

Abstract

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The Contourlet Transform with the Principal Component Analysis for Palmprint Recognition

In this paper two techniques for palmprint recognition are suggested and compared. Palmprint include principal lines, wrinkles and ridges which contain very important features essential for recognition. The Contourlet Transform (CT) is a multiresolution and multidirection transform which can be effective in capturing the palm features. The first technique extracts the edges from the palm images and then performs the CT the Discrete Wavelet Transform (DWT) on the edge extracted images. The sub-band images are divided into $M \times M$ non-overlapping blocks. The energy of each block is calculated and normalized to form a feature vector. The second technique employs the principal component analysis PCA where the approximation images are input to it for dimensionality reduction and to produce the eigen palms. Features extracted from both techniques are tested and compared where it was found that the best achieved recognition rate is about 94% when combining the results of both techniques using the CT.