Wavelet Based Advanced Encryption Standard Algorithm for Image Encryption

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Abstract : With the fast evolution of digital data exchange, security information becomes much important in data storage and transmission. Due to the increasing use of images in industrial process, it is essential to protect the confidential image data from unauthorized access. As encryption process is applied to the whole image in AES ,it is difficult to improve the efficiency. In this paper, wavelet decomposition is used to concentrate the main information of image to the low frequency part. Then, AES encryption is applied to the low frequency part. The high frequency parts are XORed with the encrypted low frequency part and a wavelet reconstruction is applied. Theoretical analysis and experimental results show that the proposed algorithm has high efficiency, and satisfied security suits for image data transmission.

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