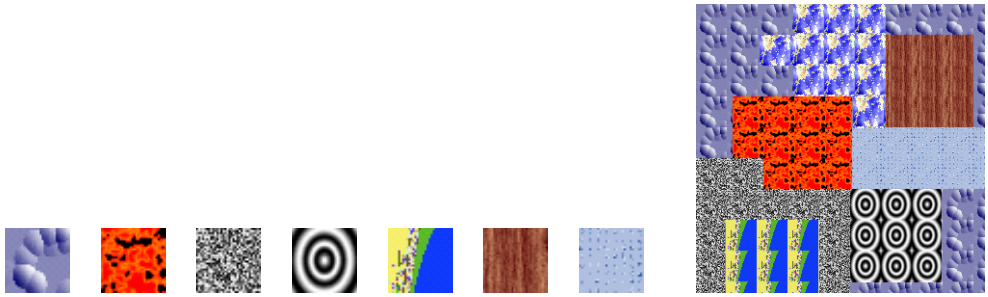
Project no. 3 (2 persons)

Texture detection and classification



The task is divided as follows:

(a) (Person 1) Detection of non-homogeneous image regions of small size (e.g. 16x16 pixel) . Design some homogeneity criterion which should be satisfied by homogeneous block regions. Reduce the number of pixel values to 32.

(a) (Person 2) Assuming that the pixel function provides intensity information compute the intensity co-occurrence matrix for small blocks (e.g. 16x16) in 4 directions.

(c) (Person 2) Compute the set of statistic features on base of intensity connection matrices.

(d) (Person 1) Acquire a set of textures from 10 classes. Use one part of them to design a minimum-distance geometric classifier. Use the remaining textures to perform classification.

(b) (Person 1 & 2) Present partial and final results in a graphic form. For example show the detected regions, the classes in the feature space, the results of classification. Allow the user interactively to change the parameters of image analysis. Prepare a short report.