

# A Framework For Compression Of Discrete Images: Without Affecting The Quality of Images



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## ABSTRACT

Now day's digital images have large amount of information for evolving effective techniques for storing and transmitting the over increasing volumes of data. In image compression technique the problem is minimized by reducing the amount of data required to represent a digital image. The without compressed image information requires a large storage capacity and transmission bandwidth. The aim of the image compression algorithm is to reduce the amount of data required to represents the image with less degradation in the better quality and without any information loss process of compression. The JPEG standard uses the DCT and the JPEG2000 standard uses the wavelet Inter Color Correlation Based Enhanced Color In a color image, correlation exists between the neighbouring pixels of each color channel and as well as between the color channels But match so we will introduce a new method that is based on the image byte streaming and pixel correlation. Our system will propose a new lossless compression method for discrete color images. Constructing a universal Huffman-based codebook by studying the entropy of a system of randomly images. Introducing and additional helper module, the row column reduction coding algorithm.

**Keywords:** - Discrete color images, Pre-processing, Compression.

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## I. INTRODUCTION

### BASIC CONCEPTS

This Work Represent the detail of new, innovative lossless Compression Method that is suitable for compressing a broad class of binary and Discrete color images. This dynamical System comprising an information source where we give the input fixed size chunks and channel that output them which when assembled in some way will reproduce and give a meaning to image conveyed by mosaic. Here mosaic means 8\*8 blocks. In light of that metaphor, assume that the procedure of generating those image chunks obeys a stationary stochastic process. For every time shift, the distribution of such chunks should remain the same. Consequently, the probabilities may be used to determine

the compression terminus for each and Every possible binary image that the fictitious source could assemble. An appropriate theoretical compression method could then be devised. This approach would lead to a universal and simple method for compressing binary images. Lossless Compression method for map images based on layers separation. The standard JBIG2 which is specifically designed to compress bi-level data, employs context based modeling along with arithmetic coding to compress binary layers. In a lossless compression tech based on semantic binary layers is proposed. Each binary layer is compressed using context based statistical modeling and arithmetic coding which is slightly different from standard JBIG2 in a

method which utilizes interlayer correlation between color separated layer is proposed. Context based modeling and arithmetic coding are used to compress each layer.

#### MOTIVATION:

Proposing a New Lossless compression method for discrete color images. Constructing a universal Huffman based codebook by studying an entropy of system of randomly chosen binary images. Introducing additional helper module, the row column reduction algorithm. How complexity and high efficacy method design a coding method notwithstanding the nature of binary Images. The Proposed model method operates on variable code book where fixed part consist of  $8 \times 8$  blocks and the variable part compress code corresponding to the block. In order to devise an efficient and practical code book, we performed frequency analysis on sample of more than 250000  $8 \times 8$  blocks obtained by partitioning 120 randomly chosen binary data samples. By Studying the natural occurrence of  $8 \times 8$  blocks in a relatively large binary data sample, the law of large numbers. Motivates into device and general probability distribution of such a blocks. In principle, which could be used to construct a universal static model, which can be employed compressing efficiently all sort of bi-level images.

#### 1. Codebook model

The proposed method operates on a fixed-to-variable codebook, wherein the fixed part consists of  $8 \times 8$  blocks and the variable part comprises codes corresponding to the blocks. In order to devise an efficient and practical codebook, we performed a frequency analysis on a sample of more than 250000  $8 \times 8$  blocks obtained by partitioning 120 randomly chosen binary data samples.

#### 2. The Row-Column Reduction Coding

The codebook component of the proposed method is efficacious in compressing the 6952 blocks it contains. These blocks, as seen in the previous section, are the most frequently occurring symbols as per the empirical distribution. Compared to the alphabet size of 264, the cardinality of the codebook is very small. Hence, there will be blocks from input images that cannot be compressed via the codebook.

#### 3. Complexity

Here we give an analytical time complexity analysis for the proposed method. Let  $h$  and  $w$  be the dimensions of an input binary image matrix. For each  $8 \times 8$  block, the algorithm performs a binary search on the codebook for a matching block. If a match is detected, the block is compressed and the next  $8 \times 8$  block is processed. The codebook has a fixed size of 6952 entries; therefore, it has constant complexity. If a match is not found in the codebook, RCRC will attempt to compress the block. In the context of the proposed method, the RCRC input is of fixed size and has constant complexity, too. The codebook search and RCRC will be executed for at most  $1/64wh \ 8 \times 8$  blocks. Thus, the total complexity of the proposed method is  $O(hw)$ .

## II. LITERATURE SURVEY

Geometrics Primitives-Based Compression Scheme For Testing System On A Chip. A.El-Maleh,Al Zahir And E.Khan, 2001.

#### Survey:

In this work, introduce a novel lossless compression technique for testing systems-on-a-chip based on geometric shapes.

#### Paper Discussion:

The increasing complexity of systems-on-a-chip with the accompanied increase in their test data size has made the need for test data reduction imperative.

#### Advantages:

1. Increase the Compression ratio.
2. The test data is partitioned into blocks and then each block is encoded separately.

#### Disadvantages

System fails when test data size is large.

Compression Of Map Images By Multilayer Context Tree Modelling. Pavel Kopylov and Pasi Fränti,2005.

#### Survey:

In this work, introduce The visual outlook of maps representing the same region varies depending on the type of the map (topographic or road map), and on the desired scale (local or regional map).

#### Paper Discussion:

Compressing map images by multilayer context tree modeling and by optimizing the order of the processing of the binary layers.

#### Advantages:

In these system 25% improvement over previous methods in comparison to the compression of binary layers without utilizing the interlayer dependencies.

#### Disadvantages:

It is not suitable for on-line applications where the encoding must be done real time.

A Fast Lossless Compression Scheme For Digital Map Images Using Color Separation. S.Zahir A.Borici,2010.

#### Survey:

In this paper, we introduced a fast and highly efficient hybrid compression scheme for map images with predefined number of discrete colors.

#### Paper Discussion:

Introduced a fast and highly efficient hybrid compression scheme for map images with predefined number of discrete colors.

#### Advantages:

It is fast and highly efficient hybrid compression method for map images with predefined number of discrete colors.

#### Disadvantages:

It is not suitable for on-line applications where the encoding must be done real time.

Implementation Of A Modified Pcx Image Compression Using Java. Che-Chern Lin , Shen-Chien Chen

Survey:

It is a compression technique to reduce the data size by removing redundant or irrelevant information

Paper Discussion:

In this paper, we present a new image compression algorithm based on the PCX algorithm, an image compression method used in the computer package of PC Paintbrush Bitmap Graphic.

Advantages

1. Efficiency of compression data is high.
2. PCX algorithm better encodes one fourth of data using run-length encoding.

Disadvantages:

If the repeatability is low, the compression performance will be bad.

III. EXISTING SYSTEM

Previous system introduced an innovative method for lossless compression of discrete-color and binary images. This method has a low complexity and it is easy to implement. The experimental simulation results on more than 150 images show that the proposed method enjoys a high compression ratio that in many cases was higher than 95%. This method has been successfully implemented on two major image categories:

(i) Images that consist of a predetermined number of discrete colors, such as digital maps, graphs, and GIS images; and

(ii) Binary images. The results of a large number of test images show that our method has compression ratio that are comparable or higher than the standard JBIG-2 by 5% to 20% for binary images, and by 2% to 6.3% for discrete color images. This proposed method works best on mid-to-small size images such as those on the Internet.

IV. PROPOSED SYSTEM

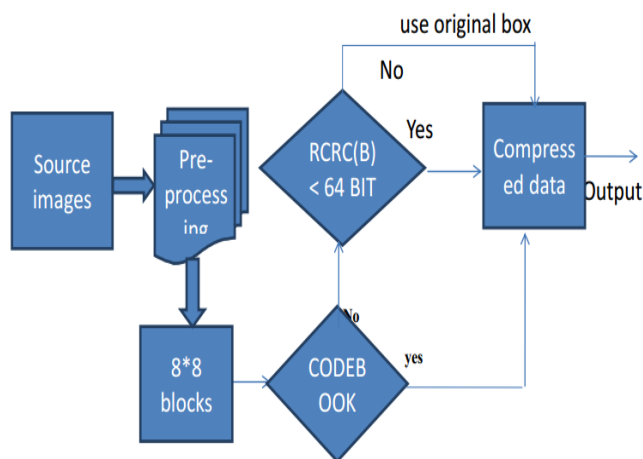


Fig 1. System Architecture

Our system will propose a new lossless compression method for discrete color images. Constructing a universal Huffman-based codebook by studying the entropy of a system of randomly images. Introducing and additional helper module, the row column reduction coding algorithm.

V. RESULTS

A complete compression process has been implemented to test compression ratio of the proposed algorithm. In result analysis, we take these different images of different size and compare the frame size with its new size of these images.



Fig 2. Original Images

The size reduction is depend on the color coefficients, if there is more same color coefficients then the more size is reduced. It is used a bit references so there are no artefacts and any type of distortion in compressed images.



Fig 3. Reconstructed Images

Table – Comparison of Size

Sr. No	Name	Frame Size	New Size
1	Animal	800kb	100kb
2	Flower	827kb	150kb
3	Temple	840kb	126kb

See the table of frame size and new size of these images. It shows that new size is reduced more than 60% from the frame size. It has been present too much better performance.

VI. CONCLUSION

Lossless Compression method uses codebook model and Row Column Reduction Technique as well as Arithmetic

Calculations for compression of binary images and discrete color images. This technique is very useful for image contain large number of discrete color Such as digital map and Graph and GIS images. Arithmetic Coding is used for Binary images. This method has a low complexity and it is easy to implement. This method is works best on mid-to-small size images such as those on the Internet.

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