A NOVEL SYSTEM FOR LOSSLESS MODIFIED COMPRESSION ON MEDICAL APPLICATION ON DICOM CT IMAGES

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ABSTRACT

In recent days, Digital Imaging and Communication in Medicine (DICOM) is widely used for distribution, storage and viewing of medical images from different modalities. Image compression is the major entities of communication and storage system which is capable of reducing the data redundancy and crippling disadvantages of data transmission and image storage. Medical image compression is necessary for huge database storage in Medical Centre and medical data transfer for the purpose of diagnosis. Wavelet transforms (DWT), discrete cosine transforms (DCT), Run Length Encoding Lossless compression technique presently are the most usefully and wider accepted approach for the purpose of compression. In this paper, we present a new DICOM based lossless image compression method based on discrete wavelet transform. In the proposed method, each DICOM image stored in the data set is compressed on the basis of horizontally, vertically and diagonally compression and further we report results from our comparative study of all the DICOM images in the data set using two measures namely PSNR and RMSE. This thesis is presenting the performance comparison between input image (without compression) and after compression results for each images in the data set using DWT method. The performance of these methods for image compression has been verified via computer simulations using MATLAB.

KEYWORDS: Medical Images, DICOM (Digital Imaging and Communication in Medicine), HAAR Wavelet, PSNR, RMSE, Compression