

A Face Authentication System

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ABSTRACT

Facial recognition is the identification and recognition of noticeable characteristics of a human face. In the field of image analysis it is leading the race in research as its speed and versatile application out weights previous methods. It is less invasive than other biometrical analysis methods like retinal and finger print recognition with less hardware requirements. Human to computer authentication is an integral functionality of many software systems as it manages data or location security.

This project explores the application of face recognition and its effectiveness as an authentication system using the open vision library developed by IBM. The recognition algorithm uses Viola-Jones methodology of classification to detect the users face using a trained Haar classifier. PCA (Principal Component Analysis) is then used to train image sets to reduce data representation and extract a given range of Eigen values. Derived Eigen faces are compared and accepted when falling within a given threshold of deviation from a set of trained data's average Eigen face.

Figure 1. Sample image set of normalized faces from XM2VTS face database



Figure 2. Constructed Eigen Faces from PCA of image set



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