

Movie Recommendation Using CNN

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Abstract - With regards to electronic business, recommender frameworks guide the client in a customized manner to fascinating or helpful items in an enormous space of conceivable choices. To give dependable suggestion, the recommender frameworks need to precisely catch the client necessities and inclinations into the client profile. In any case, for abstract and buildings items such as films, music, news, client feeling plays astounding basic jobs in the choice cycle. As the conventional model of client profile doesn't consider the impact of client feeling, the recommender frameworks can't comprehend and catch the continually. In this paper we used CNN algorithm for detection the facial emotion of user. The CNN provides good accuracy on image classification. It extracts the features and classifies the image. We get the 49.46% accuracy on 100 epochs. Once emotion is detected we are recommend the movies to user.

Key Words: Emotion Detection, Deep Learning, Convolutional Neural Networks, Movie Recommendations, Classification

1. INTRODUCTION

Human PC collaboration innovation is quickly filling in this day and age. As a feature of this innovation, facial articulation acknowledgment assumes an imperative part in the field of PC innovation. Explore shows that 7% of the correspondence occurs through language, 38% by means of paralanguage and look contributes 55% of the complete imparted messages and thus it is significant for human correspondence.

It is read up that for accomplishing powerful human-PC savvy connection, there is a requirement for the PC to collaborate normally with the individuals. The expression "facial appearance acknowledgment" frequently alludes to distinguishing the facial highlights into one of the six essential feelings: joy, pity, dread, repugnance, shock and outrage. This paper connects with recognizing the disposition or feeling of people in light of their look. It is vital that the connection of people with the PCs ought to be dormancy free. Here in this paper, human feelings in static pictures are perceived. The agent highlights .i.e, eye also, mouth, are removed from a bunch of facial pictures. Note that eye and mouth are thought about as they are the most significant facial highlights for recognizing human feelings. Next pre-handling is done and afterward feed them to a classifier to arrange which pictures has a place with which

feeling classes like indignation, cheerful, disdain, unbiased, miserable, and so forth. There are a few classifier calculations that can be utilized in this characterization issue. The classifier utilized in this work is support vector machine classifier since it has a large number benefits. The look of an individual addressing a specific inclination isn't interesting all of the time. Consequently, the facial highlights that are illustrative of feeling not just fluctuate from one inclination picture of an individual to another inclination picture of a similar individual yet in addition fluctuate for each person for various occasions of a similar inclination.

2. LITERATURE SURVEY

Wei-feng LIU, Shu-juan Li, Yan-jiang WANG et al. [1] proposed in light of Local Binary Patterns of neighborhoods (LLBP) in this work. To begin with, the place of eye balls is fixed by projection strategy. Then the neighborhoods the eyes and mouth's area not set in stone through the priknowledge of face structure. The LBP highlight on the nearby regions is then processed as the facial component for facial articulation acknowledgment. At long last, the acknowledgment try is directed on the JAFFE facial information base, which showed the realibility of the strategy proposed.

LIAO Guangjun, CHEN Wei et al. [2] in light of facial highlights is a concentrate on normal elements of facial elements, and has proactively been an examination concentrate these days for its wide applications. Alluding to accomplishments of facial estimation, we utilized the profundity angle and the distance of facial highlights in light of two-layered and three-layered data of human face as component inputs, and prepared the orientation acknowledgment model using the arbitrary woodland calculation. Author tried it on open facial data set and limited scope freely gathered 3D facial information base, and the aftereffect of the analysis was good. Furthermore, the presentation of the calculation under the conditions of component missing was additionally esteemed in this paper.

Mameeta Pukhrambam, Arundhati Das et al. [3] proposed a the looks in people .i.e., blissful, outrage, miserable, impartial furthermore, disdain, are perceived with the assist with supporting Vector Machine classifier. Initial, a static picture is taken. Then, at that point, skin locale is separated from that picture utilizing Hue Saturation Value. After skin locale extraction, the right eye, the left eye and the mouth part are separated as they are the main part for look

acknowledgment. These cycles are finished each pictures gathered in the preparation set. Then, at that point, Support Vector Machine classifier is utilized to characterize which picture has a place with which class classification by looking at the element vectors of the prepared pictures.

Suleman Khan, M. Hammad Javed et al. [5] proposed that face acknowledgment that is performed utilizing Haar-like elements. Identification pace of this strategy is 98% utilizing 3099 elements. Face acknowledgment is accomplished utilizing Deep Learning's sub-field that is Convolutional Neural Network (CNN). It is a multi-facet network prepared to play out an explicit errand utilizing characterization. Move learning of a prepared CNN model that is AlexNet is finished face acknowledgment. It has an precision of 98.5% involving 2500 variation pictures in a class. These brilliant glasses can serve in the security space for the verification process.

3. PROPOSED Method and Algorithm

A. Proposed Methodology

In a propose system, we are proposed experiment on detecting emotions like angry, disgust, Happy, sad, Neutral, Fear and Surprise and recommend movies for specific emotion with limited set of supervised data.

We come through a wide range of different and major algorithms for predicting the monotonous faces with comprehensible images while working in the field of Deep learning such as CNN.

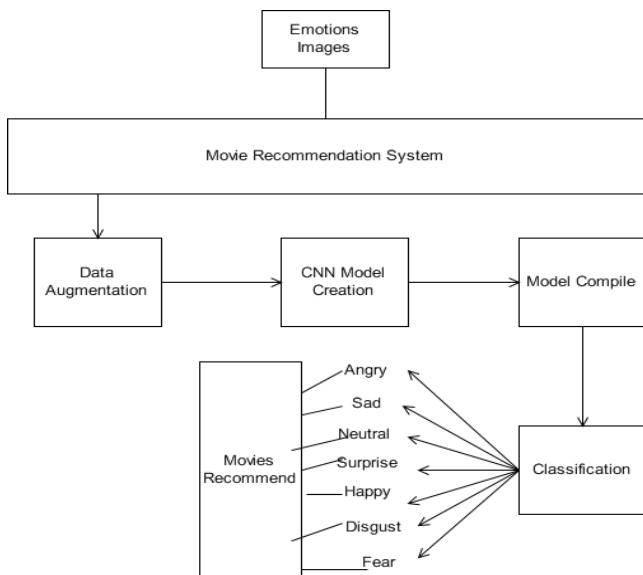


Fig1. Proposed Architecture

B. Dataset

In this project we are collecting the data from kaggle platform. We split the dataset into two categories training and testing.



Figure2. Dataset Images

C. Algorithms

Convolutional Neural Network

Convolutional Neural Networks (which are additionally called CNN/ConvNets) are a kind of Artificial Neural Networks that are known to be tremendously strong in the field of distinguishing proof just as picture order.

Four main operations in the Convolutional Neural Networks are shown as follows:

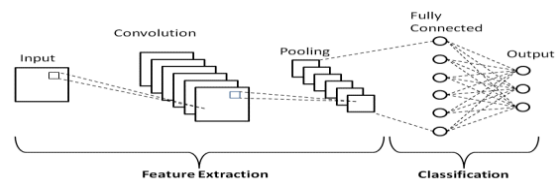


Figure3. Architecture of CNN

a. Convolution

The principle utilization of the Convolution activity if there should be an occurrence of a CNN is to recognize fitting highlights from the picture which goes about as a contribution to the primary layer. Convolution keeps up the spatial interrelation of the pixels This is finished by fulfillment of picture highlights utilizing miniscule squares of the picture. Pixel is the littlest unit in this picture grid. Allow us to take a 5 by 5 (5*5) framework whose qualities are just in twofold (for example 0 or 1), for better agreement. It is to be noticed that pictures are by and large RGB with upsides of the pixels going from 0 - 255 i.e 256 pixels.

b. ReLu

ReLU follows up on a rudimentary level. All in all, it is an activity which is applied per pixel and overrides every one of the non-positive upsides of every pixel in the component map by nothing.

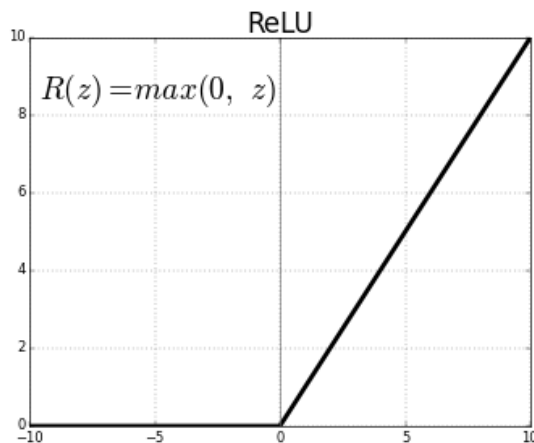


Figure3. Relu Activation

c.Pooling and Sub-Sampling

Spatial Pooling which is likewise called sub-sampling or down sampling helps in lessening the elements of each element map yet even at the same time, holds the most important data of the guide. Subsequent to pooling is done, in the long run our 3D element map is changed over to one dimensional component vector.

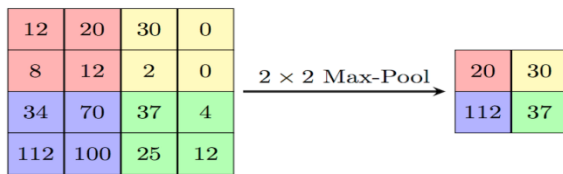


Figure4. Relu Activation

4. RESULTS AND DISCUSSIONS

In our experimental setup, as shown in table 1, the total numbers of 1048 of trained images for seven categories angry, disgust, Happy, sad, Neutral, Fear and Surprise and 307 new images were tested. These images go through CNN framework by following feature extraction using our image processing module. Then our trained model of classification of faces get classifies the image into specifies emotions. We get the accuracy 49.4% at 100 epochs. In figure 5 shows the accuracy graph. In those blue lines represents the training accuracy and orange lines testing accuracy. In figure6 shows the loss.

Table1. Classification of Data

Sr. No.	Category	Number of Images
1	Training	1043
2	Testing	307

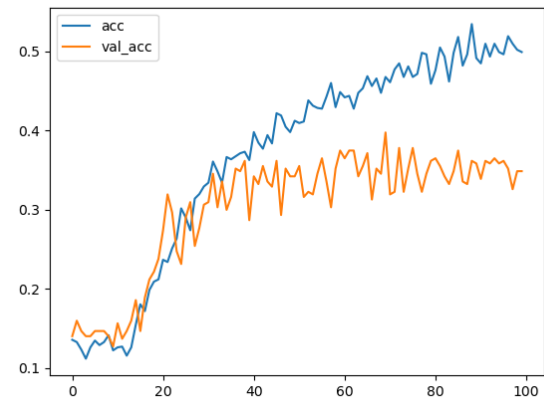


Figure5: Accuracy Graph

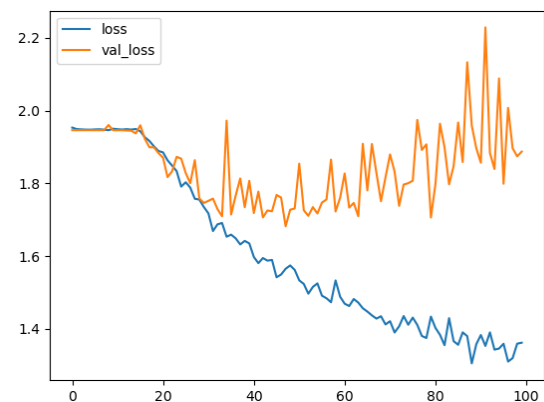


Figure6: Loss Graph

5. CONCLUSION

We implemented facial emotions detection framework over AI and CNN procedures which takes care of existing exactness issue just as lessen passing rates by emotions types like angry, disgust, Happy, sad, Neutral, Fear and Surprise getting 49.4% accuracy on 100 epochs. After recognition of emotion we recommend the movies to the user.

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