Abstract

This work investigates the application of the Ensemble Empirical Mode Decomposition (EEMD) and the time-frequency techniques for treatment of the electromyography (EMG) signal. The EMG signals are usually corrupted by artifacts that hide useful information then the extraction of high-resolution EMG signals from recordings contaminated with back ground noise becomes an important problem. The Ensemble Empirical Mode Decomposition (EEMD) is used for overcoming the noise problem. Due to the non-stationary of EMG signals, the analysis of this signal with the time-frequency techniques is inevitable. These time-frequency techniques are capable to reveal and extract the multicomponents of the EMG signal. The different time-frequency techniques used in this work are parametric techniques such as Periodogram, Capon and Lagunas and non-parametric such as Smoothed Pseudo Wigner-Ville and Hilbert
Periodogram and Ensemble Empirical Mode Decomposition Analysis of Electromyography Processing

These time-frequency techniques were applied to a normal and abnormal EMG signals, these signals were taken from patients with neuropathy and myopathy pathologies respectively. The results show that The Periodogram technique presents a powerful tool for analyzing the EMG signals. This study shows that the combination of the EEMD and the Periodogram techniques are a good issue in the biomedical field.

References


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Index Terms

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