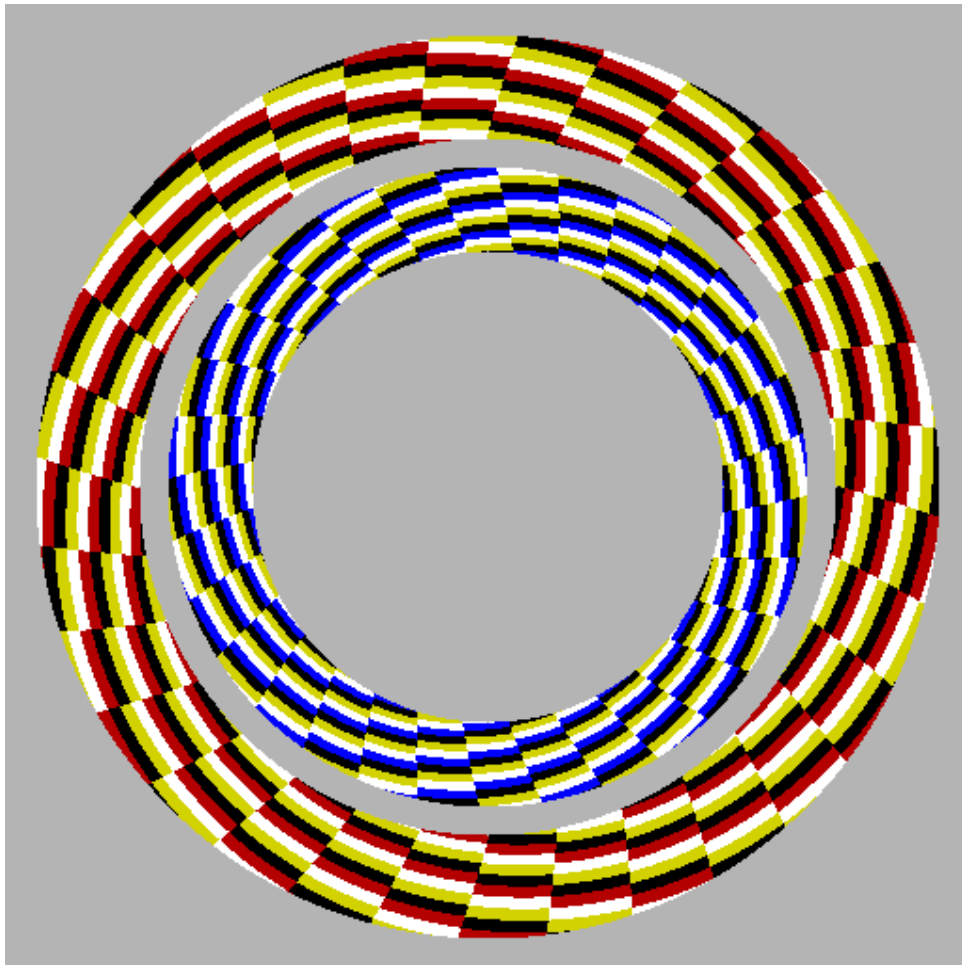


Current subjects in computer science
PATTERN RECOGNITION

PRACTICE 3:

- Task: use our face database to test the face recognition system of practice 1.



First of all, the database containing all the images captured in practice 2 has to be downloaded from the web page of the seminar, following the instructions that will be given during the practice.

In order to perform face recognition experiments, the image database will be split in different subsets: one subset per webcam used during practice 2 (i.e. each subset will contain the images of one of the groups of students that took their pictures with the same webcam). That represents subsets of 4 or 5 students.

- **Exercise 1:** Using the corresponding database subset, modify the Matlab function *ORL_face.m* in order to compress the image using the PCA transform.
- **Exercise 2:** Modify the Matlab functions *classifier.m* and *test_faces.m* in order to work with the previously obtained PCA projections.
- **Exercise 3:** Compute the confusion matrix of your subset in the following situations:
 - $N_{\text{train}} = 5; N_{\text{test}} = 15; N_v = 2.$
 - $N_{\text{train}} = 5; N_{\text{test}} = 15; N_v = 5$ (equal to the number of persons in the subset).
 - $N_{\text{train}} = 15; N_{\text{test}} = 5; N_v = 5.$ (equal to the number of persons in the subset).
- **Exercise 4 (OPTIONAL):** Repeat exercises 1, 2 and 3 with all the images of the database (all students). Only one experiment has to be performed, with the following parameters: $N_{\text{train}} = 15, N_{\text{test}} = 5; N_v = 20$ (equal to the number of persons in the set).