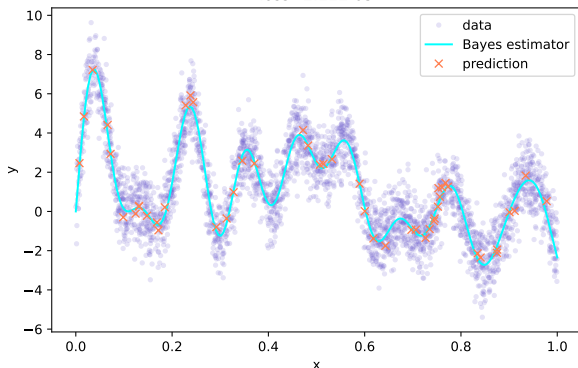


# Machine learning I, supervised learning: overview

kNN regression  
10 neighbors, 100000 samples  
loss=2.11E-05



# Overview of the module

- Day 1 Definition of supervised learning, metrics, probabilities, risks, ordinary least squares, ridge regression.
- Day 2 Gradient based algorithms, support vector machines, classification and regression trees, introduction to neural networks, sparsity.

# Organization

- ▶ Presentations / discussions
- ▶ Coding exercises / paper+pen exercises
- ▶ Project : explained friday
- ▶ **questions** : please feel free to ask questions :
  - ▶ you can ask directly
  - ▶ or write them in the chat

more questions = more interesting / fun course !

# Organization

- ▶ Please clone the following repository : [https://github.com/nlehir/MLI\\_SupervisedLearning.git](https://github.com/nlehir/MLI_SupervisedLearning.git), that contains :
  - ▶ slides
  - ▶ exercises
  - ▶ other useful information

## Practical aspects

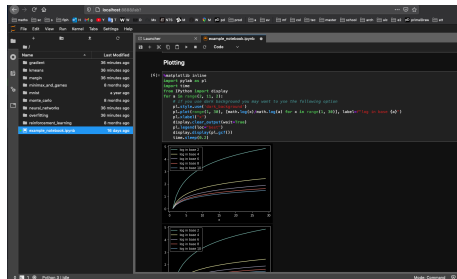
- ▶ Python 3 <https://www.python.org/>
- ▶ Third-party libraries : see **requirements.txt**
- ▶ For installation, several options are available :
  - ▶ create a folder for the course and install libraries in a virtual environment (using e.g. pip)  
<https://docs.python.org/3/tutorial/venv.html>
  - ▶ install libraries globally on your machine, using e.g. pip (not recommended in the python community for production projects)
  - ▶ use docker (please see the README.md)

# Virtual environment

```
..aph/AlgoGraph (-zsh)
(env) → AlgoGraph git:(master) ✗ which python
/Users/nico/Desktop/enseignement/epitech/AlgoGraph/AlgoGraph/env/bin/python
(env) → AlgoGraph git:(master) ✗ python --version
Python 3.9.0
(env) → AlgoGraph git:(master) ✗ pip list
Package          Version
-----
anyio             3.6.1
appnope           0.1.3
argon2-cffi       21.3.0
argon2-cffi-bindings 21.2.0
asttokens         2.0.8
attrs            22.1.0
Babel             2.10.3
backcall         0.2.0
beautifulsoup4   4.11.1
bleach           5.0.1
certifi          2022.9.24
cffi             1.15.1
charset-normalizer 2.1.1
contourpy        1.0.5
cycler           0.11.0
debugpy          1.6.3
decorator        5.1.1
defusedxml       0.7.1
entrypoints      0.4
executing        1.1.0
```

## Organization

- ▶ **jupyter notebooks** are convenient python interpreters. Depending on your preference, you may use them or mere python scripts (I tend to prefer scripts but by copying and pasting, you are able to turn a script into a notebook and vice versa)



## Contact

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