Project no. 6 (2 persons)

Blind separation of speech and sound sources

Three mixed images (with small additive and convolutional noise 1)

Output images from the blind separation stage

Particular steps are required:

1. (P1) Read and write .wav sound files to/from the program. Perform signal normalization (amplitude scaling, elimination of the mean value). Assume two variants: - the mixtures are already available, or – perform the mixing of available test sources. Provide quality estimation functions: correlations between outputs, EI (if sources are unknown), the SNR, qEI coefficients (if source signals are known for testing)
2. (P2) Perform a neural net weight learning process for blind separation. Control the learning rate, in order to avoid wrong situations of explosive weight increase (learning rate too high) or weight suppression (learning rate too low). Automatically restart the learning process if such exceptions occurred.
3. (P1, P2) Show the results of the learning process in graphic windows (selected weights, learning rate, correlations of the output, SNR, EI) in an on-line manner (i.e. during the learning process). Prepare a final report.