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Comparative Study on Mood Detection Techniques

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Abstract: Human face is the part from which we come to know a lot about the person's present state. So it is crucial to identify the appearance of a person's face by observing their face. This paper gives a general view of few latest techniques that are implemented to detect mood based on facial appearance.
Keywords: Emotion, Expression, Mood detection, Support vector machine (SVM), Principal component analysis (PCA).

I. INTRODUCTION

The only part from which human psychological state can be identified is from human's face. Human face play important role while communication. Facial expression is nothing but the movement of facial muscles below the skin of our face. These face movements tells the mood of individual. Facial expressions are simple way of sharing or conveying information to other people. So this plays a good role when complicated information is exchanged between humans. Nowadays it has becomes very challenging to make human and computer interact very efficiently. It is an interesting and challenging task to build a system which will act like human in identifying emotions.

In this paper comparative study is done of methods which are being used recently to recognize emotion from facial expressions.

Emotion recognition from face is difficult work because of lot of varying movements and other factors. So the proposed system has some important goals. First to identify face from non faces that is face detection. Secondly, to extract important features from face and finally classification of emotions based on identified facial features.

II. LITERATURE SURVEY

Debishree Dagar[1], Abir Hudait[1], H. K. Tripathy[1] & M. N. Das,[1] have designed an automated framework which will detect emotions based on facial expression. They have taken input as live video sequence frames and done some processing. Features are extracted using gabor feature extraction method. Neural network is used to training. PCA method is used to extract facial attributes of emotion followed by clusterization of various facial expression[1]. At the end to determine expression separately, feature vector which is processed is carried through the pattern classifier which is already learned. JAFEE dataset is used which have 213 sample images and 215 lines. Aswin K.M[2], Keerthi Vasudev [2], have designed real time human emotion recognition system which recognize emotion from speech features and facial features. Live video stream and audio streams
given as input based on that system detects emotions. System splits audio streams into frames and from that it extract Mel-Frequency Cepstral Coefficient(MFCC)[2] features and then extract emotion. To classify emotion SVM is used.

F. Abdat & C. Maaoui & A. Pruski[3] described a system which recognise emotion found on facial expression. This system makes use of three steps: Detection of face, Extraction of facial characteristics & Classification of facial expression. They have designed a model which detect feature point of face and combined this with shi&Thomsi method.

They have used variation of some 21 distance which help them to describe facial feature deformation from neutral face. SVM method is used for classification.

Al-Amin Bhuiyan[4], and chang hong Liu[4], addresses a peculiar algorithm to recognize face using trained neural networks which uses gabor feature. The system begin to convolve a input image having face with a array of Gabor filter coefficient having different scales and orientations[4]. Two peculiar addition are: rms contrast scaling and basic principles of fuzzily skewed filter. System uses neural network which recognize face which depend on multilayer perceptron(MLP) along with backpropagation algorithm.

Abhishek Kumar[5] & Anupam Agarwal[5] done work under the field of face detection and emotion recognition. This paper explores biology of human face and they have built model for classification.

Facial feature point extraction is carried out based on biological information of the face. The facial features are represented using distance vector which can be of individual person or group of people.

To refine extracted features canny edge detection method[5] is used so that they are suitable for classification. SVM with two approaches is used for classification.

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III. OBSERVATION TABLE

Reference Paper	Year	Database Used	Feature Extraction Technique	Classification
Debishree Dagar[1]	2016	JAFEE dataset	PCA to extract facial attributes	K-mean Clustering
Aswin K.M[2]	2016	Cohn-Kanade Database	MFCC for speech feature extraction	Support Vector Machine
F. Abdat[3]	2011	Cohn-Kanade & FEEDTUM database	Shi&Thomasi method	Support Vector Machine
Al-Amin[4]	2007	PIE database	Gabor Filters	MLP
Abhishek Kumar[5]	2014	FEEDTUM dataset	Cany edge detection	Support Vector Machine

IV. CONCLUSION

The methods and techniques used to detect face from input image and extraction of feature points from face followed by classification of expression is main goal of this research. To detect face from non faces, steps used are- input image, detection of face, cropping of face from non-faces, extraction of feature points from the cropped face, classification of emotions. For every step different methods are used which are analysed and studied. Gabor feature extraction is used to extract features from face. Trained neural network is used for face detection. SVM is used for emotions classification.

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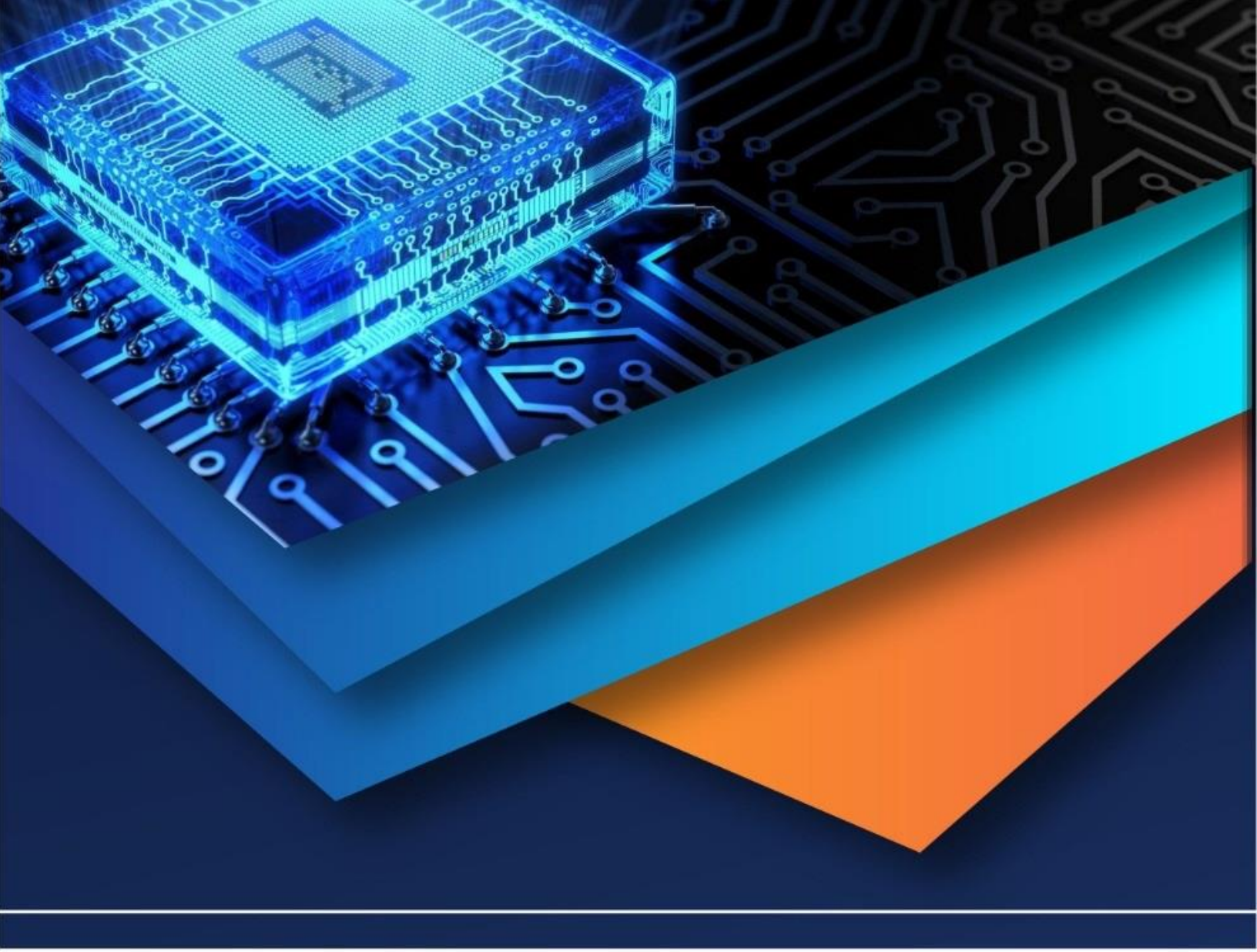

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