

LITERATURE SURVEY ON IMAGE COMPRESSION

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ABSTRACT

In this digital era image compression technologies has tremendous impact on digital data stored in mobile or in computer. Many people are sending images or photos over phone or through computer to other people. The images would consume more space and may have to increase the capacity of the memory card. So the image processing or compression techniques play a vital role in compressing the images and transmitting over the other devices. The image compression techniques is divided into lossy and lossless compression.

KEYWORDS: Image compression, lossless compression, lossy compression.

I. INTRODUCTION

Image compression is limiting the dimensions in eight bits of a without altering the characteristics of the image. The decrease in size allows images to a known measure of memory size. It additionally decreases the time required for image to be transmitted over the Internet [1]. There are a few distinct manners by which picture records can be compacted. The two regular packed realistic image designs are the Joint Photographic Experts Group (JPEG) and the Graphics Interchange Format (GIF) position [2].

II. IMAGE COMPRESSION

Various methods for image processing or compression uses the fractals and wavelets. The technique used is not increased far acknowledging over network [3]. The two techniques offer higher compression proportions than the Joint Photographic Experts Group or Graphics Interchange Format position. Strategies for certain kinds of pictures [5]. The new strategy that may in time is Graphics Interchange Format design is the Portable Network Graphics group [6].

III. LOSSLESS COMPRESSION

The component of the lossless compression procedure is that the unique picture is superbly recouped to packed picture [7]. It is otherwise called entropy coding because of disintegration procedures to wipe out or limit repetition [8]. Lossless pressure is predominantly utilized for applications like clinical imaging, where the nature of picture is significant [9]. Coming up next are the techniques comes under lossless compression are as follows

- Run length encoding
- Huffman encoding
- LZW coding

a) Run length encoding (RLE)

RLE is a data compression technique that is done by checking quantity of adjoining pels with the dim level worth [10]. This tally, called the run length, is at that point coded and put away [11]. The quantity of bits utilized for the coding relies upon the quantity of pixels in succession: If the line has 2 n pels at that point the necessary number of bits is n. A 256x256 picture needs 8 bits, since $28 = 256$.

b) Huffman encoding

Huffman encoding could create a program which is conceivable to the base band, the entropy. The strategy brings about factor lengthy coding. Complex pictures, Huffman code will diminish the document size by 10 to half. By evacuating insignificant data first, document size decrease is conceivable [12].

c) LZW coding

LZW coding is of static or dynamic, so that a word reference based coding. In static word reference coding, word reference is fixed during the encoding and deciphering forms. Then again in unique word reference coding, the word reference is refreshed on the run [13]. The PC industry is broadly utilizing LZW. It is likewise actualized a pack order on UNIX method.

IV. LOSSY COMPRESSION

Lossy compression procedure utilizes compression than lossless compression [14]. In this technique, the pressure proportion is more by decompressing image isn't precisely indistinguishable from the first picture, however near it. Various kinds of lossy compression procedures are broadly utilized, portrayed by the nature of the recreated pictures also, its sufficiency for many image compression [15]. The quantization procedure applied in lossy compression strategy brings about loss of data. After quantization, entropy coding can be made for lossless compression [16]. The deciphering is a converse procedure. The entropy deciphering is applied to compacted information to get the quantized information [17]. De-quantization is applied to it and at last the backwards change is done to get the remade picture. The strategies that come in lossy compression method is recorded underneath:

A. Vector Quantization

As a feature vector quantization strategy a word reference of constant sized vectors is created and its record in the word reference is utilized as the encodings of the first picture vectors. Ordinarily entropy coding is utilized. It misuses direct and non-straight reliance that is their among the parts of a vector. Vector quantization is prevalent in any event, when the segments of the arbitrary vector are factually free of one another.

B. Fractal Coding

Right off the bat, the picture is disintegrated in to segments by using image handling procedures, like edge discovery, and range & surface investigation. Each portion of a image is gazed .Fractal coding utilizes codes called iterated work framework (IFS) codes, which are minimal arrangements of numbers. Utilizing a methodical technique, A lot of codes for guaranteed picture are resolved utilizing a methodical technique; in like manner when the IFS codes are applied to an appropriate arrangement of picture squares yield a picture that is an exceptionally close guess of the first. This plan is profoundly powerful for compacting pictures that have great normality and self-similarity [18].

C. Block truncation coding

The guideline applied here for picture can be separated in to non-covering squares of pels. The mean of the pel elements in the square (limit) & recreation esteems are decided for each square. The bit-map square is made by sup-planting all pels equivalent (not exactly) to the edge by zero or one. At that point for each section (gathering of 1's and 0's) in the bitmap, the remaking esteem is resolved. This is the normal of the estimations of the comparing pels in the first square.

D. Sub band coding

In image processing sub band coding (SBC), is to convert coding that divides the image into a many frequency bands. The image compression is the decomposition of image signals. The SBC intention is to obtain different bands as each can be modeled for processing in quantization.

Table-1: Comparative Analysis

| S.No. | Lossy compression | Lossless Compression |
|-------|---|--|
| 1 | This has loss of data | It has no loss of data |
| 2 | Information is compressed and cannot be recovered | Information compressed can be recovered |
| 3 | Can withstand difference in original and reconstructed data | Cannot withstand the difference in original and reconstructed data |
| 4 | Sound and picture compression is done | Only text compression is done |
| 5 | Huge data is accommodated | Less data is accommodated |
| 6 | Distortion | Distortion less |

V. CONCLUSION

This paper discuss about the image compression and its types to compress the image. Extensive survey has been done in image compression in view of keeping in mind the need for low bit rate image compression methods. Extensive research can be done in image compression to arrive at low size image. In this paper the image compression type's lossless and lossy compression techniques have been discussed.

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