

## **SCHOOL OF ENGINEERING**

### **Develop Efficient Automated Bio-Signal Monitoring System. Wavelet Filtering and Matlab**

### **FINAL REPORT**

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# Abstract

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Everywhere around us are signals that can be analyzed. For example, there are seismic tremors, human speech, engine vibrations, medical images, financial data, music, and many other types of signals. Wavelet analysis is a new and promising set of tools and techniques for analyzing these signals. Normally, many diseases can be diagnosing by analyzing the physiological signals of the patients.

In this project, the patient signals which acquired from research resource for complex physiological signals were analyzed using wavelet analysis techniques. Wavelet analysis is a relatively new technique in signal processing, especially suited for the analysis of non-stationary signals. It offers a representation of signals in the time-frequency plane, giving information regarding the time localization of the spectral components. EEG signals are highly non-stationary in nature, and therefore, they are not suited for Fourier transform based analysis.

This project will reveal on some diseases related to the physiological signal and use different methods to detect the abnormalities by using wavelet analysis. Finally, is to design pseudo codes to create a system with graphical users interface (GUI) that can detect abnormalities in the signal and give a fully automated reading.