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Predicting Personality Using Deep Learning

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ABSTRACT: Personality reveals about an individual's behavior, emotion, motivation, social behavior, mental health, etc. Automatic prediction of personality traits has many applications like recommender system, forensics, personalized services etc. In this work, we have developed a deep-learning architecture for predicting the personality traits. In this scenario, facial expression is thought to be the quickest method of conveying any kind of information. Fully connected neural networks and Convolutional Neural Networks (CNNs) are used by the system. The initial step in a personality prediction system is feature extraction. The classifier, used to categorize face expressions, comes next. The Flask web framework is utilised to deploy the system as a web application, allowing users to upload images and receive personality trait prediction in real-time. The suggested approach tries to utilize ImageNet to construct the neural network which can identify facial expressions. The deep learning models are trained by using the ImageNet dataset and convolutional neural networks to find patterns in facial features that correspond to different personality traits. Flask, a Python-based web framework, is employed to create web-based interface where people can upload images and receive predictions about their personality traits.

KEYWORDS: Convolutional Neural Network; Flask; ImageNet

I. INTRODUCTION

Deep Learning offers several advantages for predicting personality, including the ability to manage a vast volume of data accurately and quickly. Furthermore, these models can learn and adapt based on new data, leading to more precise predictions over time.

Even with these advantages, there are several challenges when utilizing deep learning to predict personality. All of these challenges include the quality and quantity of data inputs, potential biases in the data, and ethical concerns related to privacy and fairness. Therefore, it is necessary to approach this topic with care and ensure that the predictions are transparent and reliable.

II. RELATED WORK

There are many studies on predicting personality using deep learning techniques. Here are a few examples of related work:

1. The paper "Personality Prediction System from Facebook Users" presents a system that uses Facebook data to predict user's personality traits. Big Five personality traits could be predicted by the method having a high degree of accuracy, with Agreeableness having the finest outcomes and Openness having the least accurate results. It has potential applications in advertising, targeted marketing, and recruitment.

2. The paper "Personality Predictions Based on User Behavior on the Facebook Social Media Platform" presents a study that uses Facebook user behavior data for predicting personality characteristics. The system could accurately predict personality characteristics, with the highest accuracy achieved for predicting Neuroticism and the lowest for Extraversion. However, the study raises concerns about the ethical use of personal data and potential for biases in the algorithms. Additional study is required to boost the precision and reliability of the system.

3. The paper "TensorFlow-Based Automatic Personality Recognition Used in Asynchronous Video Interviews" presents a study that uses TensorFlow, an open-source machine learning framework, to automatically recognize the personality traits of job candidates during asynchronous video interviews. The system could reasonably accurately predict personality attributes, with the highest accuracy for predicting Conscientiousness and the lowest for Openness. However, the authors acknowledge the possibilities for biases and ethical concerns related to the utilization of personal data and the significance of addressing these issues in future research.

4. The paper "Predicting Personality from Twitter" provides a study that predicts users' Big Five personality qualities (Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism) using information from Twitter. The

system could reasonably accurately predict personality attributes, with the highest accuracy achieved for Extraversion and the lowest for Openness. However, the study raises concerns about the ethical implications of using individual data for predictive purposes and the possibilities for biases and stereotypes. Additional study is required to boost the precision and reliability of the system.

5. The paper "Using Deep Convolutional Neural Network for Emotion Detection on a Physiological Signals Dataset (AMIGOS)" demonstrates a study that employs deep convolutional neural network (DCNN) to identify emotions from the AMIGOS dataset of physiological signals. With an overall accuracy of 75.6%, the DCNN was highly accurate in classifying the participants' moods. The limited sample size and the need for additional research to examine the generalizability of the findings are among the study's drawbacks, which are acknowledged by the authors.

6. The paper "Personality Prediction Based on Content of Facebook Users: A Literature Review" provides a comprehensive review of existing research on personality prediction based on the content of Facebook users. It was discovered that Facebook user content can quite accurately predict personality traits. However, there are challenges and limitations in this region of research, including the necessity for more representative and diverse datasets, biases and privacy concerns, and cultural differences in personality. The authors suggest that personality prediction depending on Facebook content has the potential to be put to use in various applications, but stress the significance of ethical considerations and transparency and accountability in the utilisation of individual data.

7. The paper "Predicting Personality with Social Behavior" investigates the connection between personality traits and social behavior in online social networks. It proposes a method for predicting personality traits are based on review of social behavior in social network data. The study found that social behavior in online social networks is a good predictor of some personality traits, for example openness, extraversion, and conscientiousness, but not others, such as agreeableness and neuroticism. The authors recommend that the method has the potential to be used in applications such as social media marketing and personalized recommendations. However, they acknowledge the restrictions of the research and emphasize the importance of ethical considerations and transparency and accountability in relation to personal data.

Collectively, these research show that deep learning techniques are capable of accurately predicting behaviour from data and imagery. It's crucial to keep in mind that these methodologies have drawbacks, including the requirement for vast and diverse data sets, the possibility of biased data papers, and the difficulty of understanding the outcomes.

III. METHODOLOGY

Data Collection:

The initial stage in the process is to collect data that includes images or videos of faces and facial expressions that are annotated with personality traits. This may involve capturing images or videos of participants as they perform certain tasks or respond to certain stimuli.

Preprocessing:

Data must be preprocessed after it is gathered in order to be ready for analysis. This could entail operations like image cropping and resizing, face alignment, and background noise removal.

Feature extraction:

The next stage is to take the preprocessed data and extract features that may be utilized to forecast personality traits. This may involve methods like face landmark identification or feature extraction using convolutional neural networks.

Model development:

The following stage is to create a model using deep learning algorithm that uses retrieved facial information to forecast personality traits. According to the situation, convolutional neural networks (CNNs), recurrent neural networks (RNNs), or a combination of the two, may be used.

Model training:

Once the prototype is developed, it must be trained based on data to learn the patterns and traits that are characteristic of distinctive personality types. This typically involves optimizing the model's parameters to minimize the difference between predicted personality traits and actual personality traits.

Model evaluation:

After the model has undergone training, it must be tested to see how well it predicts personality traits based on facial expressions. This could entail applying cross-validation techniques or computing parameters including F1 score, recall, accuracy, and precision.

Deployment:

Finally, the model can be deployed to predict personality traits for new images or videos of facial expressions. This may involve integrating the model into a web application or other software platform.

IV. RESULT

Deep learning techniques are used to analyze vast amounts of data to be able to anticipate numerous aspects of a person's personality, and this field of research is currently experiencing tremendous growth. To be able to analyze and learn from a significant quantity of data on people, such as behavioral patterns, preferences, and attitudes, it uses deep learning techniques, such as artificial neural networks.

The use of deep learning techniques in several experiments to predict personality traits, and the findings are encouraging. According to their models, researchers have utilised deep learning techniques to predict Big Five personality traits from social media data, including openness, conscientiousness, extroversion, agreeableness, and neuroticism.

It is crucial to keep in mind that deep learning-based personality prediction is still an emerging field with several issues that need to be resolved. Consider the privacy concerns and ethical implications of using personal information to forecast personality traits. In addition, generalizability is a problem because an effective model on one dataset could not be effective on another.

Overall, the outcomes of deep learning-based personality prediction are encouraging, but further study and improvement are required before this field can be completely utilized in practice.



Fig.1.Index Page

Fig. 2. Home Page

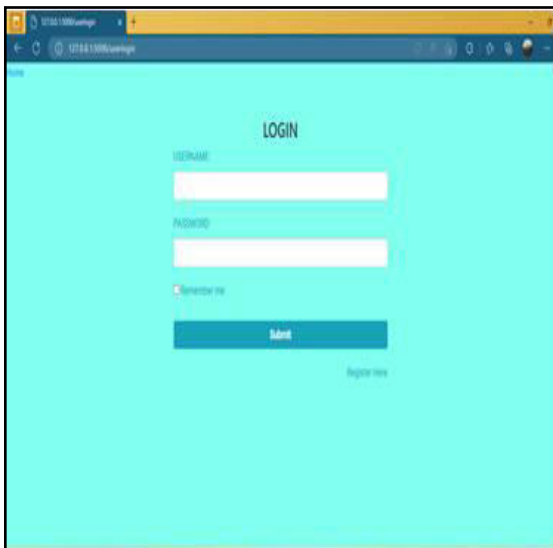


Fig. 3. Login Page

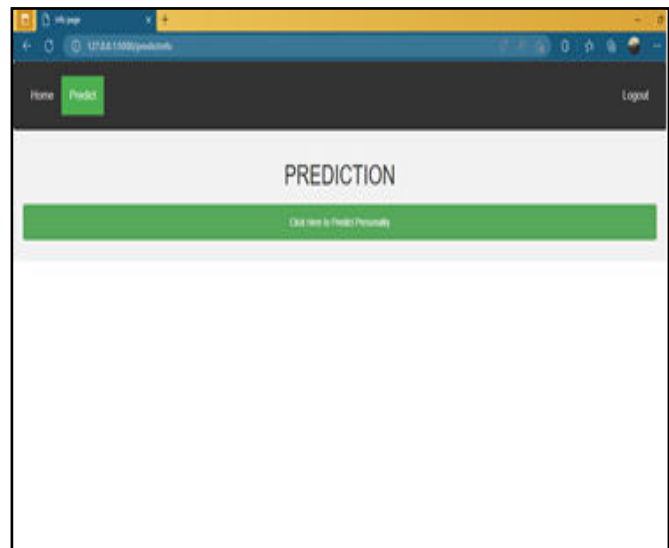


Fig.4. Prediction Page

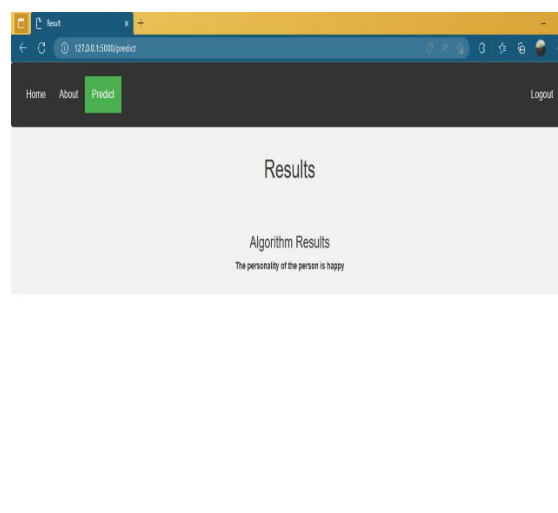


Fig.4. Result Page

V. CONCLUSION

To sum up, the deep learning effort on personality prediction offers a promising means of learning about how people behave and improving the personalization of experiences. Using deep learning techniques, we can create sophisticated models that can analyse enormous databases of various human attributes, such as personality features and make accurate predictions. In this study, we investigated alternative approaches to modelling personality traits using a range of deep learning designs, including convolutional and recurrent neural networks. Overall, results from this experiment demonstrate that deep learning techniques can accurately predict personality traits, and more research in this field is possible.

REFERENCES

1. Tandra, T., Suhartono, D., Wongso, R., & Prasetio, Y. L., 'Personality prediction system from facebook users', *Procedia computer science*, 116, 606-111, <https://doi.org/10.1016/j.procs.2017.10.016>, 2017.
2. M. M. Tadesse, H. Lin, B. and L. Yang, Xu, 'Personality Predictions Based on User Behavior on the Facebook Social Media Platform', in *IEEE Access*, vol. 6, pp. 61959-61969, doi: 10.1109/ACCESS.2018.2876502, 2018.



3. H. -Y. Suen, K. -E. Hung and C. -L. Lin, 'TensorFlow-Based Automatic Personality Recognition Used in Asynchronous Video Interviews', in IEEE Access, vol. 6, pp. 61959-61969, doi: 10.1109/ACCESS.2018.2876502, 2019.
4. J. Golbeck, C. Robles, M. Edmondson and K. Turner, 'Predicting Personality from Twitter', 2011 IEEE Third International Conference on Privacy, Security, Risk and Trust and 2011 IEEE Third International Conference on Social Computing, Boston, MA, USA, 2011, pp. 149-156, doi:10.1109/PASSAT/SocialCom.2011.33, 2011.
5. J. L. Santamaria-Granados, M. Munoz-Organero, G. Ramirez-González, E. Abdulhay and N. Arunkumar, 'Using Deep Convolutional Neural Network for Emotion Detection on a Physiological Signals Dataset (AMIGOS)', in IEEE Access, vol. 7, pp. 57-67, 2019, doi: 10.1109/ACCESS.2018.2883213, 2018.
6. Z. M. M. Aung and P. H. Myint, 'Personality Prediction Based on Content of Facebook Users: A Literature Review', 2019 20th IEEE/ACIS International Conference on Software Engineering, Artificial Intelligence, Networking and Parallel/Distributed Computing (SNPD), Toyama, Japan, 2019, pp. 34-38, doi: 10.1109/SNPD.2019.8935692, 2019.
7. S. Adali and J. Golbeck, 'Predicting Personality with Social Behavior', IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining, Istanbul, Turkey, 2012, pp. 302-309, doi: 10.1109/ASONAM.2012.58, 2012.



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