Abstract

Among many biometrics approaches, iris recognition is known for its high reliability, but as databases grow ever larger, an approach is needed that can reduce matching time. This can be easily achieved by using iris classification. This paper presents fractal dimension box counting method for classifying the iris images into four categories according to texture pattern. Initially, an eye image is localized by using random circular contour method than a preprocessed flat bed iris image of 256x64 size is generated, which is further divided into sixteen regions. Eight regions are drawn from the middle part of the iris image, the remaining eight regions are drawn from the bottom part of the iris image. From these sixteen regions, sixteen 32x32 image blocks are generated. To calculate the fractal dimensions of these image blocks, box counting method is used. This produces sixteen fractal dimensions. The mean values of the fractal dimensions of the two groups are taken as the upper and lower group fractal dimensions; respectively. The double threshold algorithm is used to classify the iris into the four categories. Performance of the implemented algorithms have been evaluated using confusion matrix and experimental results are reported. The classification method has been tested and evaluated on CASIA V1 iris database.
IRIS Classification based on Fractal Dimension Box Counting Method


- W. Kong, D. Zhang (2001) “Accurate iris segmentation based on novel reflection and eyelashes detection model”, Proceeding of International symposium on intelligent multimedia, video and speech processing Hong Kong
- J. Daugman (2006) “Probing the uniqueness and randomness of iriscodes: Results from 200 billion iris pair comparisons”, Proceedings of the IEEE, 94(11)
IRIS Classification based on Fractal Dimension Box Counting Method

1791 – 1798

- "CASIA Iris Image Database," http://www.sinobiometrics.com

Index Terms

Computer Science
Security

Keywords

Iris Classification Fractal Dimensions Double Threshold Algorithm