

## ABSTRACT

*Noise is one of many factors that corrupt digital images, it turns pixels to be different than the original pixel. Many factors can add noise to digital image, such as noisy communication system, erroneous photography or digital image reproduction. Noise reduction techniques designed to suppress the noise in noisy data and acquire desired digital image quality.*

*This final project will discuss Dual-Tree Complex Wavelet Transform (DTCWT) and thresholding Normal Shrink implementation and to compare soft-threshold method and Bivariate Shrinkage. Noise model used to simulate noisy image is Gaussian noise mode. Aliasing occurs on 2-D DWT wavelet transforms, because the filters used are real filters. On the other hand, synthesis and analysis in complex wavelet does not produce much aliasing because of complex wavelet scaling function used in the transform. Thus, the bivariate threshold function more desirably on complex wavelet space.*

*Denoising methods that uses Dual-Tree Complex Wavelet analysis are generally provides better results than its Real-DWT counterparts. Metode denoising dengan dekomposisi Dual-Tree Complex Wavelet. Large dimension and high redundancy digital images generally provides better results when denoised. DWT result by using normal-shrink soft threshold is 12,4 dB gain in PSNR, and the DTCWT result is 13,84 dB on denoising 1024x1024 pixels digital images with 2,4 redundancy.*

**Keywords : Denoising, Image, DTCWT, Normal Shrink.**