

Abstract

The general principal used in image compression is to reduce data duplication inside the image so the memory needed to represent the image can be smaller. JPEG and JPEG2000 are the examples of standardized compression technique. JPEG2000 itself is an improvement of JPEG. The compression technique used JPEG2000 is using Wavelet as the transformation method and scalar as the quantization method. However, despite the advantage of wavelet transformation which has low computation, wavelet has poor performance in low-correlated image. In this Final Paper, Wavelet-SVD (Singular Value Decomposition) domain will be used as the transformation method. SVD will be used to achieve a better performance for transformation process in low-correlated image, while Wavelet domain is used in high-correlated image. In the quantization process, graph-based quantization is used to clusterize image component in frequency domain. On previous research, it is known that graph-based quantization provides better result than vector quantization that is widely used. Testing result shows that the system provides good performance based on compression ratio and PSNR. The average compression ratio generated by the system stands between 50-60%, while the average PSNR stands between 40-80 dB.

Keywords: *compression ratio, graph based quantization, JPEG2000, PSNR, SVD, wavelet.*