Fingerprint detection is one of the primary methods for identifying individuals. Gray Level Co-occurrence Matrix (GLCM) is the oldest and prominent statistical textual feature extraction method applied in many fields for texture analysis. GLCM holds the distribution of co-occurring intensity patterns at a given offset over a given image. However, images occupy excessive space in storage by its original sizes. Thus, Discrete Wavelet Transform (DWT) based compression has become popular especially for reducing the size of the fingerprint images. It is important to investigate whether GLCM-based classification can be utilized efficiently on DWT-compressed fingerprint images. In this paper, we analyze the performance of GLCM-based classification on DWT-compressed fingerprint images. We performed satisfying simulations for different levels of DWT-compressed images. Simulation results identify that classification performance sharply decreases by the increase of DWT-compression level. Besides, instead of utilizing all Haralick features, it is recognized that eight of them are the most prominent ones that affect the accuracy performance of the classification.
References


Index Terms

Computer Science    Image Processing

Keywords

Fingerprint Detection, GLCM, DWT, Classification.