Abstract

Face recognition technology has received significant attention in the past several years due to its potential for a wide variety of applications. However, most of proposed face recognition systems are designed to work with frontal face images, there are several works that aimed to identify human faces from a profile view. In this paper we present a robust method to identify an individual based on the outline curve of the front portion of the silhouette that bounds the profile face images. The proposed method uses the center of ear and the tip of nose as the two reference points needed in the 2D space. The profile curve is then extracted by a segmentation method based on 2D histogram of the individual's face skin in H and S channels of the HSV color space. Having the two reference points and the segmented profile area, an angular sampling method is used to extract final normalized feature vector from the facial profile curve. In the matching phase, the Hausdorff distance metric makes the algorithm robust to small
displacements in reference points. The experimental results on the GTAV face database show that the proposed method is promising and can operate reliably under illumination variations.

Reference

- Q.H. Thu, M. Meguro, M. Kaneko, Skin-color extraction in images with complex background and varying illumination, Sixth IEEE Workshop on Applications of Computer Vision, 2002.

**Index Terms**

Computer Science  
Artificial Intelligence

**Key words**

Profile based face recognition  
Biometrics  
Face profile segmentation  
Ear detection