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RESEARCH ARTICLE

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Signal processing though wavelets

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ABSTRACT

Noise has been a primary deterrent in signal transmission and processing. It results in faulty information after processing the signals reducing their usability. In persent work, different kind of wavelets (such as haar, daubechies ,coif, etc) were used to filter out the noise from different kind of signals(such as electrical signals, sine waves, EGC etc). For this purpose the wavelets tool box of MATLAB software was used and tried to find out the best wavelets for these signals.

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Key words : Wavelets, Denoising, EGC, Daubechies, CWT, DWT

INTRODUCTION

A signal is defined as any physical quantity that varies with time, space and other parameters (independent variables). Digitals signal processing is an area of science and engineering that has been developed rapidly over the past 40 years. DSP gives the proper solution for the mostly signal processing problems. (Ramesh Babu Durai, 2006). Signals always have some noise associated with them, rarely do we find signals in "real life" situations that are free from noise and can be directly employed for extracting information. Noise can result in an output which may not be intended or not the characteristic of the quality being observed, giving rise to faults in the system of which the signals is a component. It can also cause judgmental errors if the signals is being directly observed and the impact can range from being minute in some cause to destructive in certain critical system like EGC machines. (Niknazar *et al*., 2009).

Hence, it's impotents that the noise should be removed from the signals. Most of the times the noise found in the signals is of higher frequency as compared to the signals produced by the quantity being measured or represented. It's, therefore, of almost impotence that the noise from the signals is removed to the optimal extents. The problem of noise in the signals is not new. Various solutions have been proposed and are currently being employed a numbers of systems. The earlier method of signals analysis was based on time domains method. But this is not always sufficient to study all features of EGC signals, so, the frequency representations of a signals is required to accomplish this , FFT (fast fourier transform) technique is applied. But the unavoidable limitation of this FFT is that the technique failed to provide the information's regarding the exact locations of frequency components in time. As the frequency content of the signals varies with time, the need for an accurate description of the signals frequency contents according to their locations in the time is essential. This justify the used of time frequency representation of the signals. (Madan *et al.*, 2009).

The immediate tool available for this purpose is the short term fourier transform (STFT) but the major draw back of this STFT is that it's time. A frequency precision

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