



Depression Detection using Facial Recognition and Sentiment Analysis

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Abstract - Every part of a person's existence is encircled by his or her personality. It defines the pattern of thinking, feeling, and qualities that predict and describe an individual's behaviour, as well as how emotions, preferences, motives, and health affect daily living activities. The growing popularity of social networking sites like Twitter and Facebook has prompted the online community to communicate ideas, sentiments, opinions, and emotions with one another, reflecting their attitude and behaviour. Obviously, a solid connection exists between individual's temperament and the behaviour they show on social networks in the form of comments or tweets. Nowadays personality recognition from question and answer and by face emotions has attracted the attention of researchers for developing automatic personality recognition systems. The core philosophy of such applications is based on the different personality models, like Big Five Factor Personality Model.

1. INTRODUCTION

As the world is becoming more modern and digital, human-computer interaction is a very intriguing and well-known subject of research these days. This necessitates those digital systems accurately mimic human behavior. Emotion is a unique aspect of human

behavior that plays an essential role when communicating with computers. In order to construct really intelligent behavior, computer interfaces must be able to recognize the emotion of the users.

2. METHODOLOGY

People have started working from home in today's society, and as a result, company managers and HR are unable to determine whether the working atmosphere is psychologically healthy or not. This can be accomplished by forecasting employee personality.

3. OBJECTIVE:

Due to work home anywhere culture employee are not been interacting with each other physically.

This has led unidentified depression in employee. System which are developed earlier will take online text input.

We are incorporating both text as well as face input

SCOPE

- User can register with personal information
- User should provide login information
- User should select profession
- User should give answer to the question
- Auto Face will be detected and depression on facial expression and text will be calculated

5.SVM:

Support Vector Machine or SVM is one of the most popular Supervised Learning algorithms, which is used for Classification as well as Regression problems. However, primarily, it is used for Classification problems in Machine Learning.

The goal of the SVM algorithm is to create the best line or decision boundary that can segregate n-dimensional space into classes so that we can easily put the new data point in the correct category in the future. This best decision boundary is called a hyperplane.

SVM chooses the extreme points/vectors that help in creating the hyperplane. These extreme cases are called as support vectors, and hence algorithm is termed as Support Vector Machine. Consider the below diagram in which there are two different categories that are classified using a decision boundary or hyperplane:

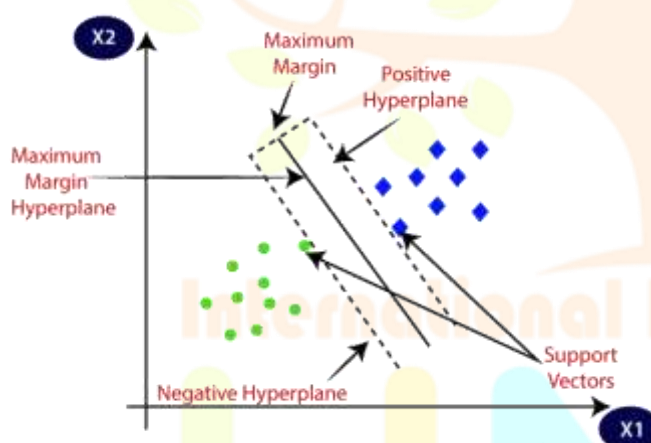


Fig 1. SVM

6. PROJECT GOAL:

The goal of this project is to classify a user's personality qualities from input text using a supervised machine learning approach called SVM classifier on a personality benchmark dataset. It will also take the input of the user face and will tell the personality based on the face recognition.

7. LITERATURE SURVEY

Mohammad Hossein Amirhosseini et al. [1] derived that NLP can be used to detect patterns in people's behaviour. NLP (Neuro Linguistic Programming) is a set of approaches that can be used to figure out how people think and interact. There are variety of methods for predicting personalities based on meta-programs, out of which the Myers–Briggs Type Indicator(MBTI) is widely used. Author developed new ML method based on MBTI for personality prediction which certainly improved the accuracy of recognising above personalities, sensing and Introversion, Extroversion personality categories as well as improvement in accuracy for the Judging ,Perceiving personality category which is useful to easily assist NLP practitioners and psychologists in identifying personality kinds. Alam Sher Khan et al. [2] explored the use of an online text for Personality Classification using a machine learning approach. KNN, Decision Tree, Random Forest, MLP, Logistic Regression (LR), MNB, and Stochastic Gradient Descent (SGD) were used to forecast various machine learning techniques. The finding suggests that the scores obtained by all classifiers across all personality traits are suitable. The KNN classifier, on the other hand, had a lesser overall performance. The paper's drawback is that they did not experiment with personality based on data in the form of pictures and videos.

8.SYSTEM ARCHITECTURE:

The figure above depicts the project's system architecture as well as the system's flow. First, the input is taken as text and preprocessing is applied to it. With the help of dictionary, a feature vector is extracted from that text. After that, an image is taken with the help of a camera feed, and a personality analysis is performed.

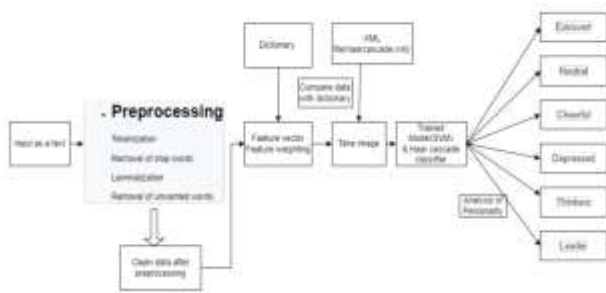


Fig 1. System Architecture

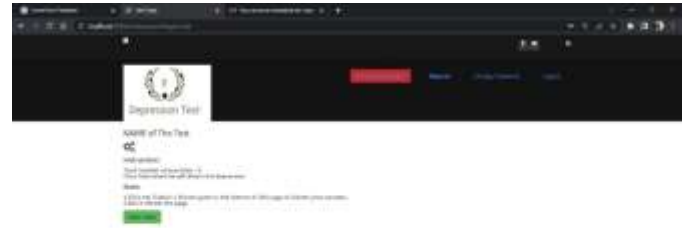


Fig 3.2 : Start Test Page

Use case Diagram:

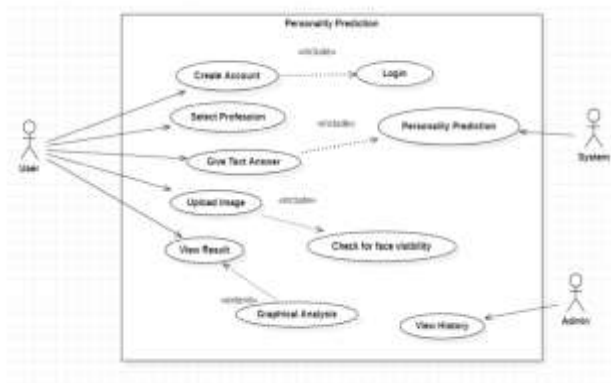


Fig 2. Use case

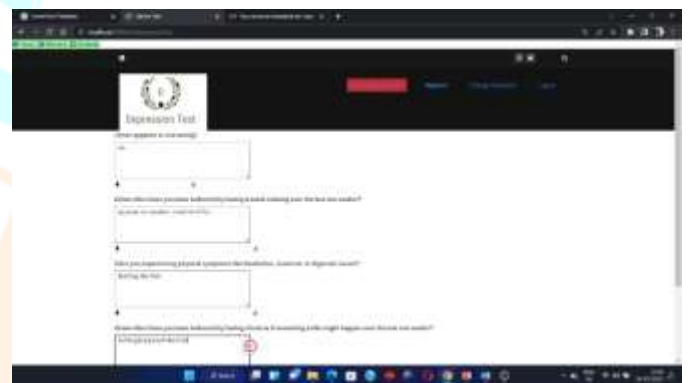


Fig 3.2 : Give Exam Page

11. Result

User can give test. Random questions will come for each session. Once test is given face emotion will be detected and updates in database. User can check the graph of emotion



Fig 3.4 : Depression Page



Fig 3.1 : Login Page

10. CONCLUSION

This project can be used to estimate an employee's personality by using text responses as input and applying the SVM algorithm. In addition, the user can submit a photograph for an overall personality analysis.

11. Future Scope:

1. We will add feature which can also tell personality of user based on the text written on paper.
2. Android app can also be developed which can help the easy access.
3. This project can be used in an organisation to detect if employees are in stress or happy with the work also it can be used in colleges to know the personality of students.

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