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A Proposed Method for Image Compression Using Discrete Wavelet Transform and Absolute Moment Block Truncation Coding

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Abstract

In this paper, a hybrid image compression method has been presented. This method consists of two stages: the first involves the DWT (Discrete Wavelet Transform) which is used to convert image from spatial domain to frequency domain and the second stage involve the AMBTC (Absolute Moment Block Truncation Coding) that used to compress some of image data. The experimental results show that the proposed method has a very good performance, such it gives higher PSNR values with suitable value of compression ratio compared with the conventional method of AMBTC.

Key words: Image Compression, Discrete Wavelet Transform, AMBTC, PSNR

1. Introduction

Images are one of the most important media that used nowadays, and decreasing the bandwidth and space to transport them is a benefit, image compression aims to reduce the number of bits in transmission and that leads to increase the volume of data transferred in space of time, image compression has became important to most of computer networks.

The human visual system (HVS) is not sensitive to changes in higher frequencies; this part of information can be employed by image compression techniques, converting an image from spatial domain to frequency domain gives the ability to control the values of the higher frequencies of an image. The Discrete Wavelet Transform (DWT) is one of the most significant transformations that used to convert data from spatial domain to frequency domain [1].

The AMBTC is a lossy image compression method that was presented by Lema and Mitchell [2]; it was an improvement of the original method Block Truncation Coding (BTC). The AMBTC plays an important role in image