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AN EFFICIENT APPROACH FOR IRIS RECOGNITION BY IMPROVING IRIS SEGMENTATION AND IRIS IMAGE ENHANCEMENT

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Abstract

The biometric person authentication technique based on the pattern of the human iris is well suited to be applied to any access control system requiring a high level of security. Existing methods are not able to perform segmentation accurately and hence leading to errors in identification process. They are also computationally expensive. This paper examines a new iris recognition system that overcomes these problems. We perform preprocessing on an image by implementing power-law transform and histogram equalization to minimize the influence of the irrelevant edges as much as possible, which in turns helps to localize iris boundary efficiently and accurately. It is followed by gradient decomposed Hough transform and integrodifferential operators combination for iris localization. We use 2D Hilbert transform to extract information from iris texture. Experiments on CASIA iris database reveal that with the proposed approach, we are able to detect iris boundary almost 98.30% accurately. The proposed technique is computationally effective as well as reliable in terms of recognition rates.

Keywords: Iris recognition; biometric authentication; image segmentation; Hilbert transform, Image Processing.