energy consumption forecast

Households’ electric power

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**Introduction**

The aim of this project is to analyze data from households’ energy consumption, preprocess them and finally train a Deep Learning Neural Network so as to predict future values of household global minute-averaged active power.

The dataset was taken from [Kaggle](https://www.kaggle.com/datasets/uciml/electric-power-consumption-data-set?resource=download) and it contains measurements of electric power consumption in one household with a one-minute sampling rate over a period of almost 4 years. Different electrical quantities and some sub-metering values are also available.

**Dataset’s Feature Description**

1. date: Date in format dd/mm/yyyy
2. time: time in format hh:mm:ss
3. global\_active\_power: household global minute-averaged active power (in kilowatt)
4. global\_reactive\_power: household global minute-averaged reactive power (in kilowatt)
5. voltage: minute-averaged voltage (in volt)
6. global\_intensity: household global minute-averaged current intensity (in ampere)
7. sub\_metering\_1: energy sub-metering No. 1 (in watt-hour of active energy). It corresponds to the kitchen, containing mainly a dishwasher, an oven and a microwave (hot plates are not electric but gas powered).
8. sub\_metering\_2: energy sub-metering No. 2 (in watt-hour of active energy). It corresponds to the laundry room, containing a washing-machine, a tumble-drier, a refrigerator and a light.
9. sub\_metering\_3: energy sub-metering No. 3 (in watt-hour of active energy). It corresponds to an electric water-heater and an air-conditioner.

The project was conducted after the creation of a virtual environment and in python version 3.8.16