# DVVP College of Engg

.

CASH PAYMENT Voucher	
No. : 531	Dated : 18-Sep-2018
Particulars	
Account :	Amount
Seminar Exps (ETC)	3,000.00
Inrough :	
Cash	
On Account of :	
Paid to Mrs magar S.s an account of seminar expenses vide enclosed bills.	
Amount (in words) :	/
Indian Rupees Three Thousand Only	//
	\$3,000.00
Receiver's Signature:	Drised Signatory
Vall	

THE ONE FRITTER

PRINCIPAL Dr. Vithalrao Vikhe Patil College of Engineering Ahmednagar International Journal of Engineering & Technology, 7 (3.27) (2018) 236-238



International Journal of Engineering & Technology

Website: www.sciencepubco.com/index.php/IJET



## **Optimization Before Biomedical Image Compression Using CLAHE and DCS**

Satyawati S. Magar<sup>1\*</sup>, BhavaniSridharan<sup>2</sup>

Department of ECE, Karpagam Academy of Higher Education, Karpagam University, Coimbatore, Tamilnadu, India. <sup>2</sup>Department of ECE, Karpagam Academy of Higher Education, Karpagam University, Coimbatore, Tamilnadu, India. E-mail:bhavanisns@yahoo.com \*Corresponding author E-mail:magarss 123@redffmail.com

#### Abstract

In current years, improving the Compression Ratio (CR) in medical imaging is essential and becomes big challenge in the field of biomedical. In that direction we have done optimization before biomedical image compression. For the same we have used the image enhancement techniques. For the enhancement of an image we have used Contrast Limited Adaptive Histogram Equalization (CLAHE) and Decorrelation Stretch (DCS) algorithms. By optimizing an image before compression we have achieved better Compression Ratio (CR) and Peak Signal to Noise Ratio (PSNR) than existing methods of an image compression. Mainly results are compared with Oscillation Concept method of an image compression with and without optimization.

Keywords: Optimization, image enhancement, oscillation concept, CLAHE, DCS.

#### 1. Introduction

In the field of medical, all the parts of body are very sensitive and necessary to analyze carefully. Hence, biomedical image compression is highly important topic for the research. As biomedical images are increasing there is a need of more space for keeping data in hospitals. This data is very important for diagnosis and treatment. Many compression algorithms are available but to achieve better Compression Ratio is a big challenge. While compressing the data there should be importance of removing errors without losing original information. For improving image quality and minimizing the errors, there is use of optimization before compression.

Here we have used Optimization before biomedical image compression using image enhancement algorithms i.e. CLAHE and DCS methods. By using these methods we have achieved better results than oscillation concept method without optimization. [2, 4, 7]

### 2. Methodology

#### 1. Optimization Before Compression

Input As shown in figure below, we have used optimization before image compression for obtaining required format of an image. We are using image enhancement methods for improving the significance of an input image. Figure shows that we have used Oscillation Concept for image compression. [2,4].



Fig. 1: Optimization before Image compression

Oscillation Concept: Oscillation concept is the new approach to biomedical image compression. It introduces the theory of oscillations in images. It states that, in every image there are variations in pixels with respect to x and y axis of an image. These variations are nothing but oscillations at image. Appropriate oscillations can be utilized for an image compression. Here, we are applying this oscillation theory to biomedical images. This method gives an effective compression ratio. [4,11]

Optimization of an Image: Optimization means gaining the required format of an image which would be suitable for an image compression. By using Optimization technique we can convert an original image into the required or proper format .Optimization of an image is used to minimize the size for the visually acceptable images. This method will also reduce the load time. It removes non-visible information. In this paper image enhancement is considered as an optimization problem.

Types of an optimization are Generic Algorithm (GA), Ant Colony Optimization (ACO), Particle Swarm Optimization (PSO). [5]

Image Enhancement: Image Enhancement is used many times for improving the perception or significance of information in images. It is also used as pre-processing mechanism which provides "better" input to many image processing techniques. It is mainly used for Gray-level images. Image enhancement is classified into many methods as below. [6,9]

