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SINGLE BIT PLANE BLOCK TRUNCATION CODING FOR COLOUR IMAGE COMPRESSION

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Abstract

Block Truncation Coding is one of the easy and efficient techniques for lossy image compression. In this paper, we have proposed compression of colour images based on block truncation coding technique, to reduce the correlation and spatial redundancy between pixels of an image. Our proposed algorithm is useful to improve the compression ratio and quality of an image. This technique is called as 'Single bit plane BTC' .In this method to create a binary bitmap in the RGB space, an inter-band average image (IBAI) is created first, and a single scalar value is found as the threshold value. The bitmap is then created by comparing the pixels in the IBAI with the threshold value. The single bit map has the size same as that of original block. Two color levels are computed to approximate the pixels within the block. It is shown that proposed algorithm gives better result. Simulation results show that bit rate, PSNR and compression ratio of this method are better than BTC as well as the AMBTC in terms of subjective visual quality. Objective measures are used to evaluate the image quality such as :Peak Signal to Noise Ratio (PSNR), Bit Rate (BR) It has been shown that the image compression using single bit plane BTC provides better image quality than that of image compression using BTC and AMBTC.

Keywords: image compression, Single bit plane BTC, Inter band average image, reconstruction of image.