



SJB Face Dataset: Indian Face Image Dataset with changes in pose and Expression and Occlusion

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Abstract

Biometric management and that to which uses face, is indeed a very challenging work and requires a dedicated dataset which imbibes in it variations in pose, emotion and even occlusions. The Current work aims at delivering a dataset for training and testing purposes. SJB Face dataset is one such Indian face image dataset, which can be used to recognize faces. SJB Face dataset contains face images which were collected from digital camera. The face dataset collected has certain conditions such as different pose, Expressions, face partially occluded and with a uniform attire. SJB Face Dataset was collected from 48 students in which each of them consisted of 13 face images. All the images have in it the students in white attire.

Keywords: Face Recognition, Biometric, Image dataset, Face Image.

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1. Specifications Table: [Every section of this table is mandatory. Please enter information in the right-hand column and remove all the instructions]

Subject	Image Processing, Computer Vision
Specific subject area	Face Recognition in Biometric Applications
Type of data	RGB-Image
How data were acquired	Digital Still Camera
Data format	Raw Digital Image(.jpg)
Parameters for data collection	Data Collection: <ul style="list-style-type: none">● 48 Samples (Volunteers)● 12 Face Images/Sample● Bright homogeneous background● Age – between 19 -20 Demographic Information: <ul style="list-style-type: none">● Pose● Emotion● Occlusion



Description of data collection	The dataset mainly aims at faces of persons (both male and female) with variations in pose, emotion and with a occluded face as well. The data was collected in a constrained environment.
Data source location	Institution: SJB Institute of Technology, Affiliated to VTU City/Town/Region: Bengaluru/Karnataka Country: India Latitude and longitude (and GPS coordinates, if possible) for collected samples/data:Latitude:12.9004424, Longitude: 77.4962071
Data accessibility	The data is not hosted with this article but can request for access from the authors. Instructions for accessing these data: The data shall be accessed by anyone but only for research and non commercial purposes.

2. Value of the Data

- The dataset is useful as faces belong to students who are in their 19-21 age and images are taken with a fixed green background, which helps researchers to add a complex background.
- Researchers
- With the green background, researches are able to augment the dataset to enhance the dataset for further research.

3. Data Description

In the article, we present a face dataset with different pose, variation in expression, occluded face and slight illumination variation. Face dataset developed at SJB Institute of Technology contains RGB images and are in .jpg format. The dataset contains images of students who are in their 19-21 years of age. Most of the students are in white shirt and are all Indians. This dataset

provides researchers a wide scope for experimenting on different problems in Face Recognition, which still seems to be unsolved especially in the field of Mobile Face Recognition [1, 2]. This dataset contains images which are high quality and this makes it different compared to other dataset available as State of the Art [3, 4]. This dataset can also be used for applications like attendance management system, as the subjects involved are students [5].

Most of the face datasets lack in the image quality which further makes a researcher difficult to consider feature based algorithms[6] for recognition and instead to stick to methods [6]. This also closes the avenues for verifying faces up to the human levels [7, 8]. The green background for the image is an added advantage for researchers as they can change the background to carry out the research with complex background.





Fig.1 Sample Images of Dataset

4. Experimental Design, Materials and Methods

The entire dataset was created under constrained conditions using a digital still camera with the Sony DSC-W520 camera and a Lens Resolution of 4320x3420. The entire dataset was created in a span of 1 hour starting from 3pm. The illumination without flashlight @ 3pm was 400 lux and Illumination

with flashlight @ 3pm was 600 lux. 48 students of Department of Electronics & Communication Engineering belonging to SJB Institute of Technology Voluntarily participated in the dataset preparation. Each student's face was captured in 12 different ways as shown in Fig.1. The experimental setup to capture the face is shown in Fig.2.



Fig.2 Experimental Setup for creation of database

5. Conclusion

This work involves human subject and the consent was obtained for experimentation with human subjects. The dataset has the ability to obtain promising results from researchers who are working on problems linked to Pose, Illumination, Expression, and Occlusions.

Ethics Statement

This work involves human subject and the consent was obtained for experimentation with human subjects.

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