

ABSTRACT

In this final task will be designed and implemented a non-blind watermarking of digital video using Discrete Wavelet Transform and Edge Detection. In general the insertion process can be described as follows. Video Host decomposed using Discrete Wavelet Transform (DWT). Then wavelet coefficients of subband wavelet transforms subjected to convolution Sobel. From the results of convolution Sobel gradient values obtained from each of these wavelet coefficients. Watermark insertion performed on wavelet coefficients that have a gradient value above the threshold. Watermark image used is the image grayscale. Each bit of each pixel grayscale will be copied into a spread signal, this signal spreads that will modify the subband wavelet coefficients of video hosts. After the design and implementation, testing against watermarking system to see resistance to attack. The type of attack tested were rescaling (factor of 1.25, 1.5, 1.75), cropping (1 second, 1 second, and 3 seconds), and attacks on lossless compression.

From the results of subjective and objective measurements, non-blind watermarking system using Discrete Wavelet Transformation and edge detection have the quality of video watermarking (PSNR) $\geq 37,936$ Db that calculated based MSE using a scale factor (10, 20, 30) and seed (1, 3, 6). Image watermark does not change when exposed to attacks lossless compression, the scale factor does not affect the quality of watermarked image when subjected to cropping attack, the greater the scale factor in a similar seed in rescalling attack will result in better quality of watermarked image. From subjective measurements using MOS proven that this watermarking system has a high level imperceptibility.

Keywords: *Non-Blind Watermarking, Video watermarking, Wavelet Transformation, Edge Detection*