Abstract

This paper presents some new features for the palmprint based authentication. The Region of interest (ROI) is extracted from the palmprint image by finding a tangent to the curves between fingers. The perpendicular bisector of this tangent and the tangent itself help demarcate the rectangular area that forms the ROI of the palmprint. Four approaches are presented for the feature extraction. In the first approach the ROI is divided into a suitable number of non-overlapping windows from which fuzzy features are extracted. In the second approach multi-scale wavelet decomposition is applied on the ROI and the detail images are combined to yield a composite image which is partitioned into non-overlapping windows and energy features are extracted. In the third approach sigmoid features are extracted from the ROI and in the fourth approach feature extraction is done using Local Binary Pattern (LBP) based on the
directional gradient response. These four sets of features are used for the authentication of users from two databases using Euclidean Distance, Chi square measure and Support Vector Machines as classifiers.

References


**Index Terms**

Computer Science  
Biometrics

**Keywords**

Fuzzy features  
Wavelet features  
sigmoid feature  
Local Binary Pattern  
Support Vector Machines