

A Multi-stage Non-cooperative Iris Recognition Approach with Enhanced Template Security

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A Multi-stage Non-cooperative Iris Recognition Approach with Enhanced Template Security

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Abstract:

Biometrics identifies/verifies a person using his/her physiological or behavioral characteristics. It is becoming an important ally for law enforcement and homeland security. Among all the biometric modalities, iris is tested to be the most accurate one. However, most existing methods are not designed for non-cooperative users and cannot work with off-angle or low quality iris images. In this thesis, we propose a robust multi-stage feature extraction and matching approach for non-cooperative iris recognition. We developed the SURF-like method to extract stable feature points, used Gabor Descriptor method for local feature description, and designed the multi-stage feature extraction and matching scheme to improve the recognition accuracy and speed. The related experimental results show that the proposed method is very promising. In addition, two template security enhanced schemes for the proposed non-cooperative iris recognition are introduced. The related experimental results show that these two schemes can effectively realize cancelability of the enrolled biometric templates while at the same time achieving high accuracy.

Description:

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