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Stochastic Auto Query and Face Recognition Attendance System for Virtual Meet using Deep Learning

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A B S T R A C T

Delicate biometrics assume a significant part in face biometrics and related fields since these could prompt one-sided exhibitions, undermine the client's protection, or are important for business viewpoints. Current face information bases are explicitly built for the improvement of face acknowledgment applications. Subsequently, these data sets contain an enormous number of face pictures however need the quantity of quality explanations and the general explanation accuracy. In this work, we propose an original comment move pipeline that permits to precisely move property explanations from different source datasets to an objective dataset. The exchange depends on a gigantic quality classifier that can precisely express its expectation certainty. Utilizing these forecast confidences, a high accuracy of the moved explanations is guaranteed. Applying this pipeline to the VGGFace2 information base, we propose the MAAD-Face explanation information base. It comprises of 3.3M countenances of over 9k people and gives 123.9M trait comments of 47 distinct twofold credits. Subsequently, it gives 15 and multiple times more trait comments than Celeb A and LFW. Our examination on the comment quality by three human evaluators illustrated the prevalence of the MAAD-Face comments over existing information bases. Moreover, we utilize the huge number of great comments from MAAD-Face to concentrate on the practicality of delicate biometrics for acknowledgment, giving experiences into which credits support authentic and fraud choices. Then MAAD-Face explanations dataset is freely accessible.

Keywords: Face recognition , database , facial attributes ,soft-biometrics , annotation-transfer , human evaluation ,biometrics.

1. INTRODUCTION

Characteristics Model into HR system to search for a new model of efficient operation on Human Resource Management in the Internet Age. Today there is a growing interest in the personality traits of a candidate by the organization to better examine and understand the candidate's response to similar circumstances and in this system HR adds some criteria like personality required, roles and responsibilities etc. and system is examining automatically if candidates are fit to all those criteria or not, for this the system conducts a personality prediction test to determine the personality traits of the candidate. Finally, it presents the results of the candidates to the recruiter who evaluates the top candidates and shortlisted the candidate. In this project, we will register him/her with all resume details, hobbies, strengths, weakness and 15 to 16 questions for personality prediction in that HR analyzed the Candidates Openness(O), Conscientiousness(C), Extraversion(E) Agreeableness (A) means is one of the five personality traits of the Big Five personality theory. A person with a high level of agreeableness in a personality test is usually warm, friendly, and tactful. They generally have an optimistic view of human nature and get along well with others. Neuroticism (N) Means is one of the Big Five higher-order personality traits in the study of psychology. Individuals who score high on neuroticism are more likely than average to be moody and to experience such feelings as anxiety, worry, fear, anger, frustration, envy, jealousy, guilt, depressed mood, and loneliness, which will be further, used by the system to shortlist their CV or candidates.

METHODOLOGY

Our purpose is to make a facial recognition system which needs as less training data as possible. The main reason behind this constraint is the fact that it is more useful for a supervisor to have train the model with one or few pictures for each student rather than having to make a large Dataset with many images for the same person. We will be comparing two main face classification models, PCA dimensionality reduction, and pretrained CNNs.

To perform face recognition, the following steps will be followed:

- Detecting all faces included in the image (face detection).
- Cropping the faces and extracting their features.
- Applying a suitable facial recognition algorithm to compare faces with the database of students and lecturers.

Providing a file recording the identified attendants.

MODELING AND ANALYSIS

Mathematical model is a description of a system using mathematical concepts and language. A model may help to explain a system and to study effects of different components of a system to predict the behavior of system. The mathematical modeling for our system is as follows
S= {Σ, F, δ, C}
S = Face Recognition.
Σ = set of input symbols = {Video File, image, character information}
F = set of output symbol = {Match Found then notification to user, Not Found} δ =

1. Start
2. Read training set of Images
3. Resize image dimensions to
4. Select training set of Dimensions, M: number of sample images set, create matrix A Where, Ψ= average image, M= number of images, and Γi= image vector Φi = Γi – Ψ Where, i = 1, 2, 3, …, M. A = [Φ1, Φ2, Φ3…ΦM]
6. Calculate covariance matrix: AA'
7. Calculate eigenvectors of the c covariance matrix.
8. Calculate eigenfaces = No. of training images –no. of classes (total number of people) of eigenvectors.
9. Create reduced eigenface space The selected set of eigenvectors are multiplied by the A matrix to create a reduced eigenface
10. Calculate eigenface of image in question
11. Calculate Euclidian distances between the image and the eigenfaces.
12. Find the minimum Euclidian distance.
13. Output: image with the minimum Euclidian distance or image unrecognizable

C = {The system will not process the audio data, Eigenfaces will generate the grayscale images, The algorithm will run only on key frames.}

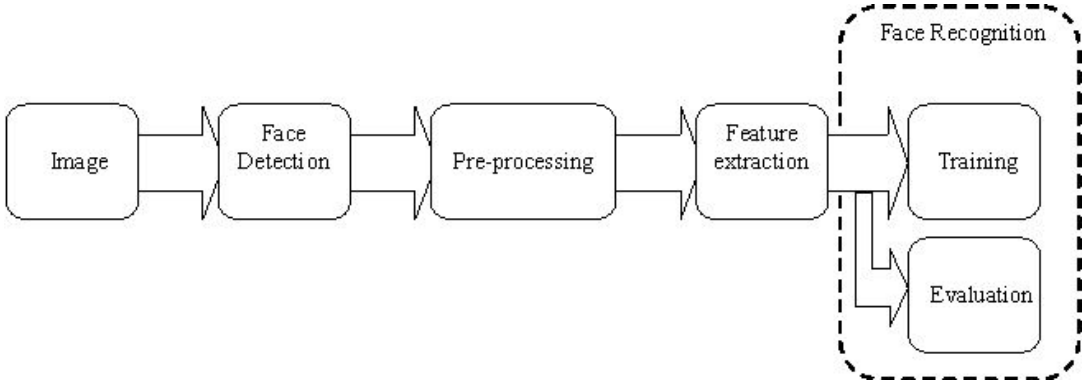

Figure 1. Face recognition System Architecture

RESULTS AND DISCUSSION

The attendance system has been implemented in a Lenovo laptop computer with the following specifications: Intel® core ™ i5-7200U CPU @2.50GHz, RAM 8.00GB, Windows 10 Pro. The system consists of three programs developed in Python 3. The first program captures 10 face pictures for each student in the class. The second one compiles face net model and loads parameters. The third one generates the database based on the pictures captured by the first program, recognizes the face at the real-time web camera, and updates the attendance record in the excel file. Thus, all visible results are delivered by the third program. The information of the result includes the frame identifying the location of the detected face, the recognized name (Will) at the upleft corner of the frame, and the corresponding distance (0.4891317) to Will's face encoding in the database. This distance gives a confidence on how surely the person is "Will": the smaller it is, the more likely he/she is "Will". The bigger word "Will" at the top center is the result based on the 10 consecutive recognitions created by the attendance system is for students' names and the second is the attendance record. The number for a student is the number of recognitions among 10 trials. A blank for a student means that either the student did not check the attendance, or the number of recognitions is less than 5 (i.e. face recognition failed). In case of the failure of recognition, the student needs to inform the instructor for a manual attendance marking.

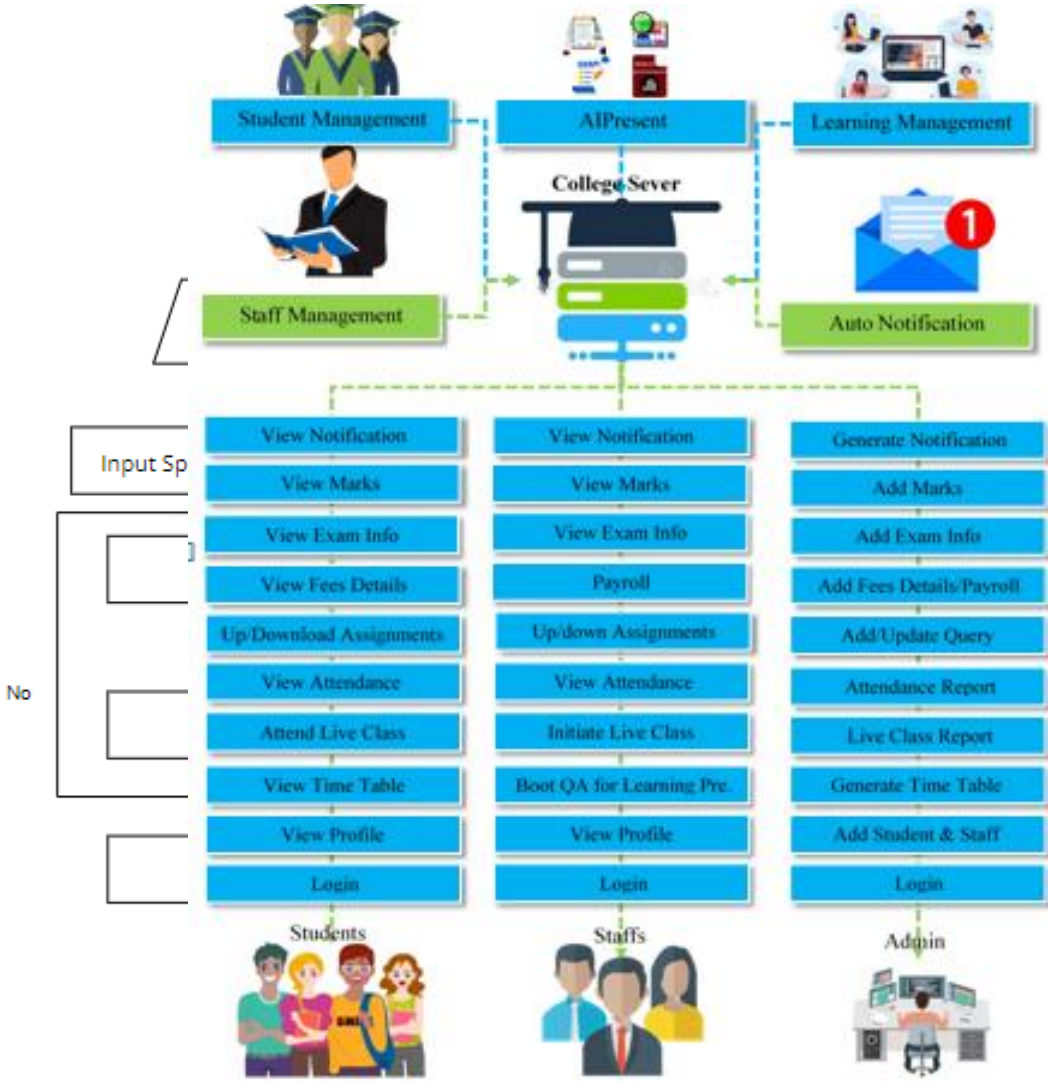

Figure 2. Face recognition Architecture Diagram

CONCLUSION

Delicate biometric ascribes assume a significant Part in the turn of events of different face acknowledgment themes, for example, bias mitigating, data combination, and protection safeguarding face acknowledgment arrangements. fields, in this work, we introduced four commitments. (1) An original comment move pipeline is suggested that permits to move trait explanations of high precision from numerous source datasets to an objective dataset. This pipeline is utilized to make MAAD-Face. (2) MAAD-Face is a book face explanations data set that gives over 3.3M appearances with 123.9M comments of 47 distinct properties. To the best of our insight, MAAD-Face is the openly accessible information base that gives the biggest number of property comments. (3) We dissect the rightness of the property explanations of three clarified face information bases, Celeb A, LFW, also, MAAD-Face. The assessment was performed physically by three human evaluators and showed that the trait explanations of MAAD-Face are of essentially more excellent than related data sets. (4) Finally, the huge number of top notch explanations of MAAD-Face are utilized to concentrate on how well delicate biometrics can be utilized for personality acknowledgment. The benefit of the proposed explanation move pipeline is that it permits moving inconsistent qualities from an information base to pictures while it guarantees a high accuracy of the moved explanations. This prompts property comments of higher quality than related information bases as the explanation rightness assessment showed.

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