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An efficient image compression technique using Tchebichef bit allocation

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ABSTRACT

The psychovisual technique has brought about significant improvement in pursuing image analysis and image reconstruction. The psychovisual threshold can be utilized to find the optimal bits-budget for image signals. The psychovisual system is developed based on noticeable distortion of the compressed image from an original image in frequency order. This paper proposes an image compression technique using Tchebichef psychovisual threshold for generating an optimal bits-budget of image signals. The bits-budget is designed to replace the main role of quantization tables in image compression. The experimental results show that the proposed bits-budget technique can improve the visual quality of image output by 42% of JPEG compression. The visual image quality of Thcebichef bits allocation produces less artifact effect and distortion of the image pixels. A set of bits-budgets gives excellent improvement in the image quality at a low average bit length of Huffman code than the image coding using quantization tables.