Hyperbolic Power Transformation for Blind Signal Separation

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Abstract

Aware of the issue of the probability density functions in the blind signal separation (BSS) problem, a large number of parametric density models have been made available in recent literature. Inspired by the hyperbolic tangent function encoded in the analysis of biological neural networks, we propose a new power transformation toward normality. In this talk, the transformation for BSS problem is introduced to jointly estimate the probability density function of the source signals and the unmixing matrix. Consistency of the maximum likelihood estimation of the parameters of the proposed transformations is proved. The simulation results and real EEG recordings decomposition illustrate the effectiveness and performance of the proposed method.