

High Capacity Steganography Based on Chaos and Contourlet Transform for Hiding Multimedia Data

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Abstract:

In the last years the subject of hiding information has been effective, and steganography is one of the most important subdisciplines. Many of the algorithms appeared to work on developing efficient techniques of practical steganography. Steganography is the science that deals with hiding of secret data in some carrier media which may be image, audio, formatted text or video. The main idea behind this is to conceal the very existence of data. We deal here with image steganography. This work presents techniques of image steganography (Blind and non-Blind) based on chaotic system and Contourlet Transform, the chaotic system is used due to many properties; first of all using a Modified Arnold Cat Map(MACM) to increase the key space which makes it very difficult to extract the secret message by the enemy. In this method, embedding is done in Contourlet domain that provides large embedding capacity, after that the correct location of embedding would be selected carefully to decrease the distortion on the cover image to avoid the detection of this process. Experiments and comparative studies showed the effectiveness of the proposed technique in generating stego images. In addition, its superiority is shown by comparison with a similar waveletbased steganography approach. The measurement of the quality of the stego image was depended on the PSNR, SNR and Correlation for measuring the similarity between the cover image and the stego image .