

# “Dynamic Face Recognition”

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## ABSTRACT:-

Facial expression recognition is an essential issue in the field of human and computer interaction. The objective of this paper is to deal with the problem of failure for the feature points on face based on active appearance model (AAM) in fitting with different users. A high quality AAM alignment results rely on appropriate selections of initial positions. In our method, we apply partial AAM fitting on mouth and eyes. To obtain stable partial AAM, we use multi-level optical flow to determine initial position of facial feature models. Then we use the Eigen-faces dynamic face recognition system to recognize different users and select the trained fitting model in recognition with Eigen-face dynamic face recognition. In this paper, we have demonstrated our approach which can accurately recognize different users facial expressions and emotional variation.

## INTRODUCTION

In recent years, face recognition has attracted much attention and its research has rapidly expanded by not a only engineer but also neuroscientists, since it's has many potential applications in computer vision communication and automatic access system.

Especially, face detection could be a vital a component of the face recognition because the initiative of automatic face recognition. However, face detection isn't straight forward because it's many variations of image appearance, like pose variation (front, non-front), occlusion, image orientation, illuminating condition and facial expression.

## BACKGROUND

1. Face detection has been a trending topic of computer vision for past few year.

- It's getting employed in cameras that confirm faces are focused before a picture is taken, at social media sites where people are tagged automatically.
- ATMs with identify verification and detection software are introduced.
- Emotion analysis is gaining relevance for research.

## Features of Dynamic Face Recognition

- Can identify multiple faces during a real-time recording.
- Uses a stored database of faces.
- Returns the confidence of the detected image. Lower confidence value indicate accurate result.
- Is robust and not much sensitive with light.

## SPECIFICATION

- Tools and Technology
  - Operating System : Windows 7, 32bit
  - Hardware: 4GB-RAM, Webcam
  - Programming Language: Python
  - Computer Vision Library: OpenCV

## SOFTWARES

- We used OpenCV-Python to implement the project.
- OpenCV-Python are using as a library Python binding designed to unravel computer vision problems.
- OpenCV-Python utilizes Numpy.
  - Numpy could even be a highly optimized library for numerical operation with MATLAB-style syntax.
  - All the OpenCV array structure are converted to and from Numpy arrays.

## THEORY

- ✚ What's a classifier ?
- A bug that decides whether an imagesare visiting be a positive image (face image) or negative image (non-face image).
- ✚ It's trained on many thousand of face and non-face images to be told thebecauseaextremely unique new images correctly.
- ✚ Open CV provides us with these two pre-trained ableto be used classifiers.

## EVALUATION

- Full frontal faces is detected and recognized easily.
- The application recognizes persons in real-time video.
- Accuracy reduce with pose variation, change in angles and low resolution.

## FUTURE WORK

- ✓ The system is additionally modified to detect and recognize a broader class of faces.
- ✓ Gender classification, happiness index and emotion analysis could even be obtained.(e.g. With beard, changed hair etc.)
- ✓ It is additionally developed further to spotsomeone even in slight disguise (e.g. with beard, changed hair etc).

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