Abstract

Electromyography (EMG) is an electrodiagnostic medicine technique for evaluating and recording the electrical activity produced by skeletal muscles. Surface EMG (sEMG) will be used in this study. sEMG electrode will be placed on body surface near the muscle which electricity will be read by sEMG sensor. In recording process, there will be noise that also recorded by the sensor. This noise will affect sensor reading result. Denoising process should be done to reduce recorded noise. In this study, denoising process will be applied to EMG signal from sEMG reading using Ensemble Empirical Mode Decomposition (EEMD) algorithm. To test the performance of this denoising algorithm, there are some metrics value that will be checked. There are Mean Square Error (MSE), Signal to Noise Ratio (SNR), and Mean Absolute Error (MAE). After denoising process, denoised signal will be processed using DWT Haar and Gradient Boosting Classifier to check its accuracy, specificity and sensitivity. From those metrics, the EEMD algorithm denoising performance in EMG signal denoising will be known.

Keywords: Surface EMG, EEMD, denoising