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Red Green Blue Image Encryption Based on Paillier Cryptographic System

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Abstract : In this paper, we present a novel application of the Paillier cryptographic system to the encryption of RGB (Red Green Blue) images. In this method, an RGB image is first separated into its constituent channel images, and the Paillier encryption function is applied to each of the channels pixel intensity values. Next, the encrypted image is combined and compressed if necessary before being transmitted through an unsecured communication channel. The transmitted image is subsequently recovered by a decryption process. We performed a series of security and performance analyses to the recovered images in order to verify their robustness to security attack. The results show that the proposed image encryption scheme produces highly secured encrypted images.

Keywords : image encryption, Paillier cryptographic system, RBG image encryption, Paillier
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