生物物理学报(2004) 20(1), 77-82

PDF文档

多通道脑电信号的盲分离

游荣义[1,2]、徐慎初[1]、陈忠[1]
1 厦门大学物理系
2 集美大学计算科学与应用物理系

提出一种新的多通道脑电信号盲分离的方法，将小波变换和独立分量分析（independent component analysis， ICA）相结合，利用小波变换的滤噪作用，将混合在原始脑电的部分高频噪声滤除后，再重构原始脑电作为ICA的输入信号，有效地克服了现有ICA算法不能区分噪声的缺陷。实验结果表明，该方法对多通道脑电的盲分离是很有效的。

BLIND SIGNAL SEPARATION OF MULTI-CHANNEL EEG

A new method of blind signal separation(BSS) for multi-channel EEG is proposed, which combines the Wavelet Transform with the independent component analysis (ICA). By using the noise filtering function of wavelet transform, some high-frequency noises were removed from the original EEG, and the original EEG was reconstructed again for the input of ICA. So the defect that ICA is impossible to distinguish noises from source signals can be overcomed effectively. The experimental results show that this method is an effective way to BSS of multi-channel EEG.

关键词

脑电（EEG）(Electroencephalograph (EEG)); 小波变换(Wavelet transform); 主成分分析(Principal component analysis(PCA)); 独立成分分析(Independent component analysis (ICA)); 盲信号分离(Blind signal separation (BSS))