A Modified Embedded Zerotree Wavelet (MEZW) Algorithm for Image Compression

A. Ouafi, A. Taleb Ahmed, Z. Baarir,   A. Zitouni

1. LESIA Laboratory of Research, Electronic Department, University of Biskra, Biskra, Algeria

2. LAMIH Laboratory of Research, University of Valenciennes, Valenciennes, France

Abstract :

In this paper, we propose a modification of the Shapiro's Embedded Zerotree Wavelet (EZW) algorithm. Our approach, called Modified EZW (MEZW), distributes entropy differently than Shapiro's by using six instead of four symbols used in EZW and also optimizes the coding by a binary grouping of elements before coding. This approach can produce results that are a significant improvement on the PSNR and compression ratio obtained by Shapiro, without affecting the computing time. These results are also comparable with those obtained using the SPIHT and SPECK algorithms.

Keywords

- Image compression
- Shapiro's EZW algorithm
- MEZW
- Entropy
- Coding
- PSNR
- Compression ratio
- SPIHT and SPECK algorithms