An Implementation on Pattern Creation and Fixed Length Huffman’s Compression Techniques for Medical Images

International Journal of Computer Applications
Foundation of Computer Science (FCS), NY, USA

Volume 166
Number 2

Year of Publication: 2017

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Abstract

Today more and more digital medical images are used by physicians in their clinical diagnosis. DICOM format images are used by physicians in their clinical diagnosis. DICOM images are too large in size. They require much space for storage and bandwidth for transmission. Thus, medical images are to be compressed due to their large size and repeated usage for diagnostic purpose. Three pattern Huffman compression algorithm uses the concept of pattern creation. The operation of pattern creation is to create patterns using fixed length coding. Using these patterns, compression of image is carried out. Three best patterns are created in such a way, which yields better compression ratios. Three pattern Huffman compression algorithm uses lossless compression technique and can be applied to all types of medical images like CT scans, MRIs, PET, etc. without compromise in quality. The core concept of the algorithm is based on building up a collection of n-length patterns in the image. The basic model of new compression algorithm is similar to that of the Huffman encoder except for the pattern finder. The operation of the pattern finder is to find the best pattern, which is the most frequent occurring pattern. Therefore the best pattern will also be an input to the encoder. The output of
the encoder will be the code along with footer information.

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Index Terms

Computer Science  Image Processing
Keywords

DICOM, Three Pattern Compression, Pattern Finder, Haar Transform