Abstract

Image steganography is the art and science of hiding secret image into digital media such that no one apart from the intended recipient is able to detect the existence of the information. There are many different carriers that can be used to hide the information such as digital images, videos, sound files and other computer files but digital images are the most popular. In this paper, a method has been proposed using which a large size secret image can be hidden into small size cover image securely. The main aim here is the absolute invisibility of the large size secret image. The secret image is first scrambled by using Arnold transformation. Haar Discrete Wavelet Transformation (DWT) is then applied on cover image and Arnold transformed secret image, followed by Alpha Blending operation. Then the Haar Inverse Discrete Wavelet Transformation (IDWT) is applied to obtain the stego image. At the receiver side, first the cover image is obtained from the stego image. Then Haar DWT is applied on the cover image and the stego image followed by the alpha blending operation. Haar IDWT is applied on the resulting image. Then by applying Arnold transformation, the secret image is obtained. The proposed method does not require the sender to send the cover image to the receiver for obtaining the secret image. The performance of the proposed method is investigated by comparing the cover image and the stego image in terms of Peak Signal to Noise Ratio (PSNR), Mean Square Error (MSE) and Normalized Cross Correlation (NCC).
results demonstrate the effectiveness and accuracy of the proposed method.

References

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Index Terms

Computer Science

Image Processing

Keywords

Steganography  Arnold Transformation  Haar DWT  Haar IDWT  Alpha Blending
Adaptive Thresholding