



INTELLIGENT ADAPTIVE USE OF WAVELET PACKETS FOR BIOMEDICAL APPLICATIONS

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ABSTRACT—Signal decomposition methods like Wavelet Transform (WT) have been widely used in a large set of applications such as image, speech and biomedical signal processing, reporting good results. In this paper, two versions of the WT are analyzed: the Discrete Wavelet Transform (DWT) and the Wavelet Packets (WP).

The DWT is implemented by means of a filter bank with a fixed structure that provides a base valid to represent signals. The WP is a generalization of DWT that provides a library of bases, so that

The best one can be chosen to represent the signal. Although WP is superior than the DWT from a theoretical view, WP has not been extensively used.

This work presents an experiment that shows the behavior of WP and its ability to adapt to the incoming signal. Results show that WP adaptive algorithm performs efficiently and gives good results in the ECG case.

Key Words: Wavelet Transform, Discrete Wavelet Transform (DWT), Wavelet Packets (WP), filter bank, wavelet base selection.