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Development of efficient iris identification algorithm using wavelet packets for smartphone application (Article)

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Abstract

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Nowadays, iris recognition is widely used for personal identification and verification based on biometrical technology, especially in the smartphone arena. By having this iris recognition for identification and verification, the smartphone will be secured since every person have their own iris type. In this paper, we proposed an efficient iris recognition using Wavelet Packets and Hamming distance which has lightweight computational requirements while maintaining the accuracy. There are several steps needed in order to recognize the iris which are pre-processing the iris image consists of segmentation and normalization, extract the feature that available in the iris image and identify this image to see whether it match with the person or not. For comparison purposes, different types of wavelet bases will be compared, including symlets, discrete meyer, biorthogonals, daubechies, and coiflets. Performance of the proposed algorithm was tested on Chinese Academy of Sciences Institute of Automation (CASIA) iris image database. The optimum wavelet basis function obtained is symlet. Results showed that the accuracy of the proposed algorithm is 100% identification rate. © 2017 Institute of Advanced Engineering and Science. All rights reserved.

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CASIA database Hamming distance Iris identification Wavelet packets

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