Context

❑ Localization and recognition
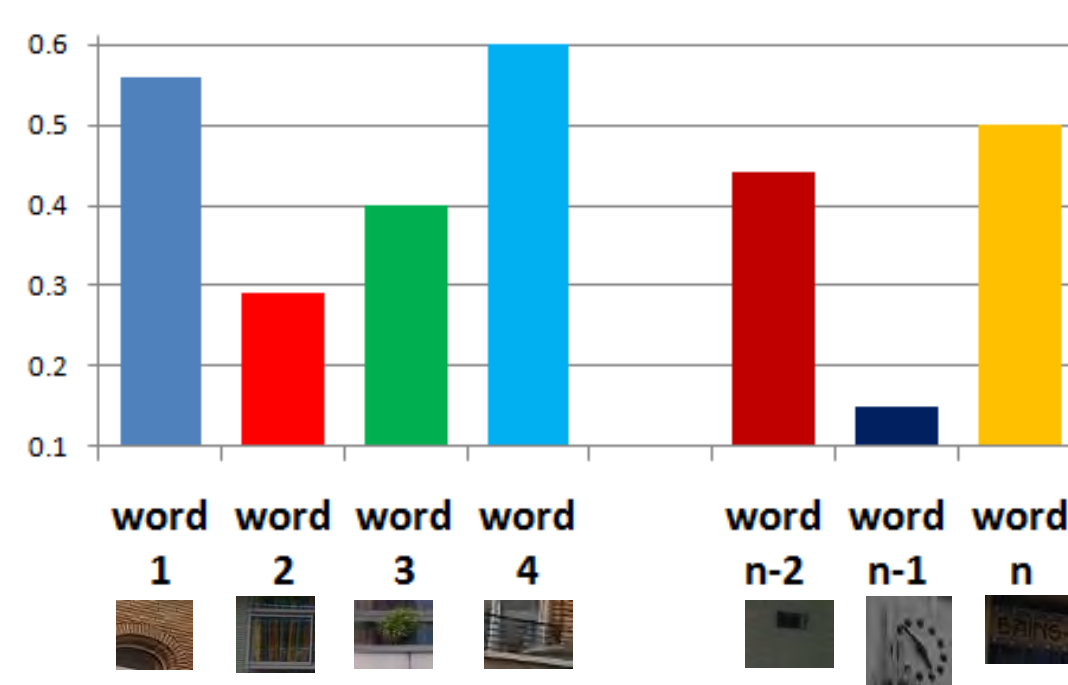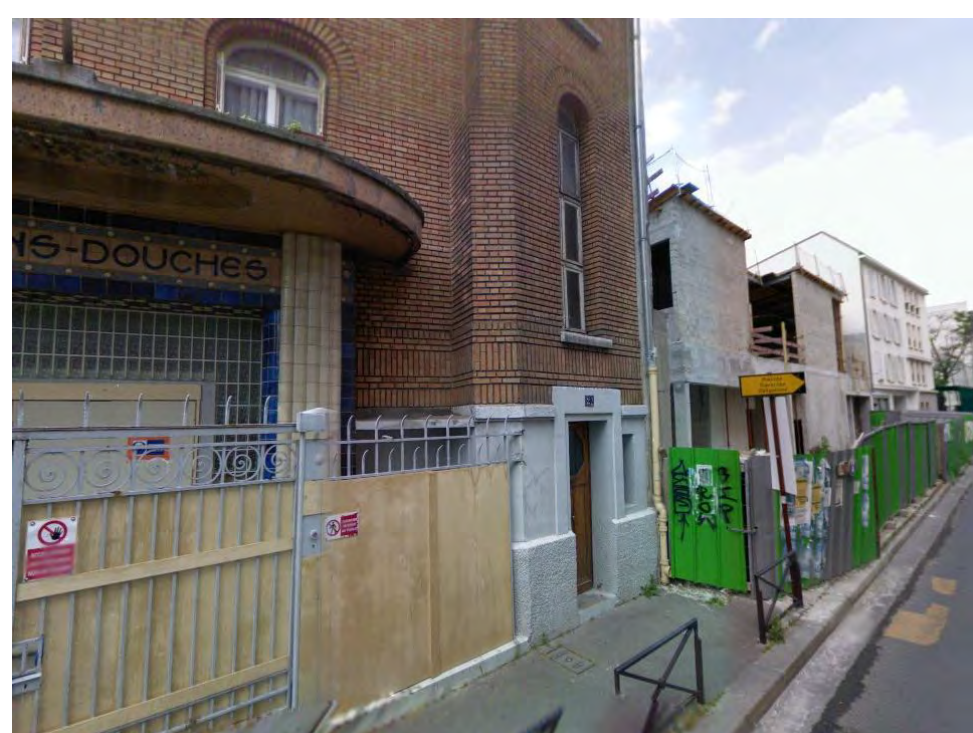
- find a new way to locate himself
- add-on technology to GPS

Project team

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word 1 word 2 word 3 word 4   word n-2 word n-1 word n

Objectives

❑ Improve and complete localization technologies

❑ Recognition based on landmarks

❑ Machine learning

Bag of words

❑ A visual Vocabulary & An Index

- Extraction of Sift descriptor
- Clusterisation in a vocabulary of 500 to 4000 words
- Extraction for each image of an histogram bag of words

Estimated number of clusters: 3

Classification and machine learning
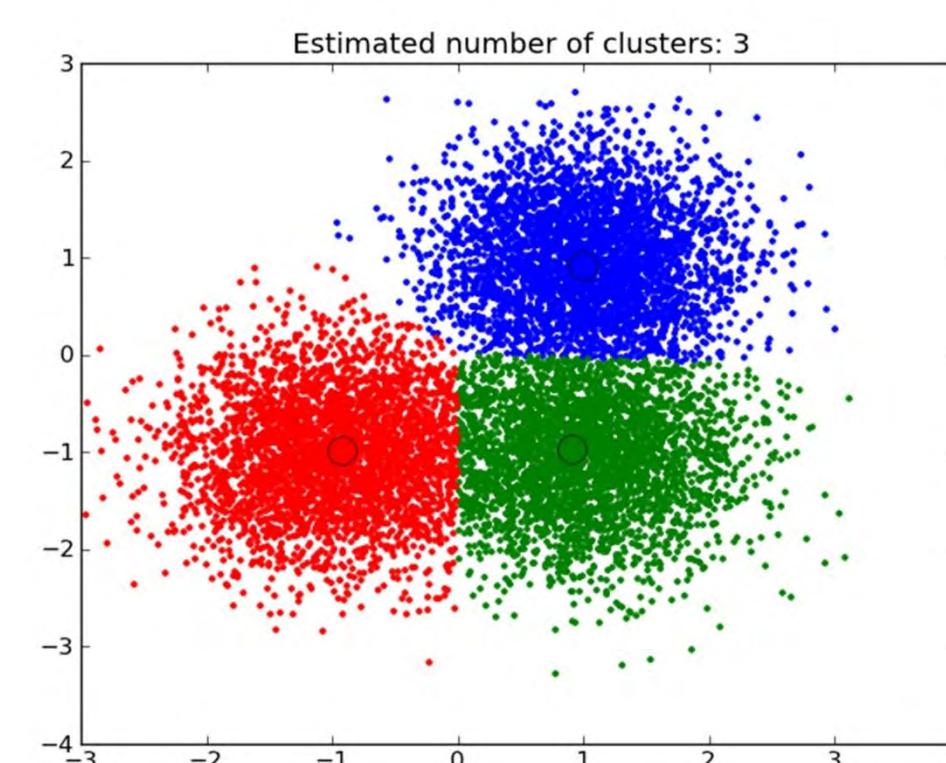
❑ Support Vector Machine

- Effective in high dimensional spaces.
- Still effective in cases where number of dimensions is greater than the number of samples
- Versatile: different Kernel Functions can be specified for the decision function

❑ Cross-Validation Method

- Find the best parameters for the classifier
- Define grid of parameters
- Split the training set into a training subset and testing subset
- Test every parameters combination with several split training set

Results:

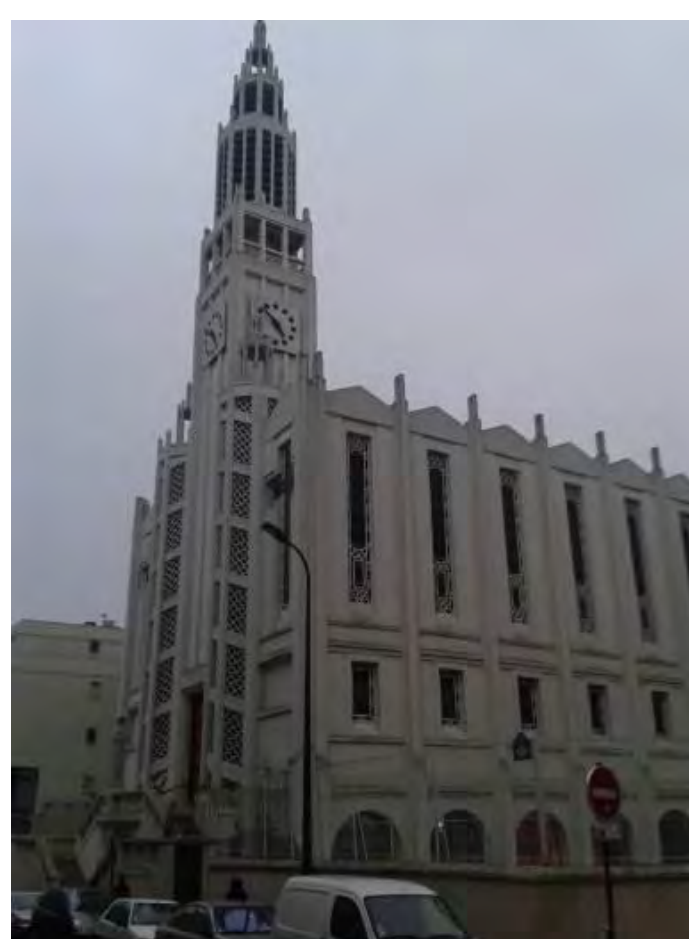

Score : 75 %

Score : 50 %

Score : 20 %

Conclusions

❑ Image database

- Use images in another images database like Flickr, Foursquare and not only Google Street View
- Extract descriptor from bigger set of images

❑ Detection and machine learning

- Create a multi-class classifier
- Use another detector and descriptors than SIFT