Blind separation of more sources than sensors in convolutive mixtures

We demonstrate that blind separation of more sources than sensors can be performed based solely on the second order statistics of the observed mixtures. This is a generalization of well-known robust algorithms that are suited for equal number of sources and sensors. It is assumed that the sources are non-stationary and sparsely distributed in the time-frequency plane. The mixture model is convolutive, i.e., acoustic setups such as the cocktail party problem are contained. The limits of identifiability are determined in the framework of the PARAFAC model. In the experimental section, it is demonstrated that real room recordings of 3 speakers by 2 microphones can be separated using the method.

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