KU LEUVEN

Smart Distribution Systems

Forecasting Assignment

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Forecasting Assignment (1)

- **Create a neural network to forecast day-ahead electricity prices**
  - As good as possible
- **Evaluation is based on the Mean Squared Error:** $\mathrm{MSE} = \frac{1}{n}\sum_{i=1}^{n}(Y_i - \hat{Y}_i)^2.$
- **Forecast the hourly Belpex prices for the period from 23/01/2024, at 00:00, to 25/01/2024, at 23:00.**
- **Available data:**
- Day-Ahead Price BE (from 01/01/2021 00:00 to 22/01/2024 23:00)
- Load Forecast FR (from 01/01/2021 00:00 to 25/01/2024 23:00)
- Generation Forecast FR (from 01/01/2021 00:00 to 25/01/2024 23:00)
- Wind Generation Forecast BE (from 01/01/2021 00:00 to 25/01/2024 23:00)
- Solar Generation Forecast BE (from 01/01/2021 00:00 to 25/01/2024 23:00)
- Load Forecast BE (from 01/01/2021 00:00 to 25/01/2024 23:00)
- **You can work together with others (2-3 people per group)**

Forecasting Assignment (2)

- **Create a predictions.csv file with 3*24 rows, each row should contain the forecast for that hour (3 predicted days).**
  - => 1 column with 72 rows
  - MSE calculation is automated -> If your prediction is not in the correct format, it will not be evaluated.
  - **Do not include a column label nor an index column, the only column of your csv should be your forecasted values.**
- **Write a report of 3 to 5 pages (including plots) with the results of your work!**
  - Add plots, performance metrics (table), explanation of feature selection and network architecture selection.
- Deadline: **12 May 2024, at 11:59 pm**
  - Zip your "*NN model, predictions.csv and report"* and name by your student numbers
  - Send it to both TA by email (sina.toghranegar@kuleuven.be)