

DESCRIPTION: This MATLAB code generates the results presented in Sections IV-B and IV-C (Figures 4-5) of the paper.

SIZE: The total size of the files is 30 KB.

PLAYER INFORMATION:

This code has been created and tested on MATLAB R2015a.

PACKING LIST:

The zip archive contains the following MATLAB m-files:

- 'ica_l1pca_sim_perf_vs_ssize.m': generates results of Sec. IV-B Experimental analysis - Finite-sample performance (Fig. 4).
- 'ica_l1pca_sim_perf_vs_outlier.m': generates results of Sec. IV-C Experimental analysis - Robustness against outliers (Fig. 5)
- 'fastica_abs.m': FastICA algorithm with absolute value nonlinearity [HYV99].
- 'fastica_logcosh.m': FastICA algorithm with logcosh nonlinearity [HYV99].
- 'fastica_4pow.m': FastICA algorithm with fourth-power nonlinearity (kurtosis-based FastICA) [HYV99].
- 'l1pca_kwa08.m': iterative L1-PCA algorithm of [KWA08].
- 'l1pca_minmax.m': optimal L1-PCA algorithm of [MAR14], suitably modified to perform L1-norm minimization if required.
- 'kde_gauss.m': kernel density estimate with Gaussian kernel.

References:

[HYV99] A. Hyvärinen, "Fast and robust fixed-point algorithms for independent component analysis", IEEE Transactions on Neural Networks, Vol. 10, No. 3, pp. 626-634, May 1999.

[KWA08] N. Kwak, "Principal component analysis based on L1-norm maximization", IEEE Transactions on Pattern Analysis and Machine Intelligence, Vol. 30, No. 9, pp. 1672-1680, Sept. 2008.

[MAR14] P. P. Markopoulos, G. N. Karystinos and D. A. Pados, "Optimal algorithms for L1-subspace signal processing", IEEE Transactions on Signal Processing, Vol. 62, No. 19, pp. 5046-5058, Oct. 2014.

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