COMPRESSING IMAGES USING MULTI-LEVEL WAVELET TRANSFORM ALGORITHM

(MWTA)

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ABSTRACT

This study aims to use Wavelet Transform Algorithm for image compression. Multi-levels were used in this study with the aim to produce better results for compressing images. The Multi-level Wavelet Transform Algorithm (MWTA) consists of three phases namely, first level compression, second level compressing in the first level, and algorithm validation by compare. Therefore, Vaishnavi method is used to design and develop the prototype model. In this study, the experiment was conducted using different images (RGB). The algorithm and comparison was simulated using Matlab application. The results revealed that Multi-level Wavelet Transform Algorithm (MWTA) can be used in more than one level in this algorithm but the efficiency of this algorithm for compressing was found to be in the first level in terms of size.

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CHAPTER ONE

INTRODUCTION

1.0 Background of the Study

Today, the importance of human perceptual properties to visualize information clearly and efficiently must be considered. Image quality assessments can be used to monitor image quality and optimize the compression performance and parameter settings (Wang, Sheikh, and Bovik, 2002). Digital images are available in uncompressed form, and usually very large in size. The digital image contains a fixed number of rows and columns of pixels require more storage space. Image compression is a method of using algorithms to decrease file size. The intention of image compression is to reduce redundancy of the image data in order to be able to store or transmit data efficiently. There are two types of image compression which are lossy and lossless (Meadows, 1997). A lossy compression achieves its effect at the cost of a loss in image quality, by removing some image information while lossless compression techniques reduce size with preserving all of the original image information and therefore without degrading the quality of the image(Brown, 2003).

Wavelets are functions which allow data analysis of signals or images, according to scales or resolutions. The processing of signals by wavelet algorithms Transform is in fact works much the same way the human eye does; or the way a digital camera processes visual scales of resolutions, and intermediates details. But the same principle also captures cell phone signals, and even digitized color images are used in medicine. Wavelets are of real use in these areas, for

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