EXERCISE. Texture analysis

In this exercise, students are requested to implement a texture analysis algorithm explained in the class lecture in order to find features from every texture and to create a classifier based on those features.

There are two sets of images:

SET 1.

This set is formed by all the images contained in folders:

- 2_tex
- 5_tex
- 10_tex
- 16_tex

Every folder contains some mosaic formed with 2, 5, 10 or 16 texture images; along with the mosaic there are the images with a single texture in order you could take subimages and create feature vectors for training a classifier.

SET 2.

This set if formed by all the images in Brodatz album.
The idea is that you create your own mosaics, with different complexity depending on how good is your algorithm. The more robust and reliable your method, the more complex and larger can be the mosaic.
Those images can also be found in the following URL with a size of 640x640 pixels:

http://www.ux.uis.no/~tranden/brodatz.html

QUESTION.

You can choose the set of images that you prefer to program a classifier or a segmentation algorithm based on texture features obtained from the single textured images.
In the report you should explain the algorithm that you use, and also the set, number of images (texture classes) and the percentage of images used for training and recognize.
Indicate also a metric to check the results and performance of your proposal (confusion matrix,…).

Recommended algorithms:

- Co-occurrence matrices
- PBL
- Gabor
- Fourier
- Law's masks