

ABSTRACT

In a conventional method based on quadrature 2D Gabor wavelets to extract iris features, the iris recognition is performed by a 256-byte iris code, which is computed by applying the Gabor wavelets to a given area of the iris. However, there is a code redundancy because the iris code is generated by basis functions without considering the characteristics of the iris texture. Therefore, the size of the iris code is increased unnecessarily. In this paper we propose a new feature extraction algorithm based on Independent Component Analysis (ICA) for a compact iris code.

In this research will be implemented the new feature extraction - ICA to generate optimal basis functions which could represent iris signals efficiently. In practice the coefficients of the ICA expansions are used as feature vectors. Then iris feature vectors are encoded into the iris code for storing and comparing individual's iris patterns. Additionally, we introduce a method to refine the ICA basis functions for improving the recognition performance.

This research using Matlab R2007a software as simulation program. The detection towards the classification value in every iris is obtaining from the sum of percentage at every feature vector towards the definite class target value. From the experiment result with the same source iris, the accuration for success iris detection program to identify the trained iris is 100%.

Key words: *Iris recognition, Biometrics, Independent Component Analysis, feature extraction.*