Color Image Steganography using Dual Wavelet Transforms

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Abstract

Steganography is the art and science of covert communication. The secret information can be concealed in content such as image, audio, or video. This paper provides a novel image steganography technique which hides both image and key in color cover image using Discrete Wavelet Transform (DWT) and Integer Wavelet Transform (IWT). The cover image and secret image coefficient values are embedded by using a fusion technique. The cover image is a color image and the secret image is a grayscale image. This algorithm first separates RGB color planes of the cover image. Next, the algorithm extracts either DWT or IWT coefficients of both R-plane of the cover image and secret image. These two extracted coefficient values are fused into a single image by using a wavelet-based fusion technique. By taking IDWT/IIWT transform of the fused image the stego image is obtained. Different combinations of DWT/IWT transforms were performed on the scrambled secret image and cover image. Experimental results shows that the proposed method can produce stego images with high level of perceptual invisibility and security.
References


Index Terms

Computer Science Security

Keywords

Color image, steganography, Discrete Wavelet Transform, Integer Wavelet Transform.