

Abstract

Digital image is one of the easiest used image forms viewed from the sending of image as data and the image processing itselfes. In the image sending, it often happened the sent image is contained by noise then makes image quality is different with the original image when the image is received, it because of there is a distortion during transmission.

This final task would be implemented and analysed the using of Gaussians Scale Mixtures (GSM) method in the wavelet domain during denoising process. This method used two independent random variable, i.e. Gaussian vector and hidden positive scalar multiplier, in which both of them modeled scale and close neighbourhood coefficient. In this GSM method used Bayes Least Square (BLS) estimation for estimating the weight of noisy pixels to get back that pixel value that is the most close to its real value.

Performance parameters that would be tested in the digital image are PSNR (Peak Signal-to-Noise Ratio) and MOS (Mean Opinion Score) on result of denoising image. The testing were did with several combination, i.e. wavelet filter (daubechies-1 to daubechies-4), BLS neighbourhood matrix size (3x3, 5x5, 7x7), and noise standar deviation (10, 30 dan 50). From the result of analysisist got that the increasing of daubechies wavelet ordo does not impact PSNR value of the result of denoising image significantly and as the bigger of BLS matrix size as the increase PSNR value is getting lower.

Keyword: Additive Gaussian Noise, Gaussian Scale Mixtures (GSM), Bayes Least Square (BLS), PSNR, MOS