عنوان مقاله:

Reliable Features for an ECG-based Biometric System

محل انتشار:

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خلاصه مقاله:

Verification of subjects using their unique physiological features has recently attracted much attention todevelop secure biometric systems. One of the most reliable physiological features is electrocardiogram (ECG) waveform, which is the electrical reflection of the heart activity, and has a unique characteristic for each individual. In this paper, autoregressive (AR) coefficients along with mean of power spectral density (PSD) were used as reliable ECG features to enhance the performance of an ECG-based biometric system. To assess the effectiveness of the proposed combination, other features including autoregressive (AR) coefficients, Higuchidimension, Lyapunov exponent, and approximation entropy (ApEn) were exctracted from ECG Multi-layer-perceptron (MLP), probabilistic neural networks, and k-nearest neighbor (KNN) classifiers were used to classify the extracted features. In addition, simple combination of the features was considered for further improvement in verification rate. The achieved results (100% accuracy) showed the effectiveness of the combined features in terms of accuracy and robustness compared to the results .produced by the former traditional methods

کلمات کلیدی:

ECG; Biometri;, AR; Mean Spectrum; ApEn; Neural Networks