

Predicting NYC Hourly Load

Time Series Forecasting and Analysis: Data Science

Orlando Vilar, May 2023

Introduction

Introduction

Overview & Business Understanding

- Hourly Load in NYC;
 - Proper grid coordination;
- **Solution:** forecasting framework;
- **Relevance:**
 - NYC electricity supply and demand.

Data & Analysis

Data Understanding

Sources of Information

- Databases:
 - New York Independent System Operator (NYISO) dataset;
 - New York City, 2018 - 2020;
 - 319,938 obs.

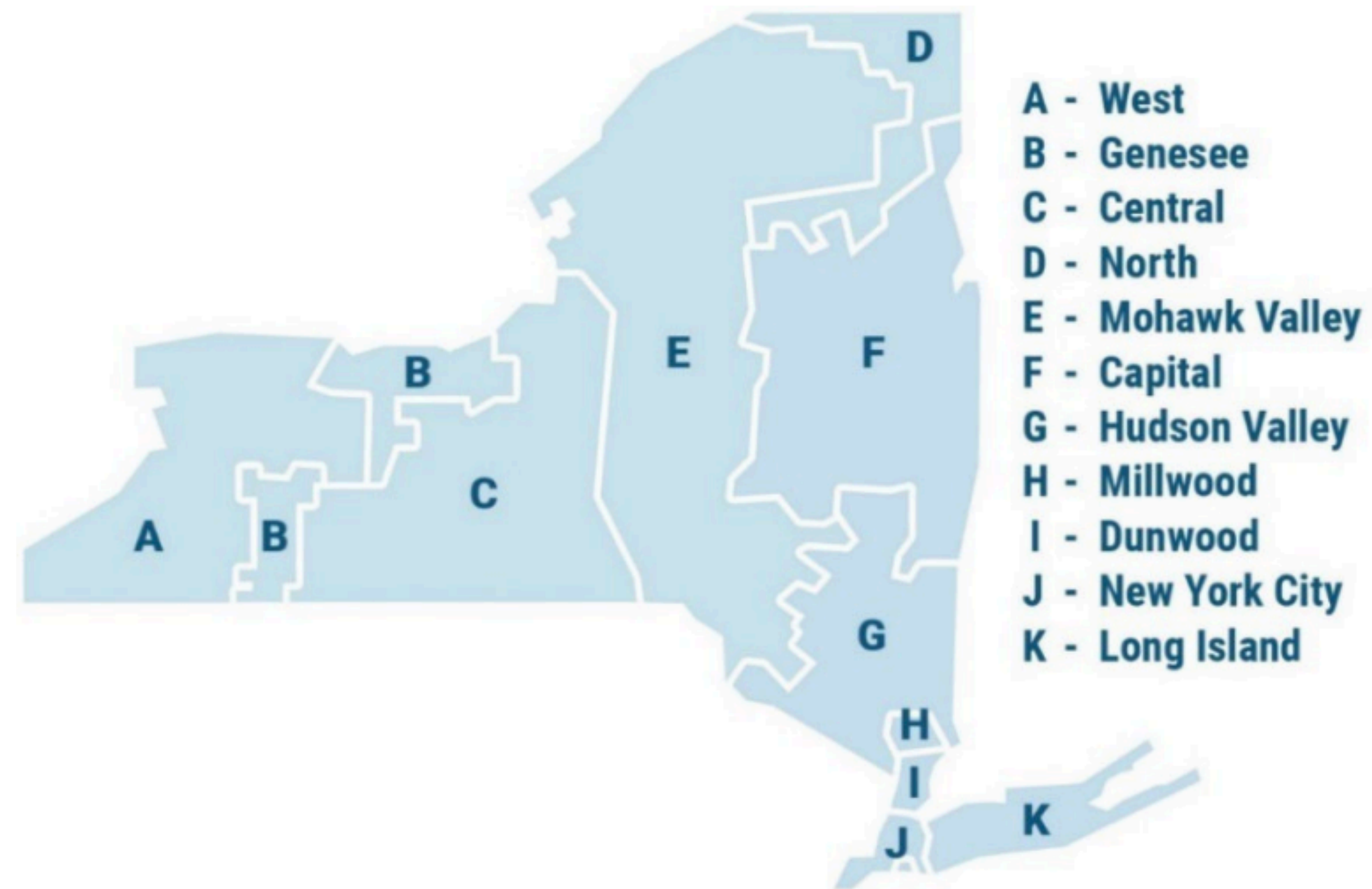
Data Understanding

Sources of Information

- Variables:
 - Load, Region, Holiday, Peak and Off-Peak;
- Additional feature:
 - Weather statistics.

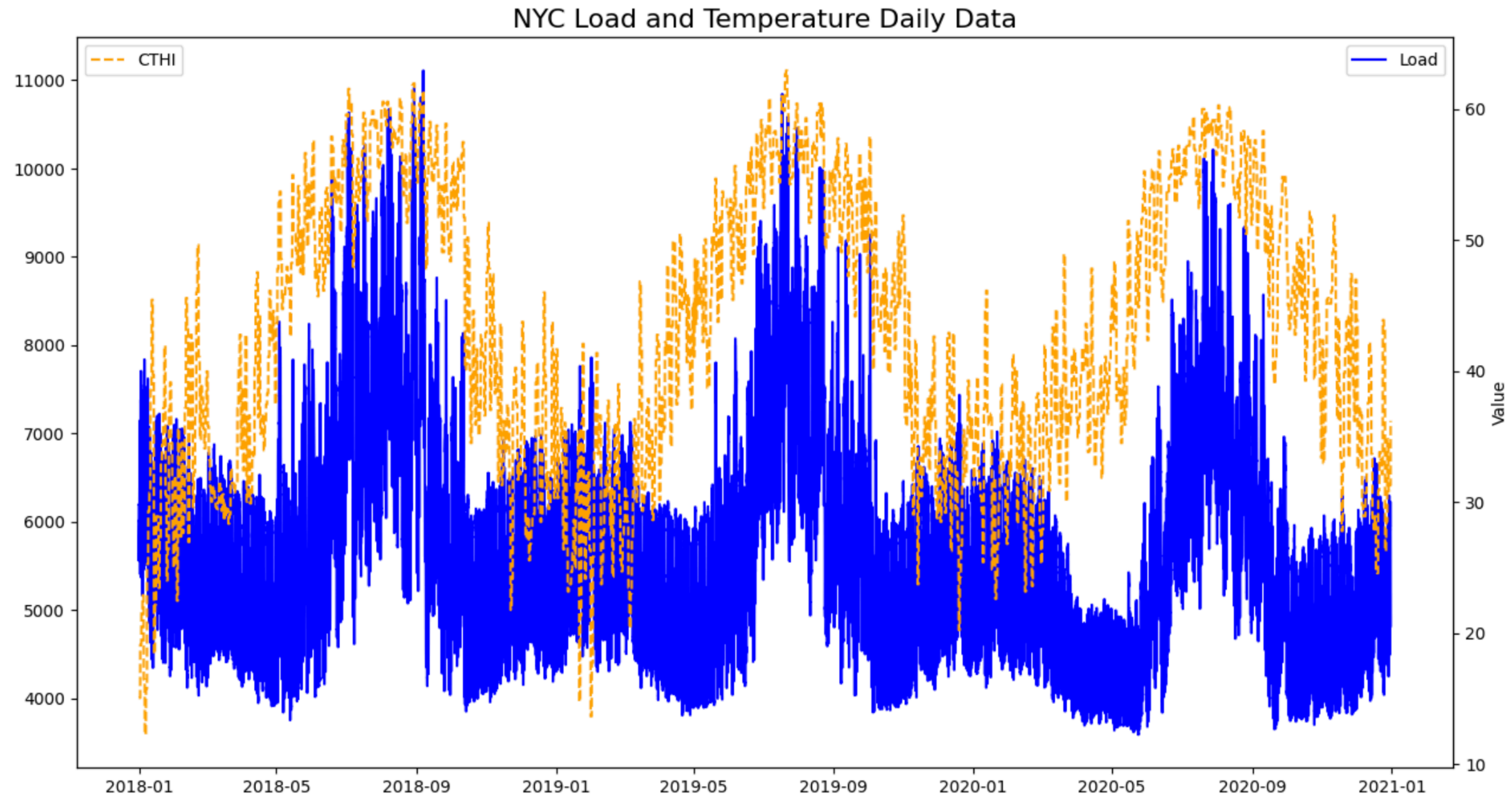
NYISO Load Zone Map

New York City (Zone J)



NYC Hourly Load

Cumulative Temperature and Humidity Index



Closing Remarks

Strategies

Three key insights

- **Peak Forecasting:** simple LSTM;
- **Trough Forecasting:** fully saturated Prophet;
- **Ensemble:** LSTM + Prophet.

Limitations

Further analysis

- Hourly weather data;
- Generation/transmission data;
- Computational power.

Thank you!

<https://github.com/ovilar>