

IMAGE COMPRESSION BASED ON WAVELET PACKET BEST TREE WITH LOSSY RUN-LENGTH ENCODING

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Abstract

In Image Compression, the researchers' aim is to reduce the number of bits required to represent an image by removing the spatial and spectral redundancies. Recently discrete wavelet transform and wavelet packet has emerged as popular techniques for image compression. The wavelet transform is one of the major processing components of image compression. The result of the compression changes as per the basis and tap of the wavelet used. It is proposed that proper selection of mother wavelet on the basis of nature of images, improve the quality as well as compression ratio remarkably. We suggest the novel technique, which is based on wavelet packet best tree based on Shannon Entropy with enhanced run-length encoding. This method reduces the time complexity of wavelet packets decomposition as complete tree is not decomposed. Our algorithm selects the sub-bands, which include significant information based on Shannon entropy. The enhanced run length encoding technique is suggested provides better results than RLE. The result when compared with JPEG-2000 proves to be better.

Keywords: Compression, JPEG, RLE, Wavelet, Wavelet Packet