基于能量特征的脑电信号特征提取与分类

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基金项目：广东省科技计划项目

摘　要：

为了快速、有效地提取脑电特征，提高分类正确率，采用带通滤波和小波包分析的方法提取Mu、Beta节律对应的脑电信号，在时域范围内，将信号幅度的平方作为能量特征值；在频域范围内，采用AR模型功率谱估计法所得的功率谱密度作为能量特征值。根据运动想象脑电信号特点，构造左右通道信号能量差值的符号特性作为分类判别依据，进行分类测试，方法简单，且两种方法的分类正确率达87.857%。

关键词：脑电信号；小波包；事件相关同步化/去同步化

Feature extraction and classification of EEG based on energy characteristics

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Abstract:

In order to extract the feature of electroencephalogram (EEG) quickly and efficiently, to improve the classification accuracy, band-pass filter and wavelet package were used to get Mu and Beta rhythm. In the time domain, energy feature was formed by the squared-amplitude of electroencephalogram (EEG); In the frequency domain, AR model power spectral density was to be the energy feature. The subtracted value of EEG energy was the basis of classification. The method is simple and the classification accuracies are up to 87.857% for both methods (time and frequency analysis).

Keywords: electroencephalogram (EEG); wavelet package; event related desynchronization (ERD)/event related synchronization (ERS)

投稿时间：**2010-01-01**

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