IIT INDORE 24/10/2019



**PROJECT PROPOSAL**

***Parallel Processing for Face Detection and Recognition***

## Submitted by- Submitted To-

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1. Introduction

Face detection is a computer technology being used in a variety of applications that identifi human faces in digital images.Face detection also refers to the psychological process by which humans locate and attend to faces in a visual scene.

Face detection can be regarded as a specifi case of [object-class](https://en.wikipedia.org/wiki/Object-class_detection) [detection](https://en.wikipedia.org/wiki/Object-class_detection). In object-class detection, the task is to fi d the locations and sizes of all objects in an image that belong to a given class. Examples include upper torsos, pedestrians, and cars. Face-detection algorithms focus on the detection of frontal human faces. It is analogous to image detection in which the image of a person is matched bit by bit. Image matches with the image stores in database. Any facial feature changes in the database will invalidate the matching process.

# Needs/Problems

There have been widely applied many research related to face recognition system. The system is commonly used for video surveillance, human and computer interaction, robot navigation, and etc. Along with the utilization of the system, it leads to the need for a faster system response, such as robot navigation or application for public safety. A number of classifi ation algorithms have been applied to face recognition system, but it

still has a problem in terms of computing time. In this system, computing time of the classifi ation or feature extraction is an important thing for further concern. To improve the algorithmic efficiency of face detection, we combine the eigenface method using Haar-like features to detect both of eyes and face, and Robert cross edge detector to locate the human face position. Robert Cross uses the integral image representation and simple rectangular features to eliminate the need of expensive calculation of multi-scale image pyramid.

Moreover, In order to provide fast response in our system, we use Principal

Component Analysis (PCA) to reduce the dimensionality of the training set, leaving only those features that are critical for face recognition.

# Objectives

Some techniques used in this application are

1. Eigen-face technique
2. KLT Algorithm
3. Parallel for loop in openmp
4. OpenCV for face detection.
5. Further uses of the techniques

# 4. Timetable

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| --- | --- | --- |
|  | **Description of Work** | **Start and End Dates** |
| **Phase One** | Getting Ready and Collection of Data | 24/10/2019 |
| **Phase Two** | Implementing the diff. algorithms and comparing them. Finding the results. | 24/10/2019 to --/--/---- |
| **Phase Three** | Final evaluation And Submission. | --/--/---- |

Seemandhar Jain,

Project Candidate Date:

Dr. Surya Prakash, Project

Supervisor Date:

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