Abstract

Identification via face recognition offers enormous advantages to both civilian and criminal detection programs. A next generation system that has the potential to recognize such wanted criminals from a large dataset considered to be used for security of the public safety. It also has the prospective to provide high data rates at low power over various illumination conditions in the, to be identified images. This face recognition technique for next generation acts as a baseline for the development of future solutions for response and recovery. This research is a new state-of-art integrating various techniques to perceive the faces using Illumination Normalization, Feature Extraction and Classification. The Illumination Normalization is useful for removing the dimness and shadow from the facial image which obtained from the large dataset reduces the effect of illumination variations, but, still retains the necessary information
of the face. The robust local feature extractor which is the gray-scale invariant texture called Local Binary Pattern (LBP) is helpful for feature extraction. The K-Nearest Neighbor classifier is utilized for the purpose of classification and matching the face images from the dataset. Thus, the next generation system tends to identify and recognize the input face image after preprocessing the image and feature extraction. Various images for the system from Yale-B database are used for testing to achieve the next generation face recognition system which helps in improving the performance in identifying and recognizes the faces in various illuminations.

References

- Daniel Maturana, Domingo Mery and Alvaro Soto, “Face Recognition with Local Binary Patterns, Spatial Pyramid Histograms and Naïve Bayes Nearest Neighbor Classification”; In the International Conference of the Chilean Computer Science Society, pp. 125 – 132, 2009

- G. Aggarwal and R. Chellappa, “Face Recognition in the presence of multiple illumination sources”; In Proc. of the IEEE International Conference on Computer Vision
Next Generation Face Recognition System under Various Illuminations


(Claudio A. Perez, Luis E. Castillo, and Leonardo A. Cament, &quot;Illumination Compensation Method for Local Matching Gabor Face Classifier;&quot; In the Proceedings of International Symposium on Optomechatronic Technologies (ISOT 2010), October 2010)


(S. Zeenathunisa, A. Jaya and M. A. Rabbani, &quot;An Intelligent Agent for Recognizing Face Under Dim Light Conditions;&quot; In the Proceedings of 2nd IEEE International Conference on Intelligent Agent and Multi-Agent Systems (IAMA 2011), pp. 43, September 2011)

(S. Zeenathunisa, A. Jaya and M. A. Rabbani, &quot;A Biometric Approach towards Recognizing Face In Various Dark Illuminations;&quot; In the Proceedings of 1st IEEE International Conference on Electronics Communication and Computing Technologies (ICECCT &apos;11), pp. 59, September 2011)

Index Terms

Computer Science Information Technology

Keywords

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K-nn Classifier