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Handling Redundancy from the Image Using Filtering and Buffer Allocation Method

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ABSTRACT

The image processing is the common topic which is used today to improve the quality of the image. Image processing provides pursue steep degree of automation for the image enhancement processes in order to make their services responsive and reasonable. There are number of problems which appear when image processing is used in the applications. In order to resolve the problem number of mechanisms are suggested. These mechanisms involve image smoothening, Enhancement, restoration etc. the digital image processing will have common problem of redundancy. One of such technique used in this thesis paper is handling redundancy in the image using buffer allocation method. This paper proposes and evaluates on removing the redundancy from the image. Redundancy will be caused due to overlapped images. Redundancy could be of many types. This redundancy can be eliminated by the use of this thesis algorithm. This redundancy is caused by the compression techniques which are used in case of digital image processing We also present an analytical model of such a apparatus process for a single hypervisor shedding light on the impact of degree of image similarity, system exertion, and hypervisor capacity on the performance of the system. The model is validated using discrete event simulator. The algorithm has been implemented on a MATLAB extensive simulations of constructive server clusters were conducted. This thesis apparatus scheme can offer significant (up to 80%) reduction in data transfer between storage server and hypervisors thus significantly reducing apparatus time while also decreasing cost.

Keywords:- AWG

I. INTRODUCTION

A Close inspection of the progress made in the field of image processing in the past several decades report that much of it is a direct consequence of the better image modeling employed. Armed with a stronger and more reliable model, one can better handle applications ranging from sampling, denoising, restoration, and reconstruction in reverse problems, all the way to compression, detection, separation, and beyond. Indeed, the evolution of models for ocular data is at the heart of the image processing literature. What is a model and why do we need one? We provide an initial answer to these questions through a simple example of noise removal from an image. Given a noisy image, a denoising algorithm is crucially requisite to separate the noise from the (unknown) clean image. Such a separation clearly requires a close familiarity with the characteristics of both the noise and the original image. Knowing that the noise is additive, white, and Gaussian (AWG) is a better start, but far from being sufficient, since the underlying image may also behave like such noise, thereby making the separation of the two impossible. The additional information on the clean image content, that will allow separating it from the AWG noise, constitutes what we refer to in this paper as an image model. A vintage example of such a model is the intuitive assumption that near-by pixels in "well-behaved" images exhibit strong correlation; i.e., natural images tend to be spatially (piecewise) smooth. There is a long path of models and their utilization in image processing. This path spans from the simple `2-norm of local differences (expressing smoothness), through booming and thus edge preserving measures of smoothness, like the total variation. On a distinguished track, it was observed that sparsity of the wavelet coefficients could be used as a reasonable image model, and this concept has been used frequently in the past decade. More recently, improved versions of this idea bring us to sparse and redundant portrayal modeling. Recent work on various image processing applications indicate that models based on sparse and redundant portrayals lead to state-of-the-art results, and

encompass a persuasive potential to this field. In this paper we explore the role in image processing of models based on sparse and redundant portrayals and their rationale. We also relate them to other models that are used successfully in image processing, likethe local-PCA (principal component analysis), and example-based techniques. We discuss ways to employ sparse and redundant portrayals in image processing tasks in general, and then concentrate on several key applications where this model is shown to lead to state-of-the-art results. More specifically, we discuss image denoising, image inpainting, image deblurring, and super-resolution reconstruction. We conclude this paper with a wish-list for this field, describing the research frontiers of this significant and challenging arena of work.

The proposed work will detect the inter pixel redundancy and eliminate them by the use of buffer method. The buffer method will store the value of the pixel which is already plotted. The next time same pixel is destination again then that pixel will be rejected. The model will be described in the next section

II. THE MODEL

The proposed model will deal with the redundancy within the image by removing the inter pixel redundancy present within the image. The size of the image will be reduced by the use of proposed model. The redundancy of the image sometimes may distort the image. The distortion of such type is known as white effect. This will make the image distort and clarity of the image is lost. In order to solve the problem buffer method is presented. The buffer method will store the pixel already being plotted.

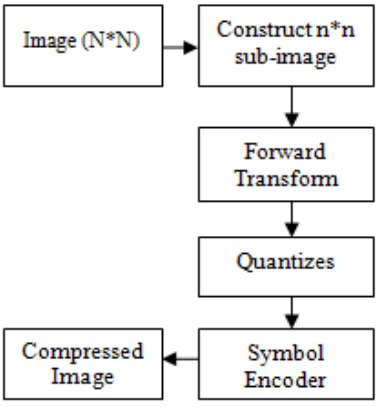

Fig1: Showing the model for image compression

The compressed image will be passed through the buffer and determined whether the pixels are redundant or not. The redundant pixels are eliminated from the image. The symbol encoder will contain the buffer redundancy handling mechanism also. So the proposed work will reduce the size of the image and provide the compressed image with less redundancy. The compression ratio is also improved.

III. RELATED WORK

There are number of papers which described the problem of redundancy in images. In order to build the base we analyze number of such papers. Some of the papers which we have studied will be described in this section. Redundancy will make certain portion of the image much brighter than the other portion of the images. [2] this paper consider the compression technique for jpeg images. The jpeg images are common extension for the images which are being transferred. The transferred images will be compressed so that image should not take much space over the transmitted medium. The transmission media will charge expenses if the data transferred are large. So compression is requisite. Discrete cosine transform is used in this case to compress the image. If image is compressed properly than less bits per image is requisite to represent the image. Hence the mechanism of image compression will help in decreasing the cost associated with the image storage. [3] In addition to the redundancy image processing also contains the problem of noise. This considered paper considers the impact of noise on the image. The impact of noise will cause distorted image. [3]Image denoising via sparse and redundant portrayals over learned dictionaries will be considered in this case. The advantages of the redundancy will be shown. In other word the positive side of the redundancy will be considered in this case. [4] There are number of types of redundancy which are present within the image. The pixels will have large spaces in between the pixels. This is known as inter pixel distance. In order to reduce the distance compression techniques are followed. In order to efficiently compress the images compression techniques are used. Compression technique which is suggested in this paper includes lossless and lossy compression. The redundancies which are considered are inter pixel, coding and Psycho ocular. [5] The image compression will be considered in this case. Image

compression is requisite so that the space requirements can be reduced. The image compression will be requisite to reduce the redundancy. The type of redundancy which is considered in this case will include Psycho ocular. This redundancy indicates sensitivity to distinguished images by human eye. So some unnecessary information from the image can be rejected. [6] Image compression techniques are considered. The image compression will be used so that relatively less pixels should be used in order to represents the image. Sometimes image does not contain any relevant data. In that case that irrelevant information has to be eliminated. This is accomplished with the help of compression techniques. [7] The concept of medical images is considered in this case. The MRI is a form of images which are used in the area of medical field. Various types of redundancies are present within the images. These redundancies are eliminated by the use of compression techniques. In this paper the area of concern is medical images. [1]The study of various image compression techniques are considered in this case. Principal Component Analysis technique is considered in this case. Image f(x,y) is fed into the encoder, which creates a set of symbols form the input data and uses them to represent the image. If we let n1 and n2 denote the number of information carrying units(usually bits) in the original and encoded images respectively, the compression that is achieved can be quantified numerically via the compression ratio. The main area of concern is Huffman coding, LZW coding etc. PCA technique suggested in this paper is based upon two factors data reduction and interpretation.

The main focus of all the papers studied is data compression and reducing the redundancy present within the image. The techniques which are suggested within the papers are very complex and time consuming.

IV. PROPOSED METHODOLOGY

The proposed system deals with the redundancy within the image and handling it in such a way that the exertion of redundancy becomes useful. The redundancy will be eliminated by the use of buffer method in the proposed system. The proposed system will utilized the algorithm as

Buffer=B

BufferM(X,B)

1) Input the values of pixel position(Xi)

2) Enter the values of pixels within the Buffer

Bi=Xi

3) Now perform the comparison of pixel position with buffer values

If(Xi==Bi)

Reject Xi

Else

i=i+1

end of if

4) The above steps are performed for every pixel value

5) Stop

The result of the proposed algorithm is the minimization of the redundancy and compression of the image.

V. RESULTS

The simulation results in terms of images and tables will be as follows

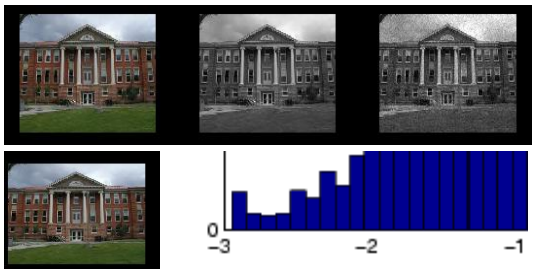

Fig 2: Showing the simulation result of the proposed algorithm

The simulation is done on the distinguished images and result is noted. The simulation of the various other images is listed as

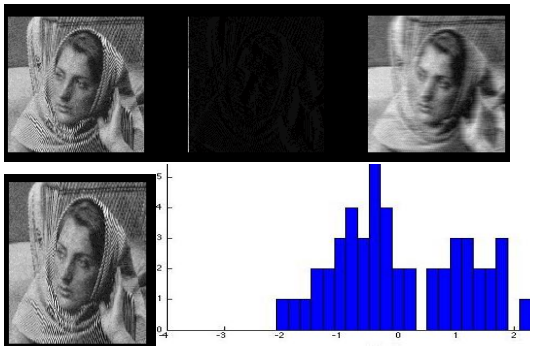

Fig 3: Showing the simulation result

The tabular portrayal of the various parameters which are associated with images used in the simulation as

	Entropy	Redundancy	Compression Ratio	Brightness Error
Existing System	4.233	10%	2.3	0.67
	5.021	11%	2.34	0.76
	4.343	9%	2.5	0.987
	5.345	9.5%	2.3	0.676
	3.435	11.5%	2.43	0.565
	4.445	8.9%	2.54	0.455
	5.676	10%	2.67	0.789

Table 1: Showing the results produced by the existing simulation

The table of the proposed work will be as described below

	Entropy	Redundancy	Compression Ratio	Brightness Error
Proposed System	5.233	5%	3.3	0.57
	5.921	6%	3.34	0.56
	5.345	7%	3.5	0.687
	6.345	5%	3.3	0.576
	5.435	4%	3.43	0.465
	5.445	4%	3.54	0.355
	6.676	6%	3.67	0.689

Table 2: Showing the results of the proposed system.

The simulation result indicates that the proposed system produces better result as compared to the old system.

VI. CONCLUSION AND FUTURE WORK

The existing techniques does not reduce the redundancy however the proposed model will reduce the redundancy. The proposed model will use the buffer. This will eliminate the redundancy by removing the pixel which overlaps. The proposed model will involve the comparisons of pixels with the existing pixels. If pixels repeat then they will not be plotted. The future work will be reduce the number of comparisons requisite to plot the pixels. Hence reducing the complexity associated with the system.

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