

一种独立分量分析的迭代算法和实验结果

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介绍盲信源分离中一种独立分量分析方法, 基于信息论原理, 给出了一个衡量输出分量统计独立的目标函数。最优化该目标函数, 得出一种用于独立分量分析的迭代算法。相对于其他大多数独立分量分析方法来说, 该算法的优点在于迭代过程中不需要计算信号的高阶统计量, 收敛速度快。通过脑电信号和其他信号的计算机仿真和实验结果表明了算法的有效性。

AN ITERATIVE ALGORITHM OF INDEPENDENT COMPONENT ANALYSIS AND THE EXPERIMENT RESULTS

An independent component analysis (ICA) method in blind source separation (BSS) is introduced. An objective function is given based on information theory. A fast iterative ICA algorithm is derived by optimizing the function. In contrast to most blind source separation algorithms, the method does not need to calculate the higher order statistics of signals, and converges fast. The proposed method is verified by computer-simulating with biological signals such as clinical electroencephalograph (EEG) signal and other kind of signals.

关键词

盲信源分离(Blind source separation(BSS)); 独立分量分析(Independent component analysis(ICA)); 人工神经网络(Artificial neural network(ANN)); 负熵(Negentropy)