A Thesis Report

on

FACE RECOGNITION SYSTEM USING MULTIPLE RECOGNIZER

Under the partial fulfilment
Of the degree of
Master of Technology
In
Software Engineering

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18/SE/2009

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CERTIFICATE

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This is to certify that thesis entitled ***FACE RECOGNITION SYSTEM USING MULTIPLE RECOGNISER*** which is submitted by **Vikas Singh** in partial fulfillment of the requirement for the award of **M.Tech.** degree in **Software Engineering** to **Delhi Technological University, Delhi** is a record of the candidate own work carried out by him under my supervision. The matter embodied in this thesis is original and has not been submitted for the award of any other degree.

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DECLARATION

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person nor material which to a substantial extent has been accepted for the award of any other degree or diploma of the university or other institute of higher learning, except where due acknowledgment has been made in the text.

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18/SE/2009

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ABSTRACT

Face recognition has been studied for many years and is expected to be widely used in daily identification systems, communication systems, public security systems, and in law enforcement systems.

Inspired from the human vision system, we combined the conventional learning algorithms and image processing algorithms with predefined rules to increase the intelligence of machine recognition systems. As the first step, face detection is implemented by an industrial image-based face detector combined with novel temporal differencing algorithms.

The face detection result, an industrial image-based classifier, temporal filtering and video context related rules are all combined for face recognition.

Simulation results show that, the proposed system, which is based on mixtures of subspaces, is effective for face detection. It can also be concluded that the subspace methods can be used effectively, in general object detection problems. Moreover, for colour images, observations show that, the proposed pre-processing step enhances the performance of the system.

Here, we are proposing an algorithm for the face recognition based on fusion of multiple recognizers namely Fisher's linear discriminant (FLD) and eigen-face so that we can overcome the limitation of single recognizer and improve the performance of the overall recognition system. The images of a human face lie in a complex subset of the image space that is unlikely to be modelled by a single linear sub-space; we use a mixture of linear subspaces to model the distribution of face and non-face patterns. This approach is used to overcome the drawback of the eigen-face approach by integrating Fisher's linear discriminant (FLD) criteria, while retaining the idea of the eigen-face in projecting faces from a high-dimension image space to a significantly lower-dimensional feature space.

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