

ABSTRACT

The content of noise in the phonocardiogram (PCG) signal is a major problem in the analysis of heart conditions that generally occur in the recording process. The development of a method of eliminating noise (denoising) is the goal of the research that has been conducted. Observation of system performance is done using the addition of Additive White Gaussian Noise (AWGN) noise, calculating the estimated noise level, threshold, denoising for the Discrete Wavelet Transformation (DWT) method and the Discrete Hilbert Filter (DHF) method by convolution of even and odd DHF. The results obtained using the DWT method without Band Pass Filter (BPF) produce an average value of Signal Noise to Ratio (SNR) of 13.90 dB and Mean Square Error (MSE) of 0.01%. DWT results with BPF produce an average SNR of 12.89 dB and MSE of 0.30%. DHF results without BPF produce an average SNR of 16.54 dB and MSE of 1.55%. The results of DHF with BPF produce an average SNR value of 17.30 dB and MSE of 1.51%. The results obtained show that the denoising process using Wavelet Transform transforms is able to provide a good denominating Phonocardiogram signal, compared to using a Discrete Hilbert Filter.

Keywords : *Phonocardiogram (PCG), Additive White Gaussian Noise (AWGN), Discrete Wavelet Transformation (DWT), Discrete Hilbert Filter (DHF), Signal Noise to Ratio (SNR), Mean Square Error (MSE).*