Face Emotion Recognition based Recommendation System

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Abstract - *Face recognition technology has gotten a lot of press because of its wide range of applications and market potential. It is used in a variety of fields, including surveillance systems, digital video editing, and other technical advancements. In the fields of tourism, music, video, and film, these systems have overcome the burden of irrelevant knowledge by taking into account user desires and emotional states. Advice systems, emotion recognition, and machine learning are proposed as thematic categories in the analysis. Our vision is to develop a method for recommending new content that is based on the emotional reactions of the viewers. Music is a form of art that is thought to have a stronger connection to a person's emotions. It has the unique potential to boost one's mood, and video streaming services are becoming more prevalent in people's lives, necessitating the development of better video recommendation systems that respond to their users in a customised manner. Furthermore, many users will believe that travel would be a method to help them cope with their ongoing emotions. Our project aims to create a smart travel recommendation system based on the user's emotional state. This project focuses on developing an efficient music, video, movie, and tourism recommendation system that uses Facial Recognition techniques to assess the emotion of users. The system's overall concept is to identify facial expression and provide music, video, and movie recommendations based on the user's mood.*

I INTRODUCTION

1.1 Face detection and Recognition

Facial recognition is the process of finding a person's feelings in the face of a situation. The human brain automatically detects emotions, and software is improved to detect situations. These technologies are accurate methods and will eventually be able to learn emotions as our brain does. Al can get emotional by learning what it means face to face and applying that knowledge to new information brought to it. Emotional intelligence, or Al emotionally, technology that can read, imitate, interpret, and respond to a person's face and emotions.

1.2 Emotion’s Detection

Emotional recognition is a process of identifying one's emotions. People differ in their accuracy when they see the feelings of others. Separating emotions into various categories such as grief, anger, joy, crying, etc.

When the face is successfully detected, a box will appear and cover the image to remove the face and further analysis. In next step pre-released images will be processed using the function. The code will extract the shape of the face image and is based on the pixel value displayed in each location and uses the magnification will be done to reduce the speed of the wheelchair so as to be able to prevent the user from injury

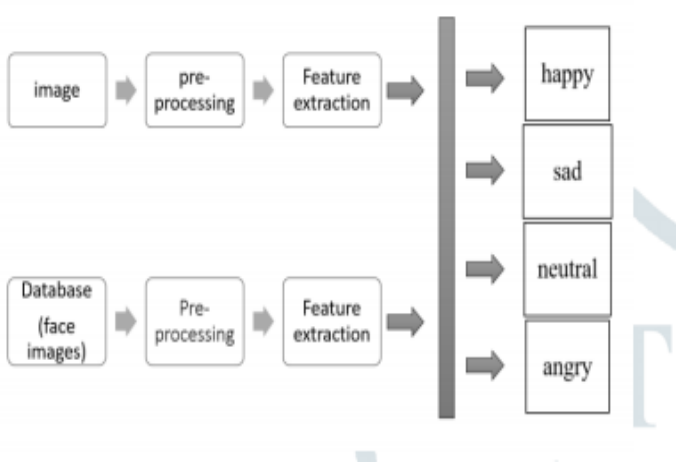

Figure 1: Block Diagram

1.3 Recommendation System

1.3.1 Music Recommendation

The human face is an important part of the human body and the articular plays a vital role in regulating human behaviour and spirit. Individually sorting a list of songs and making an appropriate program based on personal characteristics is tedious, time-consuming, hard work, and constructive. Various algorithms have been proposed and are being developed to make system work automatically. However, the proposed algorithms are slower, more accurate and sometimes even require the use of additional hard drives such as sensors. The proposed view-based program will automatically display the program thereby reducing the effort and time involved in rendering the process manually.

1.3.2 Video Recommendation System

The use of video streaming series is becoming increasingly popular. Such services rely heavily on software that suggests trying out new material. These recommendations are generated using algorithms that are focused on user viewing patterns and tags associated with the entire video. However, recommendation systems, particularly in real time, can fail to adapt well to the user. This study solves the problem with the help of an active machine. A similar device that analyses and explains human emotions is the one that is affected. Facial expressions, speech, form, and body data such as skin and galvanic algorithm. lt enables the comparison between input data and a single database to be able to predict category y containing emotion. lf contains one of the four senses anger, sadness, neutrality y, or happiness. and sensitivity detection as it appears to reduce the speed command and Several studies have changed how video recommendation systems are used by developers. User views are used as algorithm installation in many existing recommendation programmes. These systems must prevent what some experts refer to as the flu's onset. In a nutshell, the first cold issue is a lack of data to describe user perspectives. To address this issue, some studies have looked into systems that make recommendations based on a combination of different types of data. Others have done the same thing for metadata. A different perspective is represented by our logical approach, which is focused on scale.

1.3.3 Tourist Recommendation System

On certain days, people receive a variety of information related to service positions (for example, books, videos, tourist attractions) to choose the ones that suit their needs. In general, choosing a service or product does not produce the expected results. For this reason, Recommender Systems (SR) is an important tool that provides adequate content and preferences for content users. Emotional awareness (ER) and emotional analysis are key aspects of the situation to improve user satisfaction and accuracy in visitor recommendations. The affected user total is therefore included in the social network updates.

Emotional detection, based on physical contact collected on wearable devices, is used to customize the user context. As a result, the implementation of RS is a multidisciplinary research field that includes data collection, data retrieval, a description of Mechanical Learning (ML) methods, and a specification of recommendation services. SRs software tools and strategies offer suggestions for things that may be of interest to something.

The nature of RS has varied in the development of research methods that include Web technologies, laptops and social networks. In addition, RS methods emerged in terms of application, business model, user profile, strategies, and algorithms used.

RS architecture includes data collection, pre-processing, forecasting models, and recommendation services. Each section focused on the papers presented in terms of the recommendation process and performance. ln In addition the progression section does not include the relationship between user, object, and context objects represented in data model (vector or RNA tensor matrix) .The weather category then compiles the appropriate list of items listed by algorithms and m xlels recommendations accordingly. Finally, proriloter specifies services related to users' interests, such as listing the most innovative items and tailoring them to the needs of the user.

II PURPOSE OF THE PROJECT

- The main purpose is to use a facial system After that to get the user experience, according to the user's emotional program will provide an opportunity for the user such as music, video and tourism.
- This program is based on the removal of faces that will produce playlists of music, video, and automated tourism thus reducing the effort and time.
- The purpose of the RS (Recommender System) response can be affected.
- Overcrowding is one of the driving forces behind the project and its use could lead to relevant content, thereby enhancing the quality of the recommendations.
- We focus on providing limited recommendations, although high quality indicates in our assurance that the recommendations are most appropriate.
- Submit field knowledge systematically using ontology, as there are many things that can be recommended. In addition, consideration can enhance the recommendations.
- Classify users with the help of cluster analysis and classify them according to specific factors, such as demographics, motives, etc. Introduction of basic information in the

first phase system, which allows the system to learn and develop decision-making process.

- Collect information that users provide when communicating with the system, to get more information about user profiles and, therefore, improve recommendations.

III TOOLS THAT ARE USED

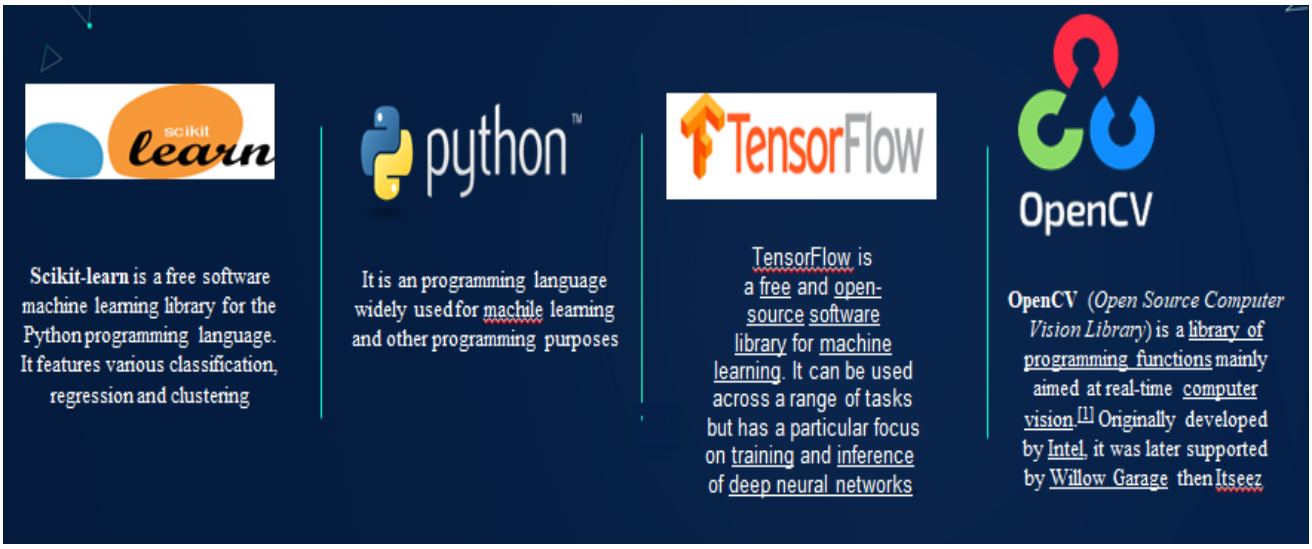

Figure 2 Software used

IV ALGORITHM USED

4.1 CNN (Convolutional Neural Network)

- A complete face recognition program includes facial recognition, facial procedures and facial recognition procedures. As a result, the facial region must be removed from the face detection system and the face must be separated from the background pattern, giving the impression of the next opening of the facial variation options.
- Separate biometric confirmation that the method of extracting the element and feature of the separation of traditional facial images is to identify the identity of the external body part within the images.
- We can begin by summarizing and analyzing current analytical results of visual technology, and research the combination of integrated facial recognition feature. Algorithmic rule flow consists of face image process, is to provide the user with the most relevant content as determined by previous standards and uses, in order to enhance the user experience.
- To stop what some researchers believe is a cold sore, these programmes should be implemented. In short, the first blunder is a lack of knowledge in determining the visual designs of users. Some studies have looked at systems that use to solve this issue.

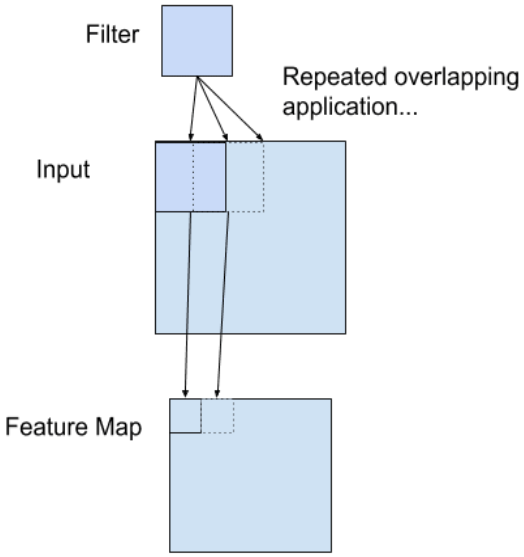

Figure 3: CNN

4.2 Representation of CNN

When we see an image for the second time, our minds process large information. Each neuron has its own receptor field and is linked to other neurons in a wide range of ways. In the biological vision system, each neuron responds to a stimulus only in a limited region of the viewing field called the reception field. At CNN, each neuron processes data only in its receptor region. Lists are organised such that basic patterns (lines, curves, etc.) appear first, followed by complex patterns (faces, objects, etc.). Allowing visibility on computers is possible with CNN.

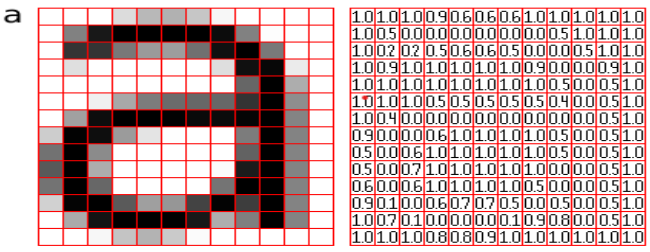

Figure 4: Pixel Representation

4.2.1 Convolution Layer

This layer produces dots between two matrices, one of which is a collection of readable parameters known as a kernel, and the other is the restricted part of the listening area. The kernel is smaller than the picture, but it has a lot more depth. This means that if a picture has three channels, the kernel's length and width would be shorter and narrower geographically, However, the depth is shared by all three networks. Contains the majority of the device load on the network. integration feature integration and integration feature training. of calculations and weights. Integration work is considered in the pieces of each

presentation. There are many integration functions such as a rectangular circle, a typical L2 rectangular area, and a scale based on the distance from the pixels of the period. However, process are very popular to combine max.

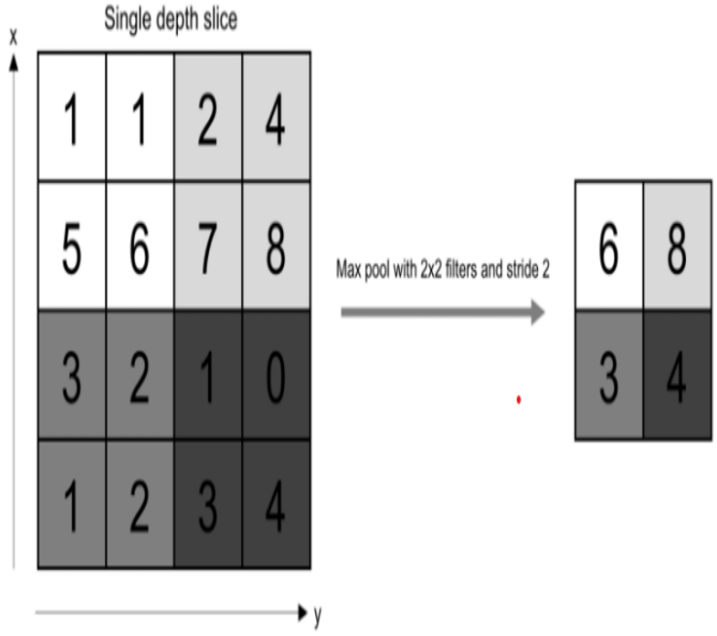

Figure 5: Ponding Operations

4.3 Convolutional Neural Network Architecture's

The convolutional layer, the integration layer, and the completely linked layer are the three layers that make up a CNN.

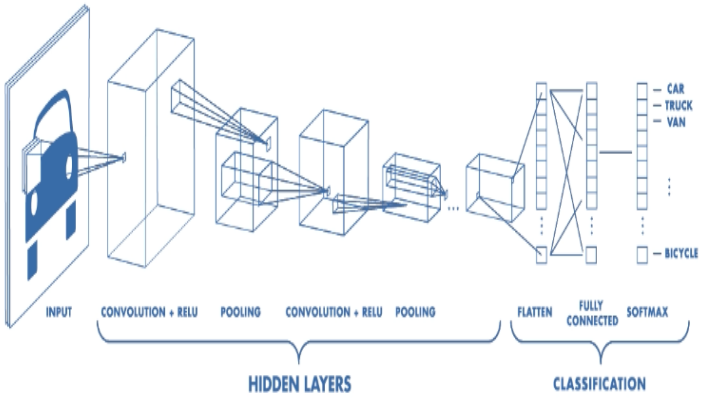

Figure 6: CNN Architecture

The most difficult aspect of employing convolutional neural networks is figuring out how to create model designs that make the most of them. The elements are simple. Studying

4.2.2 Ponding Layer

The integration layer replaces network deployments in some areas by obtaining abridged statistics of nearby results. This helps to reduce the presentation area, which reduces the required number result of this difficulty, the state of the art for extremely challenging computer vision problems has rapidly advanced, as has the creation of broad breakthroughs in the architecture of convolutional neural network models.

V CONCLUSION

A conclusion could discuss the work's significance or suggest applications and extensions. Authors are asked to make every effort to keep their manuscripts looking the same as they did in the template. Papers not in accordance with these guidelines and manuscripts with number of mistakes will have to be rejected. The editorial committee may make some limited changes in the manuscript if needed.

VI ACKNOWLEDGEMENT

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VII REFERENCES

[1] A Face Emotion Recognition Method Using Convolutional Neural Network and Image Edge Computing Authors: HONGLI ZHANG, ALIREZA JOLFAEI &MAMOUN ALAZAB.

[2] Reinforcement Learning using EEG signals for Therapeutic Use of Music in Emotion Management Authors: Esha Dutta, Ananya Bothra, Theodora Chaspari, Thomas Ioerger & Bobak J. Mortazavi.

[3] Tourist Recommender Systems Based on Emotion Recognition A Scientometric Review Authors: Luz Santamaria-Granados, Juan Francisco Mendoza-Moreno & Gustavo Ramirez-Gonzalez Semantic Video Recommendation System Based on Video Viewers Impression from Emotion Detection Authors: Darari Nur Amali1 , Ali Ridho Barakbah2, Adnan Rachmat Anom Besari3 , Dias AgataNSC, Facial expression detection using Six Facial Expressions Hexagon (SFEH) model Authors: Marryam Murtaza, Marryam Murtaza, Musarrat Abdullah Yasmin & Tanveer Ahmad.Moulton R. K,