

183. ENCRYPTION THEN COMPRESSION SCHEME FOR PRIVACY IN VIDEO SURVEILLANCE

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In this paper we propose a new and efficient method to develop secure image-encryption techniques. The proposed algorithm combines two techniques: encryption and compression. In this method permutation-based image encryption conducted over the prediction error domain and context-adaptive arithmetic coding approach is used for image compression. This proposed algorithm was verified to provide a high security level. A complete specification for the new algorithm is provided. Several test images are used to demonstrate the validity of the proposed algorithm. The results of several experiments show that the proposed algorithm can obtain an effective cipher and high-quality image compression to achieve both security and high compression to allow for a low transmission rate. Finally the proposed scheme will be used for surveillance applications where source of information's usually needs to be encrypted and compressed for secure distribution. The new algorithm is proved more efficient in terms of Compression Ratio (CR), Peak Signal to Noise Ratio (PSNR) for gray scale and color images. For the implementation of this proposed work we use the Image Processing Toolbox under MATLAB software.

Keywords- Encryption-then-Compression (ETC), Compression-then-Encryption (CTE), arithmetic coding (AC).

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