

Iris Feature Extraction and Recognition Based on Two-Dimensional Gabor Wavelength Transform

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Abstract : Biometrics technologies apply the human body parts for their unique and reliable identification based on physiological traits. The iris recognition system is a biometric-based method for identification. The human iris has some discriminating characteristics which provide efficiency to the method. In order to achieve this efficiency, there is a need for feature extraction of the distinct features from the human iris in order to generate accurate authentication of persons. In this study, an approach for an iris recognition system using 2D Gabor for feature extraction is applied to iris templates. The 2D Gabor filter formulated the patterns that were used for training and equally sent to the hamming distance matching technique for recognition. A comparison of results is presented using two iris image subjects of different matching indices of 1,2,3,4,5 filter based on the CASIA iris image database. By comparing the two subject results, the actual computational time of the developed models, which is measured in terms of training and average testing time in processing the hamming distance classifier, is found with best recognition accuracy of 96.11% after capturing the iris localization or segmentation using the Daughman's Integro-differential, the normalization is confined to the Daugman's rubber sheet model.

Keywords : Daugman rubber sheet, feature extraction, Hamming distance, iris recognition system, 2D Gabor wavelet transform

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