Abstract

Depending on how algorithms are trained, they could be significantly more accurate when identifying white faces than black ones. It has recently been shown that algorithms trained with biased data result in algorithmic discrimination. During training, an algorithm is given pairs of face images of the same person, and it learns to pay more attention to features that strongly indicate that the two images represent the same person. Recently, with facial recognition becoming more prevalent in law enforcement and consumer products, there is increasing concern that such systems are ominously less accurate for people with black skin. In this work, a database of still images is created with a total of 132 black-faces representing 22 individuals, having images cropped to pixel sizes of 100x100, 80x80, 60x60 and 40x40 respectively. Two separate face recognition algorithms are also developed using Principal Component Analysis (PCA) and Linear Discriminant Analysis (LDA). Performance indices of the PCA and LDA algorithms are assessed in terms of the recognition rate, error rate, false rejection rate (FRR), and false acceptance rate (FAR). The objective of this research is to provide a control measure...
A Control System for Assessing Commercial Face Recognition Software for Racial Bias

for testing racially-biased error rates in commercially available face recognition software.

References


**Index Terms**

Computer Science  
Pattern Recognition

**Keywords**

Face Library, Racially Biased Data, Principal Component Analysis, Linear Discriminant Analysis, Face Recognition Software, Performance Indices.