

## Abstract

Fatigue in humans can cause injury to muscles. This often happens because of strenuous activity and beyond the ability of its muscles. To detect muscle fatigue, we need a tool or system that can measure the ability of muscles to see the level of endurance. In this study, a tool to recognize the level of fatigue in the muscles in the form of signal patterns will be created using *EMG* (Electromyograph). *EMG* signal is an electrophysiological signal that can measure the electrical current generated by muscles during contraction. But the measurement results from the use of *EMG* are often influenced by noise. To overcome this noise we need a filter that can reduce or eliminate noise from the *EMG* signal. In several existing studies, the *EMG Denoising* technique has been developed using *EMD* (Empirical Mode Decomposition). For testing this method will be done using Python with the metric: SNR (Signal to Noise Ratio), MAE (Mean Absolute Error) and *MSE* (Mean Square Error). In this test, noise that will be added before applying *Denoising* technique is AWGN (Additive White Gaussian Noise). Furthermore, the calculation of the *SNR*, *MAE* and *MSE* values will be performed on the *Denoising* signal.

**Keywords:** *EMG*, *EMD*, Noise, *Denoising*, *SNR*, *MAE*, *MSE*