

ABSTRACT

Along with technological advances, more equipment is designed to help people with their activity, particularly in medical field. Medical field has many medical equipments (biomedical instruments) are quite advanced in the examination and diagnose human body, such as Electroencephalogram (EEG), which is a recorded of electrical activity in the brain and Electrooculogram (EOG), which is retina of the eye movement recorded. But these devices have limitations, including EEG signal in the brain recorded that is affected by other signals (noise), particularly retina signals that could interfere in diagnose patient's condition.

The purpose is to get the EEG output signal as pure as possible with Root Mean Square Error or RMSE score as small as possible. One of many method is using Wavelet Transformation with decomposition process and Wavelet Reconstruction. The simulation is using Matlab software.

The result was getting EEG signal that had already separated with EOG noise where the separation process was using 2 kinds of EEG signal as test signal and 4 kinds of other EEG signal as reference signal and EOG signal. Those signals was amounted 324 and the other 2500 samples with 250 Hz sampling frequency and 10 seconds duration. The test signal and noise had wavelet decomposition process until five level wavelet. Then it was continued with signal signification process. These test and noise signals had reduction process in transformation domain. Then, it was reserved or reconstructed so it got denoising output signal in wavelet transformation. After that, it matched with EEG reference signal and finally we count the RMSE.

Keywords : ***Electroencephalogram (EEG), Electrooculogram (EOG), Wavelet transformation, wavelet decomposition, and wavelet reconstruction.***