Facial Emotion Recognition

Jitendra Musale[1] ,Saipradnya Shingaram[2], Pallavi Jagtap[3], Samruddhi Ghadge[4] ,Pooja Patil[5]

[1] *Jitendra Musale* Department Computer & Anantrao Pawar College Of Engineerg and research

[2] *Saipradnya Shingaram Department Computer & Anantrao Pawar College Of Engineerg and research*

[3] *Pallavi Jagtap Department Computer & Anantrao Pawar College Of Engineerg and research*

[4] *Samruddhi Ghadge Department Computer & Anantrao Pawar College Of Engineerg and research*

[5] *Pooja Patil* Department Computer & Anantrao Pawar College Of Engineerg and research

---***--

Abstract - Face recognition has been around for a lot longer.

Taking a step further, human emotion, as expressed by the face and felt by the brain.

Modern artificial intelligent systems need to be able to replicate and evaluate reactions from human faces, therefore emotion detection is critical.

This can help you make more educated judgments, whether it's about determining intention, promoting deals, or avoiding security dangers.

Identifying expressions via photos or video is a simple operation for the human eye, but it's a difficult challenge for machines that necessitates the use of numerous image processing methods for feature extraction.

This task can be accomplished using a variety of machine learning algorithms.

Any machine learning detecting or authentication involves first training algorithms and afterwards testing them on a suitable collection.

This paper looks at a few machine learning methods as well as extracting features strategies that could be useful in the future.

*KeyWords***:** Emotion Recognition,Facial expressions, Machine learning,Face,Dectection,Emotional,,Dectection,CNN Algorithm, Preprocessing, Feature Extraction

1.INTRODUCTION

Observing human emotion has always been a fascinating psychological topic.

In 1899, Charles Darwin published "The Expression of Emotions in Man and Animals," a book about emotions.

Darwin said in this book that people from different cultures acquire diverse facial expressions for different types of emotions.

These particular expressions are passed down to them through inheritance, thus they are not under human control.

Humans experience these emotions when they face a variety of life challenges, and they have evolved over time.

As an example, Darwin claimed that the fear response assisted living organisms in fleeing danger, whereas the anger feeling assisted them in combating foes.

Human facial expressions play an important part in human interaction, engagement, and communication.

The emotion state can be simply determined by looking at the person's face.

We tend to solve problems with machines as technology advances.

We are interested in computer vision. to assist the machine in learning to recognise and classify objects

In the realm of computer vision, recognising an emotion or facial expression from a facial image is a fascinating and difficult topic.

A machine with high precision and sophisticated expression recognition intelligence will be able to better understand human emotions and interact with them in a more natural manner.

A system like this would be extremely useful in real-world applications like commercial call centres, system of emotions screening during interviews, screening behaviour of students in a class or in MOOCs, and affect-aware game development.

For a long time, the goal of developing machine vision systems that can distinguish human emotions has been explored.

Many people have researched and conducted tests in order to produce improved results and, eventually, a system that recognises emotions.

These systems can be divided into two types: systems that detect emotions in static images and systems that work with moving images.

2. Body of Paper

The human emotion dataset can be used to investigate the robustness and nature of classification algorithms, as well as how they perform for various dataset types. Face detection methods are usually applied to the image or video frame before extracting features for emotion identification. The steps for detecting emotions can be summarised as follows:

1) Preprocessing of the data set
2) Face recognition
3) Extraction of features

4) The classification system depending on the characteristics We concentrate on the feature extraction technique and emotion detection using the extracted features in this paper. focuses on some of the most crucial characteristics of the face Section 3 provides details on related research in this topic. Many of the feature extraction approaches utilised up till now are covered in related work. In addition, it also covers some important algorithms

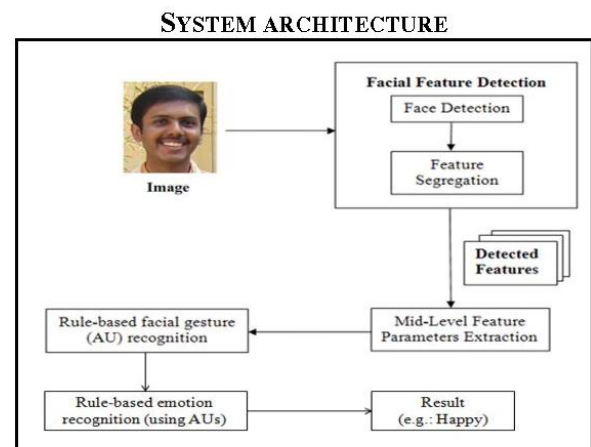which can be used for emotion detection in human faces.

Fig. 1: Block Diagram of the Facial Recognition System

3. CONCLUSIONS

Our implementation may be broken down into three sections:
 Face recognition, Extraction of features, Machine learning methods for classification

The extraction of features was a crucial aspect of the experiment. For the CK+ database, the enhanced distance and area features offered high accuracy (89 percent). However, in a cross-database experiment, we discovered that when evaluating the RaFD database and the Mobile pictures dataset, raw features functioned better using Logistic Regression. Using the CK+ dataset as a training set, the accuracy was 66 percent and 36 percent, respectively.

In this research, we did not focus on facial detection. Our primary focus was on feature extraction and machine algorithm analysis on the dataset. When there are numerous people in the image, however, an accurate face-detection algorithm becomes critical. If we're trying to figure out how to figure out how to figure out how to To effectively determine the emotion of a certain person from a webcam, the webcam must be able to recognise all of the faces.

To improve the results in the future, a more robust face detection algorithm with some useful features can be investigated. We only looked at a few distances and areas, but there are likely to be many more relevant aspects on the face that may be statistically calculated and utilised to train the algorithm. Also, not all of the characteristics aid in improving accuracy, and some may be incompatible with other features. To increase the dataset's correctness, a feature selection and reduction technique can be applied to the produced feature. We can use a facial action coding system, feature descriptors as features, or a combination of both to see what works best.

The heading should be treated as a 3rd level heading and should not be assigned a number.

REFERENCES

1. 1. Zafar B, Ashraf R, Ali N, Iqbal M, Sajid M, Dar S, Ratyal N (2018)A novel discriminating and relative global spatial image representation with applications in CBIR. Appl Sci 8(11):2242

2. Ali N, Zafar B, Riaz F, Dar SH, Ratyal NI, Bajwa KB, Iqbal MK, Sajid M (2018) A hybrid geometric spatial image representation forscene classification. PLoS ONE 13(9):e0203339

3. Xie S, Hu H (2018) Facial expression recognition using hierarchical features with deep comprehensive multipatches aggregation convolutional neural networks. IEEE Trans Multimedia 21(1):211

4. Ratyal N, Taj IA, Sajid M, Mahmood A, Razzaq S, Dar SH, Ali N, Usman M, Baig MJA, Mussadiq U (2019) Deeply learned pose invariant image analysis with applications in 3D face recognition.Math Probl Eng 2019:1–21

5. Sajid M, Iqbal Ratyal N, Ali N, Zafar B, Dar SH, Mahmood MT, Joo YB (2019) The impact of asymmetric left and asymmetric right faceimages on accurate age estimation. Math Probl Eng 2019:1–10

4. ACKNOWLEDGEMENT