عنوان مقاله:

Chaotic and nonlinear analysis of ECG signal to detect PVCarrhythmia

محل انتشار:

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خلاصه مقاله:

Early diagnosis of heart disease plays an important role in treating the disease and preventing its dangerous consequences. One of the most common cardiac arrhythmias is premature ventricular contraction (PVC). In this research, using the extraction of chaotic characteristics of the ECG signal, ventricular premature contraction arrhythmia has been detected. Four important characteristics of chaotic systems used in this article are fractal dimension, Lyapunov exponent, correlation dimension and approximate entropy. Two supervised and unsupervised methods are used to detect arrhythmia. The nearest neighbor method was used as a supervised method for classification and the results were ۹۳.۰۱% accuracy and ۹۰.۰۱% precision. The second method is known as K-Means and was used as an unsupervised method for clustering and the results were ۷۹.۰۶% accuracy and ۷۸.۷۸% precision.

کلمات کلیدی:

Electrocardiogram, premature ventricular contraction (PVC), Chaos, KNN, K-Means

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