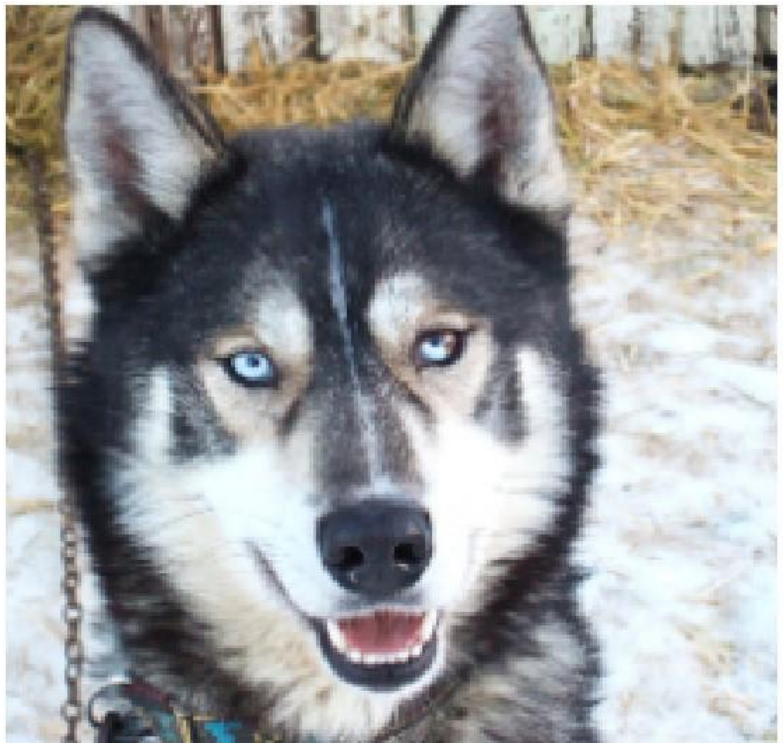
Ribeiro, M. T., Singh, S., & Guestrin, C. (2016, August). " Why should i trust you?" Explaining the predictions of any classifier. In *Proceedings of the 22nd ACM SIGKDD international conference on knowledge discovery and data mining* (pp. 1135-1144).

Explainable AI



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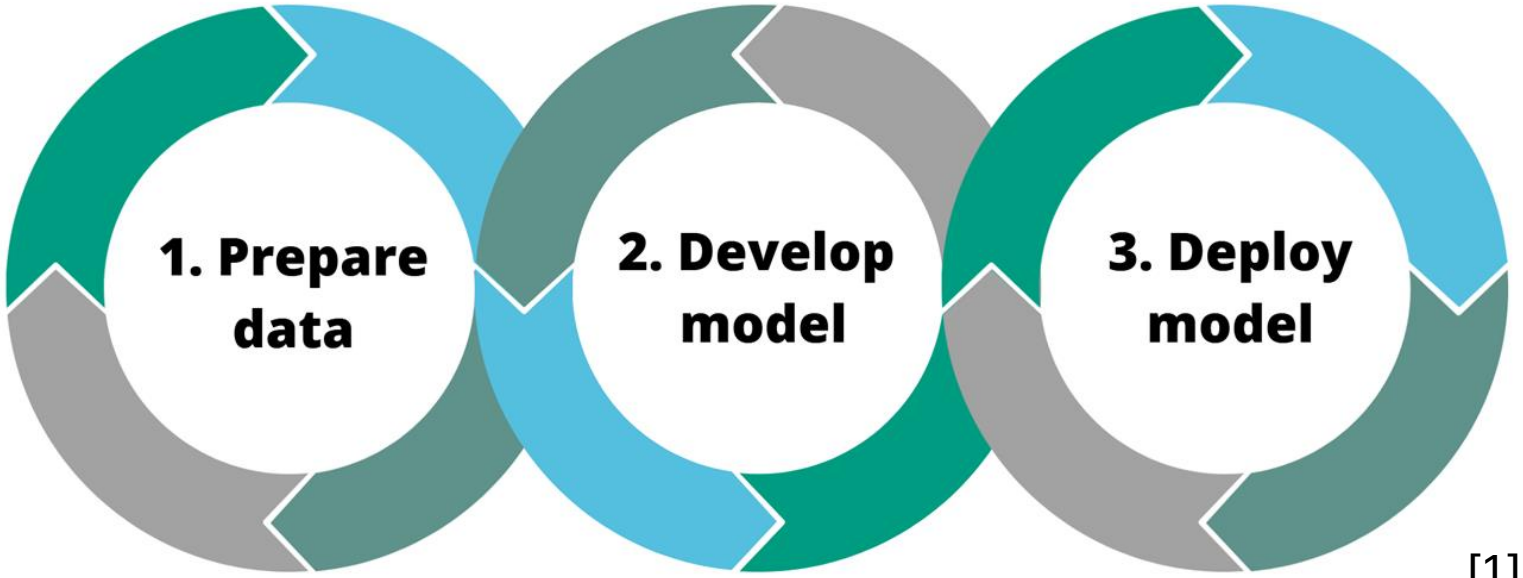
MLOps



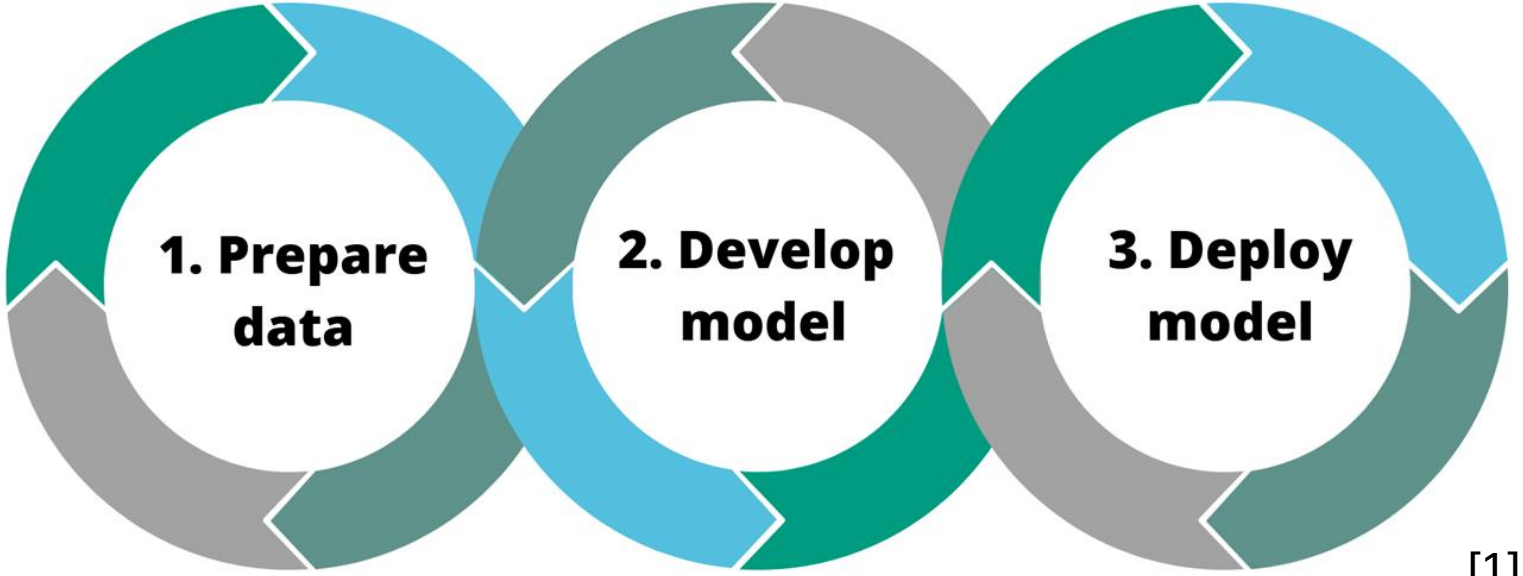
[1]

[1] G. Symeonidis, E. Nerantzis, A. Kazakis, G. A. Papakostas, MLOps-definitions, tools and challenges, in: 2022 IEEE 12th Annual Computing and Communication Workshop and Conference (CCWC), IEEE, 2022, pp. 0453–0460.

MLOps

How to detect data problems earlier in the process?

How to make XAI truly explainable for end users?



[1]

How to improve current XAI methods?

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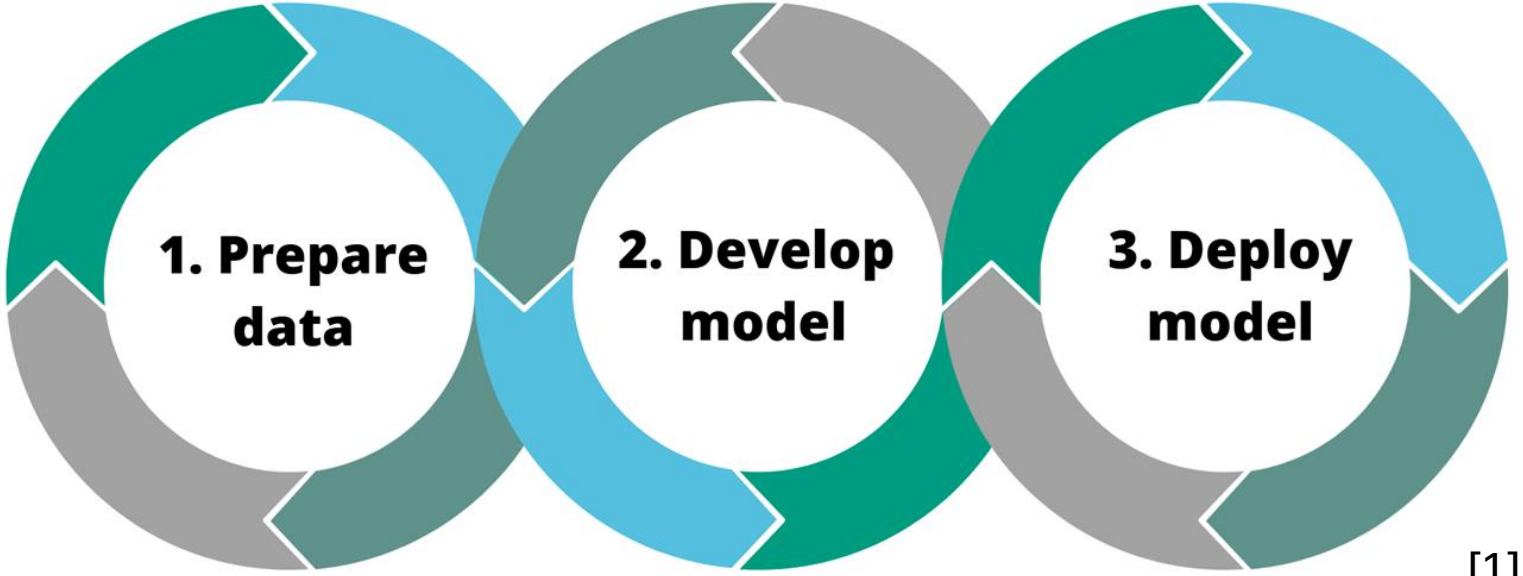

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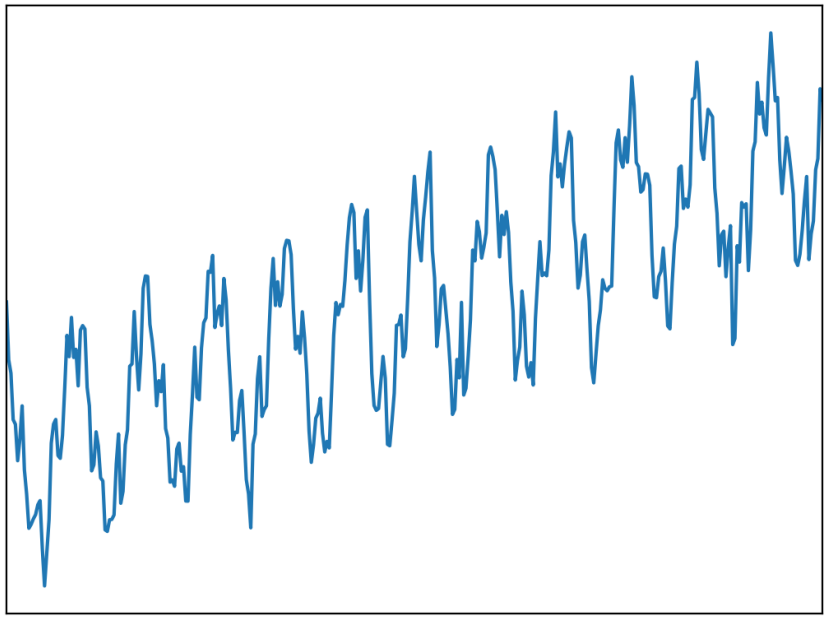
Time series data



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Explainable Model Development

C-SHAP for time series: An approach to high-level temporal explanations

Annemarie Jutte[*1,2], **Faizan Ahmed**[1,2], **Jeroen Linssen**[1], and **Maurice van Keulen**[2]
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Article on ArXiv

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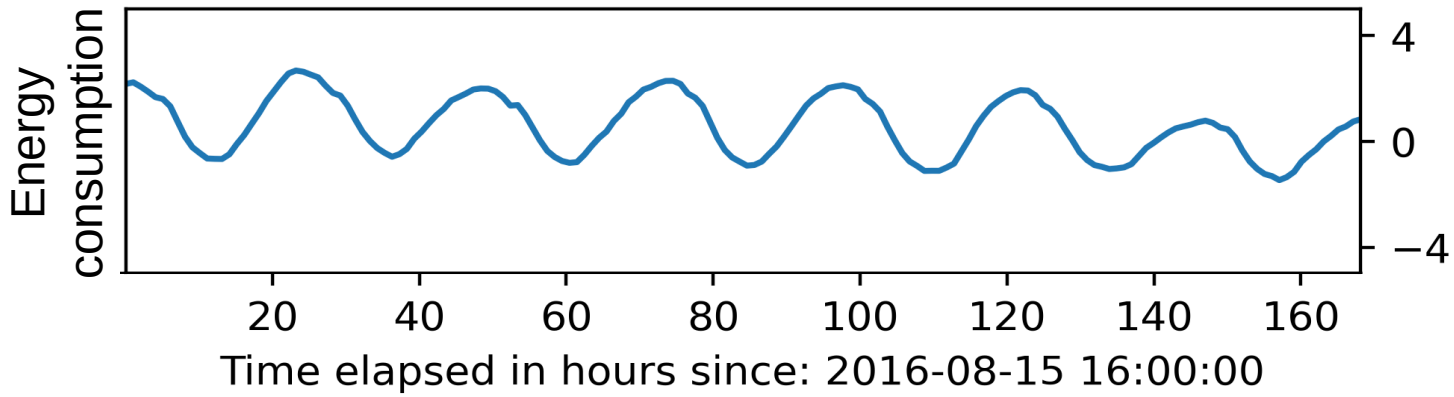
C-SHAP for time series

- Explain time series using high level concepts

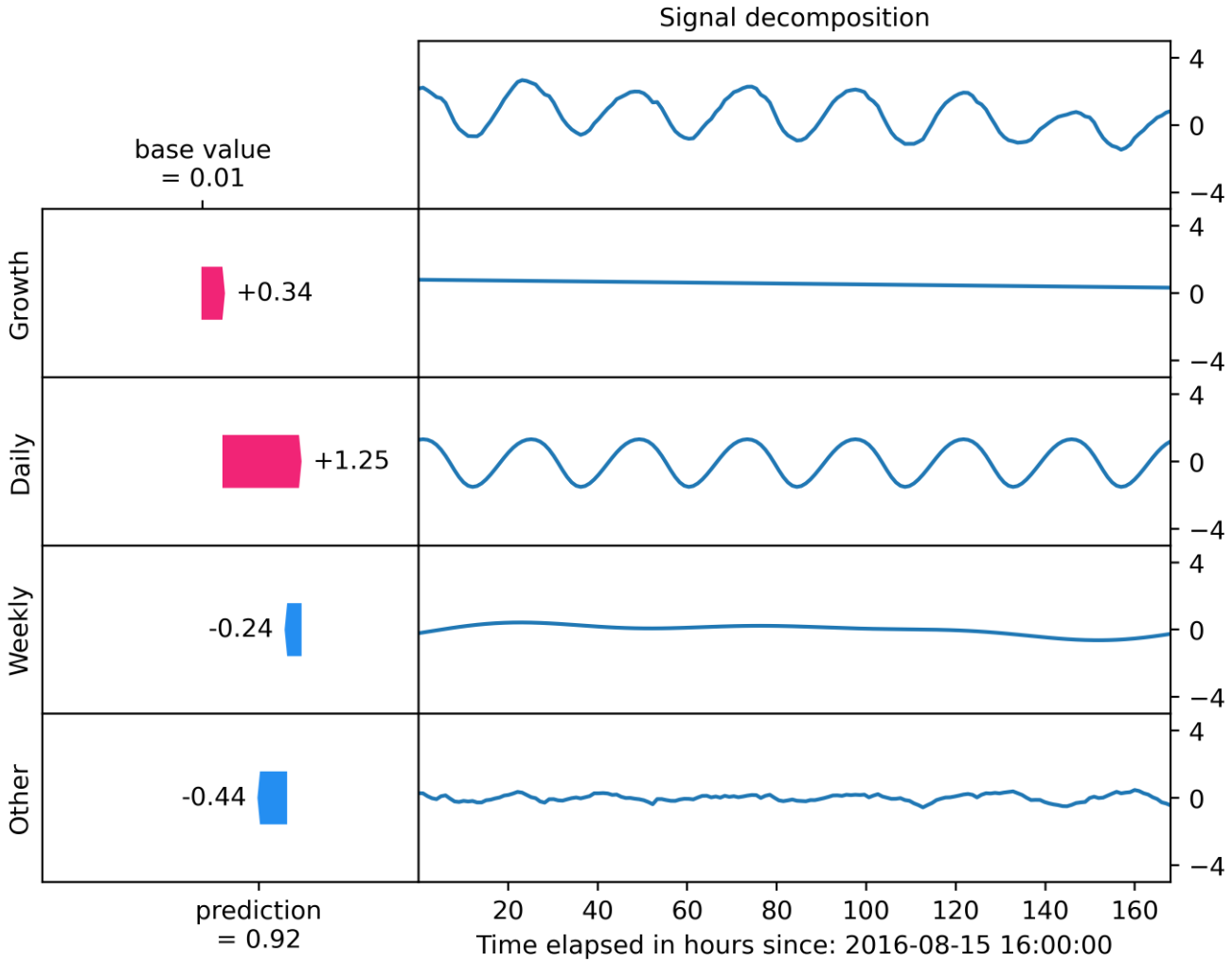


Prediction for next time step = 0.91

Data from: https://www.kaggle.com/datasets/robikscube/hourly-energy-consumption

C-SHAP for time series

- Explain time series using high level concepts



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