Abstract

When we talk about a computer based automatic facial feature extraction system which can identify face, gesture etc and estimate sex, age, expirations etc, we always ask for a dependable, fast, reliable classification process. This paper presents an approach to extract effective features for face detection and sex classification system. The proposed algorithm converts the RGB image into the YCbCr color space to detect the skin regions in the color image. Finally Gaussian fitted skin color model is used to obtain the likelihood of skin for any pixel of an image. For facial feature extraction we use Gabor filters at five scales and eight orientations. To solve the classification problem we employ Adaboost-SVM based classifier. Adaboost has been widely used to improve the accuracy of any given learning algorithm. In this paper we focus on combination of Adaboost with Support Vector Machine (SVM) as weak component classifiers to be used in sex classification task. For this classification problem AdaboostSVM based classifier demonstrates better generalization performance than SVM on imbalanced classification problems.

Index Terms

Computer Science
Artificial Intelligence

Keywords
Face Detection; Sex Identification; Gabor Filter; AdaBoost-SVM