Abstract

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Robust Blind and Secure Biometric Watermarking Based on Partial Multi-Map Chaotic Encryption

In this paper, a novel Commutative Watermarking and Partial Encryption (CWPE) algorithm using single level 2-Dimension Discrete Wavelet Transform (CWPE 2D DWT) and Multi-Map Orbit Hopping Chaotic System (MMOH-CS) is proposed. The experimental results show that the proposed algorithm is robust against common signal processing attacks such as Salt & Pepper noise, Gaussian noise, Wiener filter, JPEG compression, Resizing and Cropping. The proposed scheme is able to reduce encryption to one quarter of the image information. Statistical analysis, differential analysis and key sensitivity test are performed to estimate the security strength of the proposed algorithm. The results of the security analysis show that the proposed algorithm provides a high security level for real time application.