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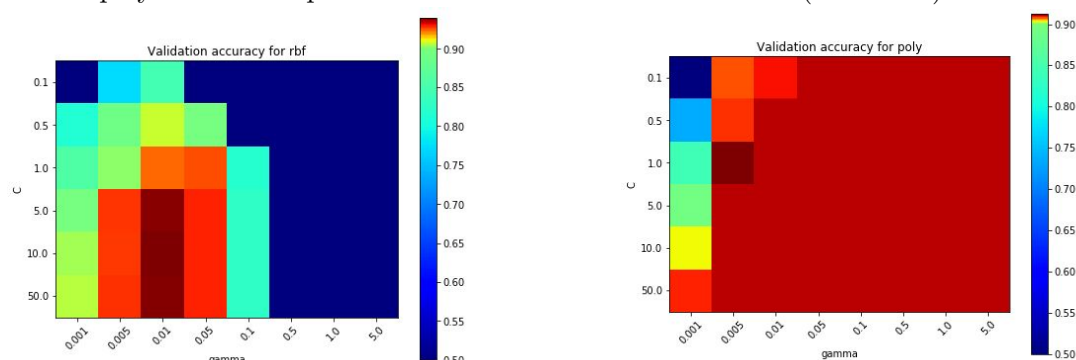
## Group Organization

### Tasks

#### SVM

The SVM task was achieved by using the sklearn<sup>1</sup> library, which is very simple to use and provides a lot of examples for a better understanding.

In order to find the best parameter, we used a grid search approach with various parameters and display the heatmaps of the results for each tested kernel (see below).



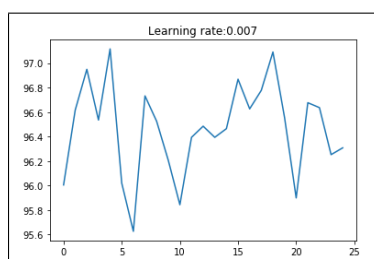
Using this, we were able to obtain a 97.9% accuracy.

#### MLP and CNN

The MLP and CNN tasks were both achieved by using the pytorch<sup>2</sup> library. We also performed a gridsearch like approach to find the best parameters for each of them.

For the MLP, we finally got a model with 512 hidden neuron and a learning rate of 0.001, other learning rate were not stable at all for this task.

We also got a learning rate of 0.001 for the CNN model since higher one (like 0.002 or 0.007) showed rollercoaster like curve :



Finally, we achieved an accuracy of 97% for the MLP and 97.8% for the CNN.

<sup>1</sup><https://scikit-learn.org/stable/modules/svm.html>

<sup>2</sup><https://pytorch.org/>

**Keyword spotting**

**Signature Verification**

**General thoughts and and feedback**