

Thesis Title	Image Data Compression Using Wavelet Transform
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ABSTRACT

Up to now, image data play an important role in most communication activities, for instance, tele-communication system of an images and many business documents. Consequently, image data are stored and manipulated as an image database in some application tasks, such as, medical image database. Due to amount of image data, a high capacity of mass storage device or more capability of communication channel is required. An image data compression technique is a solution of this problem. To achieve more of compression ratio, unnecessary parts in the image must be discarded.

In this thesis, image data compression technique based on wavelet transform is presented. In the first phase, some image components, which extracted by using the wavelet transform is discarded by thresholding. In the second phase, Huffman and Run-length coding are applied to reduce some redundancy parts in the transformed data. Finally, a reduced image data size is obtained, however, the image quality must be accepted for using in most applications.

By using this technique with the 8 bit/pixel gray scale image, 256x256 pixel in size, the compression rate of 15 to 30 times can be retrieved while the error (e_{rms}) is between 5 - 15 depend on the details of an image. When compare to JPEG compression, this technique give the same error at equal compression ratio but no blocking-effect presented in an image.