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RESEARCH ARTICLE

IMAGE COMPRESSION WITH SCALABLE ROI USING ADAPTIVE HUFFMAN CODING

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Abstract— Most of the commercial medical image viewers do not provide scalability in image compression and/or encoding/decoding of region of interest (ROI). This paper discusses a medical application that contains a viewer for digital imaging and communications in medicine (DICOM) images as a core module. The proposed application enables scalable wavelet-based compression, retrieval, and decompression of DICOM medical images and also supports ROI coding/decoding. Furthermore, the presented application is appropriate for use by mobile devices activated in a heterogeneous network. The methodology involves extracting a given DICOM image into two segments, compressing the region of interest with a lossless, quality sustaining compression scheme like JPEG2000, compressing the non-important regions (background, et al.,) with an algorithm that has a very high compression ratio Adaptive Huffman. With this type of the compression work, energy efficiency is achieved and after respective reconstructions, the outputs are integrated and combined with the output from a texture based edge detector. Thus the required targets are attained and texture information is preserved.

Key Terms: - ROI; DICOM; SPIHT; Adaptive Huffman; NONROI; PSNR; MSE; CR

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