

## ABSTRACT:

Problem statement: The time frequency analysis of non-stationary signals has been the considerable research effort in recent years. Wavelet transform is one of the favored tool for the analyzing the biomedical signals. Approach: We describe the identification of Electro-Oculograph (EOG) signals of eye movement potentials by using wavelet algorithm which gives a lot of information than FFT. The capability of wavelet transform was to distribute the signal energy with the change of time in different frequency bands. This will showed the characteristic of the signals since energy was an important physical variable in signal analysis. The EOG signals were captured using electrodes placed on the forehead around the eyes to record the eye movements. The wavelet features used to determine the characteristic of eye movement waveform. This technique adopted because it was a non-invasive, inexpensive and accurate. The new technology enhancement has allowed the EOG signals captured using the Neuronal EEG-9200. The recorded data was composed of an eye movement toward four directions, i.e., downward, upward, leftward and rightward. The proposed analysis for each eyes signal is analyzed by using Wavelet Transform (WT) with energy algorithm and by comparing the energy distribution with the change of time and frequency of each signal. Results: A wavelet Scalogram was plotted to display the different percentages of energy for each wavelet coefficient towards different movement. Conclusion: From the result, it is proved that the different EOG signals exhibit differences in signals energy with their corresponding scale such as leftward with scale 6 (8-16Hz), rightward with scale 8 (2-4Hz), downward with scale 9 (1-2Hz) and upward with level 7 (4-8Hz). Statistically, the results in this study indicate that there are 93% (averages) significance differences in the extracted features of wavelet Scalogram analysis.