THE USE OF WAVELET PACKETS FOR EVENT DETECTION (WedPmPO3)

Author(s) :

Marwa Chendeb (UTT, France)
Mohamad Khalil (Lebanese University, Lebanon)
Jacques Duchêne (UTT, France)

Abstract :

In this paper, we propose a best basis selection method to choose a set of packets from a wavelet packet tree. Our goal is to obtain packets that show changes in both energy and frequency. The criterion adapted to choose the best basis is the Kullback−Leibler Distance (KLD). When there is no event to be detected, the estimated KLD follows roughly an exponential distribution depending on only one parameter: the length of the windows partitioning the signal. When events are detected in a packet, the distribution of the estimated KLD deviates from the exponential distribution. The statistics Kolmogorov−Smirnov are used to measure the separation between experimental and theoretical cumulative distributions in order to highlight the presence of ruptures, then to select the most relevant packets.

Menu