13th European
Signal Processing
Conference
September 4-8, 2005
Antalya
Turkey

BALLISTOCARDIOGRAM DIAGNOSIS USING NEURAL NETWORKS AND SHIFT–INVARIANT DAUBECHIES WAVELET TRANSFORM (MonAmOR11)

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✱ Abstract :

One of critical problem causing death of humankind is heart disease. To help Medical doctors to find patient heart conditions and monitoring their body's signals, several electronic devices have been developed over several decades. Among different methods used for these purposes, Ballistocardiography (BCG) has an interesting measurement feature that no electrodes are needed to be attached to the body during recording. Therefore, it is provides a strong potential possibility to evaluate the patients heart condition in the home, car, or his office. In this research, we used Shift Invariant Daubechies wavelet transform to extract essential BCG features and Artificial Neural Networks to classify them. The results show that our method using wavelet transform and neural network classifier has a reliable and high performance, no sensitive to BCG waveform latency as well as non–linear disturbance. Moreover, the wavelet transform requires no prior knowledge of the statistical distribution of data samples and the computation complexity and training time are reduced.

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