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Abstract

An Electrocardiogram (ECG) signal describes the electrical activity of the heart recorded by electrodes placed on the surface of human body. It summarizes an important electrical activity used for the primary diagnosis of heart abnormalities such as Tachycardia, Bradycardia, Normalcy, Regularity and Heart Rate Variation. The most clinically useful information of the ECG signal is found in the time intervals between its consecutive waves and amplitudes defined by its features. In this paper, an ECG feature extraction algorithm based on Daubechies Wavelet Transform is presented. DB4 Wavelet is selected due to the similarity of its scaling function to the shape of the ECG signal. R peaks detection is the core of this algorithm's feature extraction. All other primary peaks are extracted with respect to the location of R peaks through creating windows proportional to their normal intervals. The proposed extraction algorithm is evaluated on MIT-BIH Arrhythmia Database. Experimental results indicate that the algorithm can successfully detect and extract all the primary features with a deviation error of less than 10%.

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Index Terms

Computer Science

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Keywords

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