

Abstract

Requirement to bandwidth of network of communications and big storage media capacities become a very important issue when a number digital image had to be kept data transmitted. For efficiency of capacities bandwidth and capacities storage media become better, so compression image data has to be done before the data kept or transmitted. Compression do to eliminate the redundancy which implied in the data, by minimization sum up the beet which representated of image data. Afterwards do decompression to image data which wish re-presented or after transmission process have been done.

In this final duty developed a digital application compression image using method of combination Wavelet-PCA. DWT (Discrete Wavelet Transform) representing technique to decomposed image data become four subband that is subband aproximation (LL), subband horizontal (LH), vertical subband (HL), and subband diagonal (HH). Wavelet Transform used is wavelet CDF 9/7. At this transformation wavelet is image transformed through process of symmetric extension to lessen the edge effect of moment when convolusion process is done. Its excess that is better decompression image even for the edge of its. PCA needed catch the total variation at image and explain the the variation of with the variable which its amount is slimmer, meaning besides PCA yield the data characteristic, PCA also do dimensional reduction of the data. While its quantization use the scalar quantization. Affiliation of various this method yield the compression system having the character of lossy.

Based on analysis which have been done, in the reality this system own the good performance pursuant to compression ratio, PSNR and also the MOS. Compression ratio mean yielded by this system about 70%-90%. While value PSNR reside in among range 20dB-40dB, a value including value of PSNR of standard of image compression that is 30dB. Value MOS yielded high even also with the mean of equal to 4,4033 for the level of decomposition 1 meaning to stay in the good image category.

Keywords: *image compression, discrete wavelet transform, PCA, lossy compression, compression ratio, PSNR and MOS.*