Blind Audio Source Separation in Time Domain using ICA Decomposition

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Abstract

Algorithms for Blind Audio Source Separation (BASS) in time domain can be categories as based on complete decomposition or based on complete decomposition. Partial decomposition of observation space leads to additional computational complexity and burden, to minimize resource requirement complete decomposition technique is preferred. In this script an optimized divergence based ICA technique is proposed to perform ICA decomposition. After decomposition components having similar behaviour are grouped in form of clusters and source signals are reconstructed. The authors implemented complete decomposition for BASS using ICA methods and K-mean cluster technique is introduced. For performance evaluation a three source and three microphones combination is used and result advocates complete decomposition by optimized ICA is a better option than other methods in competition for audio source separation in blind scenario.

References


18. N. Dubey, R. Mehra, „Unsupervised Learning Based Modified C-ICA for Audio Source Separation in Blind Scenario”, Accepted in Int. Journal of Information technology and computers


Index Terms

Computer Science  Signal Processing

Keywords

Blind Source Separation, Complete Decomposition, Clustering, K-mean Clustering