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Facial Recognize Based Music System

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ABSTRACT: Facial expressions convey non-verbal information between humans in face-to-face interactions. Automatic facial expression recognition, which plays a vital role in human-machine interfaces, has attracted increasing attention from researchers since the early nineties. Classical machine learning approaches often require a complex feature extraction process and produce poor results. In this paper, we apply recent advances in deep learning to propose effective deep Convolutional Neural Networks (CNNs) that can accurately interpret semantic information available in faces in an automated manner without hand-designing of features descriptors. We also apply different loss functions and training tricks in order to learn CNNs with a strong classification power. The experimental results show that our proposed networks outperform state-of-the-art methods on the well-known FERC-2013 dataset provided on the Kaggle facial expression recognition competition. In comparison to the winning model of this competition, the number of parameters in our proposed networks intensively decreases, that accelerates the overall performance speed and makes the proposed networks well suitable for real-time systems.

I. INTRODUCTION

Human face is the most important organ of an individual body. And, through that people express and recognize emotions of each other in the communicating system. Human happiness completes the art of living and Music plays one of the vital roles in keeping an individual with a peace of mind and at ease. Music always turns out to be a stress and tensity reliever. It has always been a boon to an individual and its mindset. With advancement of technology, manual work tends to be in last line and automation has gained a lot of attention. Our system aims to predict the emotion of an individual which will be along with giving input by the end user in which the end user will be asked whether they want to listen to songs according to their current mood or for the betterment of their mood which will be followed by playing songs over YouTube. Our pure system takes the consideration of the respective individual mood i.e. Happy, Sad, Angry, Neutral, or Surprise. This intelligent system proposes an intelligent agent that categorizes all sorts of emotions as a different music collection which will eventually play songs and recommends an appropriate playlist to the user according to their mood or choice for betterment of the mood.

This system is an emotion-based music player. It's a useful tool for the system will determine emotions and create playlists for the user, based on the emotion captured. The application also allows the user's to easily customize the playlists. It recommends songs for the user that may fit their current emotion, helping the user automate the initial song selection. As soon as the user opens the application, the device's camera opens and begins capturing images. The system will determine emotions and create play-lists for the user based on the emotion captured. The application also allows the user's to easily customize the playlists. It recommends songs for the user that may fit their current emotion, helping the user automate the initial song selection. The recommendations are based on the previous information about the user's preferences and usage.

II. LITERATURE SURVEY

1. A Survey on Human Face Expression Recognition Techniques
Author - IM Revina, WRS Emmanuel
Year – 2021
This paper describes the survey of Face Expression Recognition (FER) techniques which include the three major stages such as preprocessing, feature extraction and classification. This survey explains the various types of FER techniques with its major contributions. The performance of various FER techniques is compared based on the number of expressions recognized and complexity of algorithms. Databases like JAFFE, CK, and some other variety of facial expression databases are discussed in this survey. The study on classifiers gather from recent papers reveals a more powerful and reliable understanding of the peculiar characteristics of classifiers for research fellows.

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2. Deep Residual Neural Network for Child's Spontaneous Facial Expressions Recognition
Author - A Qayyum, I Razzak
Year – 2021
In this paper, we present progressive light residual learning to classify spontaneous emotion recognition in children. Unlike earlier residual neural network, we reduce the skip connection at the earlier part of the network and increase gradually as the network go deeper. The progressive light residual network can explore more feature space due to limiting the skip connection locally, which makes the network more vulnerable to perturbations which help to deal with overfitting problem for smaller data. Experimental results on benchmark children emotions dataset show that the proposed approach showed a considerable gain in performance compared to the state of the art methods.

3. Facial expressions recognition and discrimination in Parkinson's disease
AAuthor - G Mattavelli, E Barvas, C Longo
Year –2021
This study aims at assessing emotion recognition and discrimination in PD. Recognition of six facial expressions was studied in order to clarify its relationship with motor, cognitive and neuropsychiatric symptoms. Sensitivity in discriminating happy and fearful faces was investigated to address controversial findings on impairment in early stages of emotion processing. To do so, seventy PD patients were tested with the Ekman 60 Faces test and compared with 46 neurologically unimpaired participants. Patients' performances were correlated with clinical scales and neuropsychological tests. A subsample of 25 PD patients and 25 control participants were also tested with a backward masking paradigm for sensitivity in happiness and fear discrimination. Results showed that PD patients were impaired in facial emotion recognition, especially for fearful expressions. The performance correlated with perceptual, executive and general cognitive abilities, but facial expression recognition deficits were present even in cognitively unimpaired patients. In contrast, patients' sensitivity in backward masking tasks was not reduced as compared to controls.

4. Facial Expressions as a Vulnerability in Face Recognition
Author - A Peña, A Morales, I Serna, J Fierrez
Year – 2021
This work explores facial expression bias as a security vulnerability of face recognition systems. Despite the great performance achieved by state-of-the-art face recognition systems, the algorithms are still sensitive to a large range of covariates. We present a comprehensive analysis of how facial expression bias impacts the performance of face recognition technologies. Our study analyses. facial expression biases in the most popular face recognition databases. The impact of facial expression in face recognition performances. Our experimental framework includes two face detectors, three face recognition models, and three different databases. Our results demonstrate a huge facial expression bias in the most widely used databases, as well as a related impact of face expression in the performance of state-of-the-art algorithms.

5. A Study on Human Face Recognition Techniques
Author - S Ranjani
Year - 2022
In this facial recognition system uses biometrics to capture the facial features from the photograph or video. It compares the information from the known database to find a match. There are many facial recognition techniques used nowadays. Among the biometrics, facial recognition plays a major role. The facial recognition uses machine learning to discover, match and recognize the person, and it is widely used in a variety of ways. The facial recognition system is used to differentiate among the users, and it produces an accurate result. In this work, facial recognition and its techniques will be briefly described.

III. EXISTING SYSTEM

In existing system manual system has been implemented, based on the computer vision research, Haar wavelet is used for image feature detection for object recognition. Human is counted manually for attendance systems. Counting the humans results in an inaccurate result and there will be no database proof Machine learning algorithm has been implemented in existing system Different deep learning algorithm , CNN feature extraction algorithm has been implemented. Based on the computer vision research, Haar wavelet is used for image feature detection for object recognition. The success of the real-time face recognition systems are limited by the varying quality of images due to

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unreliable environment conditions. Human is counted manually for attendance systems. Counting the humans results in an inaccurate result and there will be no database proof.

DISADVANTAGE

- Inaccurate counting result.
- Time consuming process.
- It automatically identifies the expression/emotion of the human correctly.
- It results in high accuracy even though lighting illumination problem occurs.

IV. PROPOSED SYSTEM

The proposed system deep learning based emotion recognition using face expression. Machine learning approach based approach implemented for recognition different face expression. Facial algorithm implemented for recognition of human face expression. Our proposed method can be classified into two main part which are detection on facial reorganization and speech reorganization. In facial reorganization, the CNN algorithm has been used in order to detect the emotional expression. Same as, the CNN algorithm has been used in detection of emotion by using speech signals.

ADVANTAGE

- Higher accuracy
- Light weight
- Less test and train time.

MODULE DESCRIPTION

TRAINING

The augmentation of images are collected and features are extracted and trained into data based features are extracted created the data based data base. Mat Testing of images we verified the person under the different testing.

DATA COLLECTION

The dataset is divided into training set and test set. Each sample represents a traffic sign labeled as one of 2 classes. The shape of a traffic sign image is scaled to 256×256 pixels in 3 channel RGB representation. Below, there are a few random samples from the dataset: vilo jones images are collected.

PREPROCESSING

Variations that are irrelevant to facial expressions, such as different backgrounds, illuminations and head poses, are fairly common in unconstrained scenarios. Therefore, before training the deep neural network to learn meaningful features, pre-processing is required to align and normalize the visual semantic information conveyed by the face Illumination and contrast can vary in different images even from the same person with the same expression, especially in unconstrained environments, which can result in large intra-class variances Image size

CNN LAYER FEATURE EXTRACTION

The concept of convolutional neural networks. They are very successful in image recognition. The key part to understand, which distinguishes CNN from traditional neural networks, is the **convolution** operation. Having an image at the input, CNN scans it many times to look for certain **features**. This scanning (convolution) can be set with 2 main parameters: stride and padding type. As we see on below picture, process of the first convolution gives us a set of new frames, shown here in the second column (layer). Each frame contains an information about one feature and its presence in scanned image. Resulting frame will have larger values in places where a feature is strongly visible and lower values where there are no or little such features.

TESTING WITH RESULT AND ANALYSIS

Live camera we take input image and preprocessing of image images.Thepreprocessed of images the person undervideo the person belongs of the person under expression mode.

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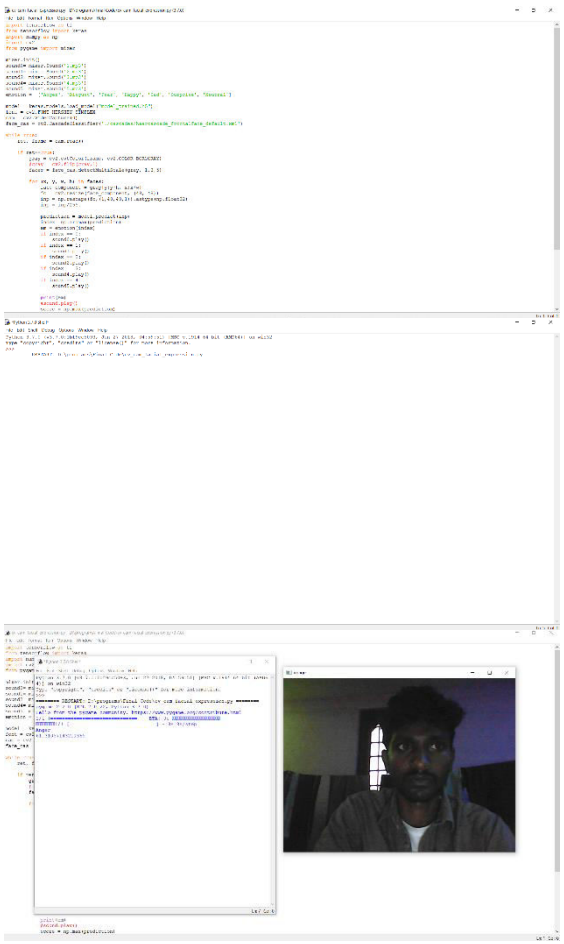

V. CONCLUSION

We have presented a complete and fully automated approach for facial expression identification by simultaneously utilizing the face surface and face subsurface features. We presented a new algorithm for the face identification and recognition, which can more reliably extract the face features and achieve much higher accuracy than previously proposed facial identification approaches. The proposed approach presents a very low degree of complexity, which makes it suitable for real-time applications. Depending upon the selected features and the measured region properties of the human face, the different expression of the human was further classified using CNN(convolution layers). The proposed method is superior compared with other state-of-the-art approaches and that the analysis of the general image quality of the face images reveals highly valuable information that may be very efficiently used to discriminate them from fake traits.

REFFERENCES

[1] Paul Viola, Michael J. Jones, Robust Real-Time Face Detection, International Journal of Cumputer Vision 57(2), 2004.
[2] Ayushi Gupta, Ekta Sharma, NehaSachan and Neha Tiwari. Door Lock System through Face Recognition Using MATLAB. International Journal of Scientific Research in Computer Science and Engineering, Vol-1, Issue-3, 30 June 2013.
[3] Daniel Georgescu, A Real-Time Face Recognition System Using Eigenfaces, Journal of Mobile Embedded and Distributed Systems, vol. III, no. 4, 2011.
[4] Ole Helvig Jensen, Implementing the Viola-Jones Face Detection Algorithm, 2008.
[5] M. A. Turk and A. P. Pentland. Eigenfaces for Recognition. Journal of Cognitive Neuroscience, 3(1):71 - 86, 1991.

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[6] M. A. Turk and A. P. Pentland. Face recognition using eigenfaces. IEEE Computer SocietyConference on Computer Vision and Pattern Recognition, CVPR 91, pages 586 - 591, 1991.
[7] I.Yugashini, S. Vidhyasri, K.Gayathri Devi, Design And Implementation Of Automated Door Accsessing System With Face Recognition, International Journal of Science and Modern Engineering(IJISME), Volume-1, Issue-12, November 2013.
[8] Liton Chandra Paul, Abdulla Al Sumam. Face Recognition Using Principal Component Analysis Method. International Journal of Advanced Research in Computer Engineering & Technology (IJARCET),Volume 1, Issue 9, November 2012.
[9] A. C. Rafael and D. Sidney, "Affect detection: An interdisciplinary review of models, methods, and their applications," *IEEE Trans. Affective Comput.*, vol. 1, no. 1, pp. 18–34, Jun. 2010.
[10] N. Sebe, H. Aghajan, T. Huang, N. M. Thalmann, and C. Shan, "Special issue on multimodal affective interaction," *IEEE Trans. Multimedia*, vol. 12, no. 6, pp. 477–480, Oct. 2010.

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