Abstract

Digital image compression is a method that used in image processing to reduce storage size of image by reduce it information (lossy) or remain to maintain it (lossless). Information reduction were done by linear transformation that change the representation or domain of digital image from spatial domain to frequency domain, and then followed by eliminating higher frequency, quantization, and entropy encoding. This final task is used a digital image compression method which combining *Discrete Wavelet Transform* (DWT) and *Singular Value Decomposition* (SVD). DWT is used to to decompose a signal to a different frequency component (LL, LH, HL, HH subband). The lowest frequency LL subband will processed by SVD. Scalar and vector quantization and Huffman coding also used in the encoding process. A Linde Buzo Gray (LBG) algorithm is used to produce codebook for vector quantization. Performance parameter that's tested is compression ratio and PSNR (*Peak Signal to Noise ratio*) in image coming from the result of decomposition.

From the analysis result, for each orde daubechies filter increment to cause of PSNR increment and decrement of compression ratio. For each decomposition level increment to cause decrement of PSNR and increment of compression ratio. Whereas, for each increment of SVD *rank* to cause of PSNR increment and decrement of compression ratio. The biggest average of PSNR that is produced from DWT-SVD compression is 29,48 with compression ratio is 99,59

Keywords: discrete wavelet transform, singular value decomposition, standard deviation, vector quantization, scalar quantization, Huffman encoding.