

An Effective Approach to Compress 2 Dimensional DICOM Human Brain Images

P.B. Samaranayake¹ and R.G.N. Meegama²

Department of Computer Science, Faculty of Applied Sciences

University of Sri Jayewardenepura, Nugegoda

¹prasannasam91@gmail.com, ²rjn@sci.sjp.ac.lk

Medical image processing has become a major sub area in digital image processing which has a wide range of applications in which image compression has become a core sub area of medical image processing due to the wide and frequent usage of medical images all over the world. The high quality of the images are very important for diagnosis and on the other hand, they require huge memory, bandwidth and storage space for processing, transmission and archival in digital form.

This research presents an approach which compresses 2D human brain images which are in DICOM format in a hybrid manner using both lossy and lossless methods. This approach basically depends on the wavelet transformation where The regions which are clinically very important can be compressed in lossy manner while others are compressed in a visually lossless manner using the Huffman coding algorithm.

Results indicate that compression of large images tend to show better compression ratio than the small sized images. The best compression ratio achieved using the proposed algorithm is 0.84 for grey scaled 2D DICOM images. Resultant compressed image and header data can be stored or transmitted through a computer network effectively to another destination for retrieval.

Theme/session: Engineering, Technology/Image Processing