TP5: Segmentation using kmeans and graph Cuts

1 Installation

We will use graph cuts to segment an image into different uniform regions. We first need to install a graph cuts library to be able to use graph cuts from python.

We will use the a wrapper for the MAXFLOW library from Boykov and Kolmogorov, which you can find at : `https://github.com/Rhoana/pymaxflow` and can be installed using pip :

```
pip install --user git+git://github.com/Rhoana/pymaxflow.git#egg=pymaxflow
```

Note you may have an error due to the fact that cython is not installed. In this case, we use

```
pip install --user cython
```

to install cython and then retry to install pymaxflow. If you have the root permission on the machine you can remove the option `--user` and add `sudo` in front of the line.

If you encounter any difficulty/issue, you can install it manually as follow :

— Download the zip file from : `https://github.com/Rhoana/pymaxflow/tree/pipinstallable`

— Unzip the file in a sub-folder named pymaxflow of the folder where you put those files in `CV_Lab5.zip`

— In the folder pymaxflow, run in a terminal the command :
`python3.5 setup.py install`
or following the instructions in *README.txt* in the folder pymaxflow.

2 Exercise

The goal will be to implement a segmentation method based on kmeans clustering of the pixel in a normalized color space and then use the mincut algorithm to get a clean binary segmentation of the image.

Download `CV_Lab5.zip` and write the code where it is written `TODO`