FTML practical session 16: 2023/06/16

1 STOCHASTIC AVERAGE GRADIENT (SAG)

In this session, we explore a modern variant of SGD, called SAG. The objective is to have a more concrete idea of some research problematics related to optimization, both from the theoretical point of view, and from the implementation one.

Read the introduction (or more) of the research article placed in the TP16 folder, entitled "Minimizing finite sums with the stochastic average gradient" [Schmidt et al., 2013].

Implement a comparison of SAG, SGD and GD on a problem of your choice (for instance a dataset mentioned in the article, but you can also use a simpler dataset.).

It is also interesting to have a look at the **_sag.py** file trom scikit-learn in the **linear_model** module.

`https://github.com/scikit-learn/scikit-learn/blob/main/sklearn/linear_model/_sag.py`

RÉFÉRENCES

[Schmidt et al., 2013] Schmidt, M., Le Roux, N., and Bach, F. (2013). Minimizing finite sums with the stochastic average gradient. Mathematical Programming, 162(1-2) :83–112.