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{EPITECH.}

*Team 17 – ImageRecognition*

# *PDF File Image Recognition*

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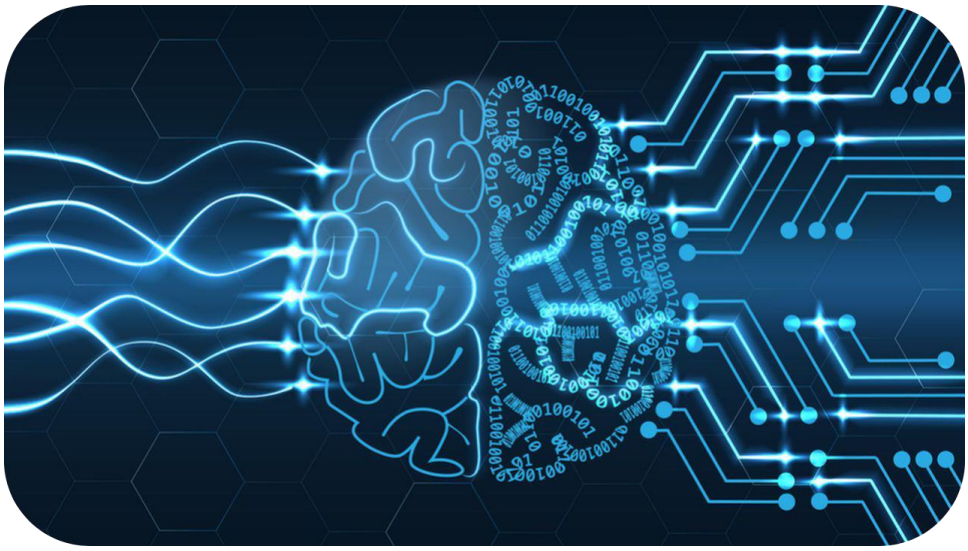

*Years 2019-2020*

## I. Basic model :

When using the basic model without the use of hyperparameters and other modifications, we achieved an accuracy of 90%. In addition, we have a very low false positive and false negative test result which confirms the accuracy obtained. This 90% accuracy allows us to think that our AI has a low chance of giving false positives or false negatives.

## II. Model with Hyperparameters :

Using the model with well-configured hyperparameters increases our accuracy from 90% to 91%. This increase in accuracy is also confirmed in the results of false positive and false negative tests. The use of well-configured hyperparameters increases the accuracy of our AI, however, in our tests we have also found that incorrect hyperparameter settings can lead to a significant decrease in accuracy.

## III. Data augmentation :

We also decided to push our tests a bit further, adding data augmentation to compare with the already tested data. This allows to have a dataset containing more images and training data. We can see considerable changes on the ROC_Curves plot, however, there is no improvement in accuracy with the addition of data augmentation.

## IV. 3 classes predictions :

The addition of a third prediction class was not conclusive. Indeed, the lack of data on viral pneumonia (any images in the val folder). This lack of data is the main reason for the significant drop in accuracy.

## V. Different models :

We also tried other models at the end to get some other results based on the same random_state and hyperparameters when they fit to the model.

### a. AdaBoostClassifier:

AdaBoostClassifier get an accuracy of 92%.

### b. BaggingClassifier :

BaggingClassifier get an accuracy of 87%.

### c. ***ExtraTreesClassifier:***

ExtraTreesClassifier get an accuracy of 90%.