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Gabor filters for biometric identification of the human iris

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ABSTRACT

A set of image processing techniques for the human iris are reported in this paper, in order to develop a biometric system for users' identification. Human Iris has been chosen because it provides a great uniqueness, even higher than fingerprints. After capturing a high resolution photograph of the eye, the borders of the iris are detected [2] (not only the outer but also the inner one). The image obtained is then passed through a set of transformations to fit the feature extraction algorithm requirements. This algorithm is based on Gabor filters which extract the unique features of the iris image pattern of the image. Based on Daugman's work [1], the features are verified, obtaining up to 98,7% classification success rate, and below 3,5% first try False Rejection Rate (FRR) with null False Acceptance Rate (FAR), figures that have improved the previous results obtained in [3]. The feature extraction and verification blocks have been deeply studied in order to reduce the computational cost required.

References

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