An Effective Age Dependent Face Recognition System

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Face recognition is the ability to establish a subject’s identity based on facial characteristics. Face recognition has a wide range of applications, including Human-Computer-interaction, Driver’s license, National ID, Passports, Voter registration, Security system, Personal device logon, Desktop logon, Information security, Database security, Internet access, CCTV control and Suspect tracking and investigation. A face recognition system based on the age prediction is developed in this system. The system consists of two stages; age prediction and face recognition. In age prediction stage, eigenvectors and eigenfaces are calculated from the input image. New faces are projected onto the space expanded by eigenfaces and represented by weighted sum of the eigenfaces. These weights are used to identify the age of the faces. In face recognition stage, the predicted image will be searched to a certain age group of the database and all images within this age group would be considered as potential matches for the final level recognition. The age dependent face recognition system is developed based on 11 individual aging classes, which yields a great reduction time complexity in search space than searching the entire database. The algorithms that have been developed are tested on AT&T, Yale, MORPH and FG-NET Face Databases.

The goals of the system are 1) to create the fast recognition system for the face database 2) to predict how old the person is and to carry out the face recognition system based on this predicted age 3) to stop underage drinkers from entering bars, prevent minors from purchasing tobacco products from vending machines 4) deny children access to adult Web sites by predicting their age. The main advantage of this system is reduction of searching time and it requires small memory usage. According to the experiment result, this system is an effective age dependent face recognition system.