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A HIGH CAPACITY AND SECURITY ENHANCEMENT IMAGE STEGANOGTAPHY WITH EFFECTIVE ENCRYPTION

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Abstract

In this paper we propose a modified high capacity image steganography technique using Discrete Wavelet Transform (DWT) based fusion concept, with proper embedding strength parameters. Fractional wavelet encryption technique is used for approximate band of payload image encryption in which Discrete Fractional Fourier Transform (DFrFT) gives the encryption key , in addition the huge number of possibilities of using a wavelet family and several different RPMs, increasing the security of the system. All the bits in the pixel of the cover image are used for fusion purpose, the embedding capacity reaches its maximum i.e., 8 bits per pixel for a gray scale cover image. Once the generated embedding key is transmitted through the secrete channel the intended receiver can decode the information even if he/she does not have any explicit knowledge of location in stego image where the data is being embedded. The combination of steganography and cryptography certainly provides much better secure communication.

Keywords: Steganography, discrete wavelet transform, fusion, encryption, fractional fourier transform, random phase masks (RPM)