Abstract

The paper attempts a comparison between Joint Picture Expert Group (JPEG), JPEG2000 and the novel method of position based coding scheme (PBCS) introduced by the authors, based on the output from different images. The results have proved that the proposed method is superior in terms of image compression ratio, PSNR and visual quality. After a review of various image compression standards and image compression coders, it is observed that there is a need to study the post-transformation matrix in a JPEG environment and accordingly, brought out a coding scheme based on the position of elements of the transform coefficients matrix after performing quantization. By identifying the unique elements and by reducing redundancies, the paper presents a novel method of coding called, PBCS. Thereafter, the results of JPEG, JPEG2000 with Huffman coding and PBCS are compared. The results show better
compression ratio with higher PSNR and better image quality without quantization. The study can be considered as a logical extension of the image transformation matrix, applies statistical tools to achieve the novel coding scheme. The coding scheme can highly economise bandwidth without compromising picture quality; invariant to the existing compression standards, lossy as well as lossless compressions, which offers possibility for wide ranging applications.

References


**Index Terms**

Computer Science  
Image Processing

**Keywords**

JPEG  JPEG2000  image compression  wavelet  DCT  DWT  PBCS