ABSTRACT

As the fast improvement of technology, copyright become an important matters. With internet, someone's creation can be easily publicated and then accessed by the others. Sometime it can be freely accessed by everyone and everywhere. Someone can claim other's creation because there are no signature from it's original creator. So, we need a way to protect digital copyright, for example with watermarking.

A digital image watermarking technique can be good if the image result is nearly have same quality with the original image. It means, the insertion image cannot be recognized by our eyes. And the insertion image must be persistent again image attack. This final project implement Contourlet Transform (CT) and Singular Value Decomposition (SVD) method. The performance of watermarking process is measured by Peak Signal to Noise Ratio (PSNR) *and Normalized Correlation Coefficient* (NC). *The quality is measured againts the attack of rotation, JPEG compression, and sharpening.*

Watermarking insertion on lowpass subband, generate worse result compared with others subband. *But it more persistent with given attacks. Watermarking insertion on decomposition level 4 generate better result compared decomposition level 1, 2 or 3. Scale Factor less than 20 is good, because it generate PSNR more than 30 dB.*

Key word: *Watermarking, Contourlet Transform, Singular Value Decomposition*