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A CRAM ON IMAGE COMPRESSION SCHEMES

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Abstract

On the basis of analyzing the various image compression schemes this paper provides a clear view on the best compression technique. There are basically two types of methods introduced namely lossless and lossy image compression methods. By using the compression algorithms redundant bits are removed from the image so that size image size is reduced and the image is compressed. Image compression has two main components redundancy reduction and irrelevant data reduction. Redundancy reduction is achieved by removing extra bits or repeated bits. While in irrelevant reduction the smallest or less important information is omitted, which will not received by receiver. The three types of redundancies i.e. coding redundancy is used when less number of code words is required instead of larger symbol. Inter pixel redundancy results in correlation of pixels of an image and in psycho visual redundancy data is ignored by the normal visual system. Image compression is applied to reduce the number of bits which represent the image. For achieving efficient storage capacity and high transmission bandwidth image compression is needed. By compressing the image, irrelevant data in the image is reduced and at the same time the redundancy is also avoided. When the compressed image is transmitted, the image is distorted due to channel noise. Noise can be reduced by minimizing the distortion and loss of image quality during transmission. This paper gives an overview of the main two compression methods and helps to identify the merits and demerits. It also helps to in choosing the best compression technique.

Keywords: Image Compression, Lossless, Lossy, Redundancy, irrelevant data, noise, reducing bits.

1. Introduction

An image is an artifact that depicts or records visual perception. Images are important documents today; to work with them in some applications there is a need to compress images. The objective of image compression [1] is to reduce the redundancy of the image and to store or transmit data in an efficient form. The compression ratio is defined as follows: Cr= N1/N2 where N1 is the data of the actual image and N2 is the data of compressed image. Image compression plays a very important role in the transmission and storage of image data as a result of and storage limitations. The main aim of image compression is to represent an image in the fewest number of bits in graphics files without losing the essential information content within an original image.