Abstract

Biometric based identification is one of the fields emerging recently, used as a form of identification and access control in various places to ensure security. Palmprint is one of the most unique and stable biometric characteristics. A palmprint contains different elements, including essential lines, wrinkles, edges, particulars focuses, solitary focuses and surface. It is essential to extract only useful segment of the palmprint image in the form of Region of Interest (ROI), which has highest concentration of potential features. It helps the system by reducing the size of template, speeding up the process and adds accuracy. Thus, palmprint recognition system’s performance can be improved when size of the palm images can be reduced first and then features are extracted from the images to recognize the identity of an individual. This paper presents a texture based palm print recognition method which employ 2D Gabor filter to extract texture information from the central part of hand and use Two-directional Two-dimensional Principal component analysis (2D-2DPCA) methods for dimension reduction. The test and training images are compared in terms of calculating Euclidean distance between them using KNN classifier. The proposed system is also robust to occlusion and can verify the user by
Palmprint Recognition System Robust to Occlusion using Gabor with 2D-2DPCA

comparing features of from non-occluded region. All tests are performed on 100 classes of the Hong Kong PolyU palmprint database. The Hong Kong PolyU database comprises of 7960 pictures captured from 199 people, 398 palms. It comprises of 20 pictures of each palm and it is the biggest palmprint database freely accessible.

References

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**Index Terms**

- Computer Science
- Pattern Recognition

**Keywords**

Pattern Recognition, Security, Palm Print, Biometrics