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Lecture Evaluation Using Face Expression Recognition

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ABSTRACT: You all are heard about face expression and face detection systems now-a-days. In this systems has lots of applications included like Synthetic human expression, Detection of mental disorder, Gender detection system, Human behaviours etc. This paper introduces the Advance application about recognize face detection and expression. The system has ability to recognize or detect the facial expression on multiple faces. This face expression detection system is one of the hot-spot in recent and upcoming years. In this system we presented "Lecture Evaluation Using Face Expression Recognition". In institute many students are not mentally attend lectures, unfortunately they don't get any concepts of that lecture. So we can use OpenCV technology and Convolution Neural Network (CNN) Machine Learning Algorithm for this implementation of system. The goal of this study is to develop the recognition of lecture evaluation for more accuracy and satisfaction. Also prevents recognition of lectures caused by lack of face representation.

KEYWORDS: Face expression detection, face recognition, Huaman behaviour.

I. INTRODUCTION

We can easily identify the current mood of that person who is sits in front of you . It may be your friend, mom, dad etc. In this system we present "Lecture Evaluation Using Face Expression Recognition". In institute many students are not mentally attend lectures, unfortunately they don't get any concepts of that lecture. So we can use OpenCV technology and Convolution Neural Network (CNN) Machine Learning Algorithm for this implementation of system. The goal of this study is to develop the recognition of lecture evaluation for more accuracy and satisfaction. Also prevents recognition of lectures caused by lack of face representation. Each face recognition will be delineated by a collection of patterns containing info concerning the everyday purchase class satisfaction, the time since , we focus on the collecting the face images for predicting the symptoms of affects of lectures based on two feature face representation and face expression etc. In general we can say both representation and expressions visible for improvement of lecture evaluations. Each face recognition will be delineated by a collection of patterns containing info concerning the everyday purchase class satisfaction, the time since , we focus on the collecting the face images for predicting the symptoms of affects of lectures based on two feature face representation and face expression etc. In general we can say both representation and expressions visible for improvement of lecture evaluations.

II. RELATED WORK

In general, the methods of recognizing faces in videos can be divided into two categories: 1) Spatio-temporal recognition which is based on both static and dynamic information; 2) Frame-based recognition in which only one (or a few) static image(s) are available for recognition .Videos can benefit face recognition by providing many frames that include abundant temporal dynamic information such as motion, pose and expression. Previous works show that it is necessary to make the most use of temporal information to improve the performance of face recognition , the information from different cameras and the temporal characteristics in a video sequence were incorporated by a dynamic Bayesian network. A hidden Markov model (HMM) was exploited to analyze the temporal clues over time . Some work has also been done to construct a 3D face model by using the dynamics in videos. For example, the author utilized a 3D head model which used features like hairline, to deal with large pose variations in head tracking and video-based face recognition. When it comes to frame-based recognition, normally an automated face detector is first used to extract the faces from the video frames. Subsequently these faces are used for face recognition. It is similar to still-to-still image face recognition, which has been researched for such a long time that so many methods have been developed for it. Traditional methods rely on feature representation given by hand-crafted descriptors such as LBP, Gabor , eigenfaces and so on. They perform well in constrained conditions, but encounter many challenges when used in unconstrained scenarios such as real-world surveillance videos due to the large variations in illumination, pose and low resolution. Many deep neural networks have been proposed for face recognition. A supervised metric, i.e. the X2 similarity and the Siamese network, was used for the verification metric. Experiments showed the method reached an accuracy of 97.35% on the Labeled Faces in the Wild (LFW) dataset. The increased the performance on LFW incrementally but steadily. In this paper, the deep learning is employed to solve the problem of face recognition in real-world surveillance video. A relatively large scale face dataset is collected from our school monitoring system. Then, VGG face model is finetuned with the new dataset. Testing on our real-world surveillance videos dataset, the recognition accuracy of the fine-tuned model reaches 92.6%, improved by about 9% in comparison with the model without fine-tuning.

Dataset Collection

As mentioned above, the dataset is important for finetuning. Since our target domain is real-world surveillance video, massive data from the target domain is necessary, including the number of identity classes and the amount of each identity class, to fine-tune our model. The dataset is established by four stages, as summarized in Table I.

- Stage 1: Rough dataset generation

Our aim is face expression recognition in real-world classroom surveillance videos. One of the advantages of videos is that they involve many different person objects, so we can get enough identity classes from massive videos. Besides, each identity often appears in a series of frames. Thus enough face images for each identity are able to be obtained. These face images are various in illumination, pose, expression, and are even shaded to some extent. We build our dataset roughly utilizing the combination of face detection and face tracking. As showed in Fig. 1, when a video is input, the faces are detected by frames.

THE PROCEDURE OF DATASET COLLECTION

Stages	Aims	Methods
Stage1	Rough dataset generation	face detection and tracking
Stage2	Purification within each class	graph-clustering by VGG feature
Stage3	Purification between classes	similarity measure
Stage4	Filtering according to amount	quantity statistics

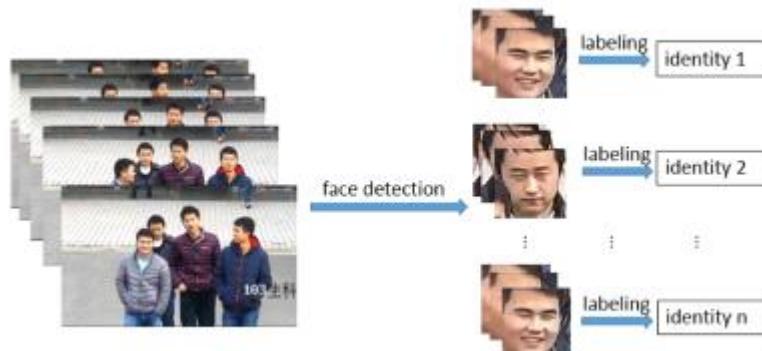


Figure1. Rough data set Generation



Figure 2. Some examples of an identity. The images with the red boxes are labeled incorrectly.

III. PROPOSED WORK

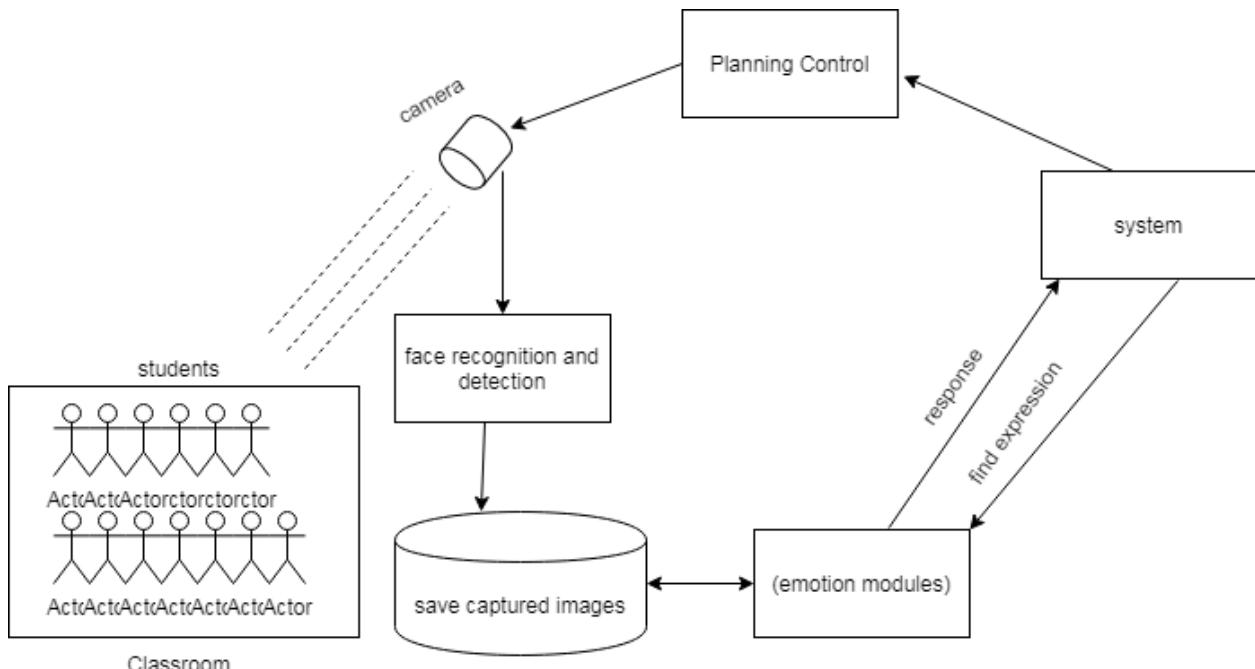


Fig: System Architecture

The proposed system uses supervised machine learning techniques to classify the face expressions of students in classroom during lectures.

In this work, we'll build the system which gives the exact feedback of students for that lecture means it gives proper judgement of that lecture how effective it is.

We all know the three types of neural networks , each one has a different way of uses to different problems.

Feature Extraction is the most important step in the analysis of images.

It is a process of concourse differentiate information from the image itself from an object or group of objects.

The proposed work gathering image dataset for predicting emotions of face. The image capture symptoms prediction is composed main component including the digital camera tor capturing the image of students face representations.

In order to recognize and predict the accurate image capture symptoms on improvement of lecture evaluation.

In above figure i.e. System architracture represents the face expression recognition of students. we can see the camera which is capture the video of students then take some snapshots and store it in database then the captured expressiond can be find by our system.

The different types of neural networks in machine learning, that is convolutional neural networks (CNN), recurrent neural networks (RNN), artificial neural networks (ANN), etc. are change the direction we interact with the world. These types of neural networks are at the core of the machine learning revolution, powering applications like unmanned aerial vehicles, self-driving cars, speech recognition, etc.

Our System is based on CNN i.e. convolution neural network because , CNN is considered to be more powerfull than RNN and ANN. Facial recognition, text digitization and natural language processing this ate the applicaions of CNN. High accuracy in image recognition problems, Weight sharing is the main advantage of this technique.

IV. WORKING

In this module,the Admin has to login by using registered user name and password. After login successful he can do some operations. This system ask user to fill lecture details and after that it can starting recognizing face expressions during lectures as shown in below figure.

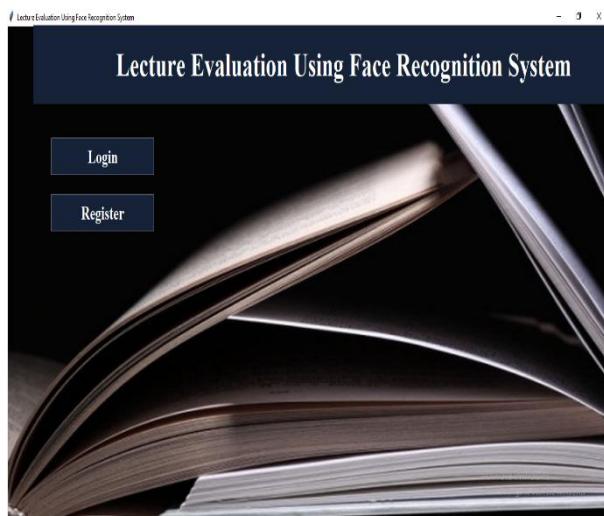


Fig-registration and login form

Full Name :	
Address :	
E-mail :	
Phone number :	0
Gender :	<input type="radio"/> Male <input type="radio"/> Female
Age :	0
User Name :	
Password :	
Confirm Password:	

Registration Form

Register

Fig-registration details

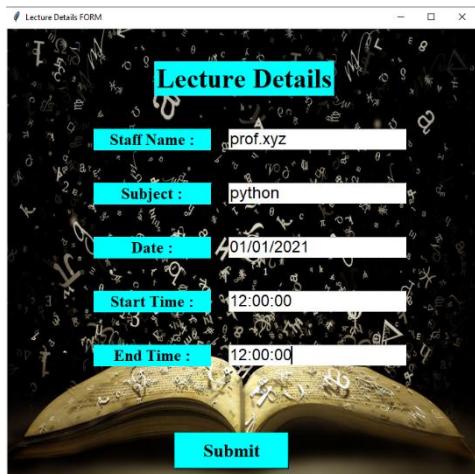


Fig - lecture details

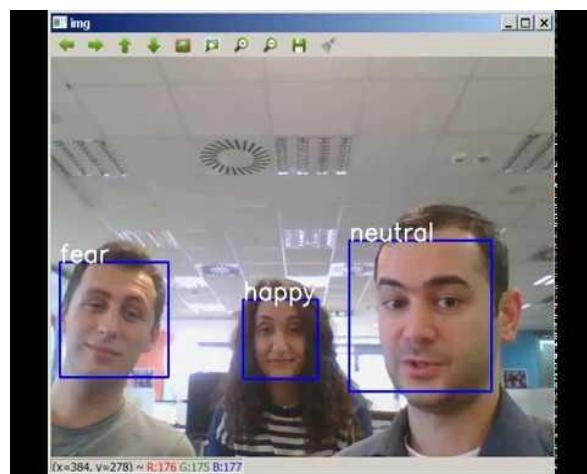


Fig - starting face expression recognition

We can use OpenCV i.e. Open Source Computer Vision Library here. It is a most required optimized library to focusing on real-time applications. It supports C++, Python and Java interfaces and Linux, MacOS, Windows, iOS etc operating Systems also.

V. CONCLUSION AND FUTURE WORK

The art of understanding the how different students comprehend educational contents after lecture of class. This module is carried out to determine possible to observe and analyse students behaviour in class. And detect the maximum face and get more accuracy if class. OpenCV python is a library which is designed to solve computer vision problems.

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