Avila dataset

Python Project

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C. De Stefano, M. Maniaci, F. Fontanella, A. Scotto di Freca,
Reliable writer identification in medieval manuscripts through page layout features: The "Avila" Bible case,
Engineering Applications of Artificial Intelligence, Volume 72, 2018, pp. 99-110.

Description of the dataset

- Avila Dataset → extracted form 800 images of the Avila Bible
- 12 copyists determined by a palaeographic analysis of the manuscript labelled as A, B, C, D, E, F, G, H, I, W, X, Y
- Dataset normalized using Z-score normalization
  Divided in a training set of 10430 samples and a testing set of 10437 samples

Description of the dataset

ATTRIBUTE DESCRIPTION (features):

- ID Name
- F1 intercolumnar distance
- F2 upper margin
- F3 lower margin
- F4 exploitation
- F5 row number
- F6 modular ratio
- F7 interlinear spacing
- F8 weight
- F9 peak number
- F10 modular ratio/ interlinear spacing

Description of the dataset

CLASS DISTRIBUTION OF THE TRAINNG SET:

- A: 4286
- B: 5
- C: 103
- D: 352
- E: 1095
- F: 1961
- G: 446
- H: 519
- I: 831
- W: 44
- X: 522
- Y: 266

Goal

- The goal of the study is to identificate a sample to one of the copyist, using the features.

- The Avila dataset is splited in two:
  - 50% of the set will be the training set
  - 50% of the set will be the testing set

Reflexions

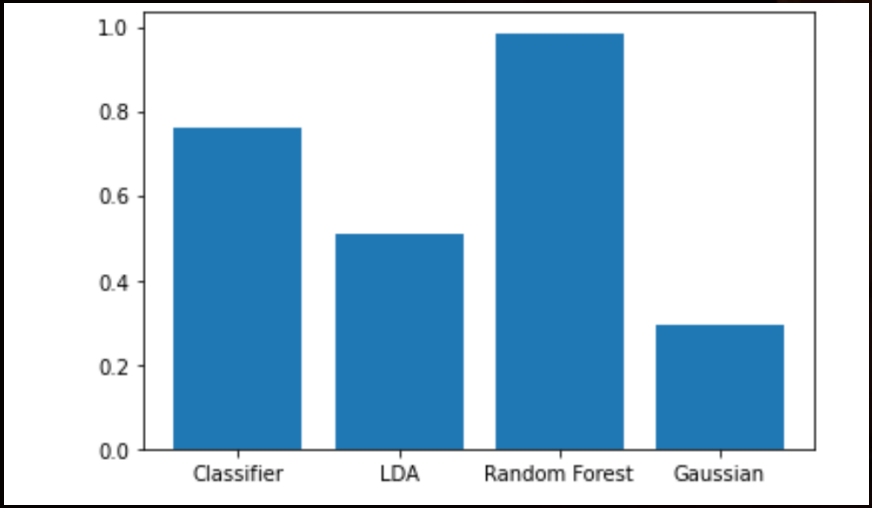
- We first decided to « play » with the data. Indeed, with 10000 hits, we can do a lot.
- We had the chance to have a complete dataset, without missing data.
- It made the data analysis work easier.

Reflexions

- How to predict who is the writer ?

- The path we choose is to compare the accuracy of several machine learning model :
  - The KNeighborsClassifier
  - The Linear Discriminant Analysis projection
  - The Random forest
  - The Gaussian

Model selection



- According to our tests, Random forest is the most efficient model for avila dataset.