

# Introduction to Data Analysis

## Data Classification

ISAE - SUPAERO

- Emmanuel Zenou -

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The objective is to illustrate classification Algorithms for Earth Observation.

### 1 Supervized Classification

**Question 1** *Enumerate main supervised classification techniques and describe them in few lines.*

**Question 2** *Apply and compare the following algorithms:*

1. 1-NN (your programme)
2. Neural Networks

*on 'Spain Beach' image or another of your choice.*

**Question 3** *Search on internet one of the two the following algorithms and apply it to the same image*

1. SVM
2. Random Forest

### 2 Unsupervised Classification

**Question 4** *Enumerate main unsupervised classification techniques and describe them in few lines.*

**Question 5** *Apply the following algorithms with the dedicated objective*

1. *k-means algorithm to define the four classes automatically and speed-up the classification process*
2. *Pseudo-Inverse technique to estimate the position of a planet*
3. *PCA technique to reduce the size of an image*