Finger Vein Recognition using Rotated Wavelet Filters

Abstract

Finger vein biometric have been recognized as the most effective and promising recognition method due to its accuracy and security. This paper discusses a method for finger vein image features extraction using 2-D Rotated Wavelet Filters (RWF) and Discrete Wavelet Transform (DWT) jointly. A set of 2-D RWF filters improves characterization of diagonally oriented texture features from a finger vein image. The 2-D RWF and DWT jointly used for decomposition of a finger vein image ROI up to third level. The standard deviation and energy of each subband from every decomposition level are used for the creation of features vector. Then Canberra distance classifier is used for the classification of finger vein images. The performance of this method has evaluated on the standard finger vein image database of Shandong University (SDUMLA), China. Experimental results have shown that the method with RWF and DWT jointly gives better results as compare to the traditional DWT based methods.

References

Index Terms

Computer Science
Pattern Recognition

Keywords

Finger Vein Recognition, Discrete Wavelet Transform, Rotated Wavelet Filters.