Personality Detection Using computer vision

Personality detection using Compter vision plays a very prominent role in the assessment of the character of a person using the image of his/her face.

A lot of research has been done in the field of face detection and emotion detection. These employ a variety of techniques and approaches towards the problem. Most of the researchers used Machine Learning using feature extraction, while few used Deep Learning for classification.

During the literature survey, we noticed that even though great number of research has been done by extracting the facial features for emotion detection and detection of specific personalities, there is truly little research has been conducted to analyze the personality of a person entirely from a picture considering facial expressions, angle, illumination, background etc.

People are very active on social media platforms and are often judged based on their profile picture and the images they post. Photographs taken from different online contexts might lead to different perceptions of personality traits. For example, company webpages might lead to systematically different representations of conscientiousness or agreeableness than personal websites might.

So, the goal here is to develop a machine learning model to rate an image, whether it is suitable for a particular platform or not so that the user can get to know what the picture is portraying about them before

posting it. They say a ‘picture is worth a thousand words’, and it couldn’t be truer for these websites and apps.

Progress:

- Done with literature survey
- Obtained dataset
- Breaking of problem statement into multiple steps
- Deciding upon the Machine Learning technique to employ

Literature Survey:

1. **Profile Photo Rating Service — Using Deep Learning Models**

https://medium.com/analytics-vidhya/profile-photo-rating-service-using-deep-learning-models-8c477f74147a

Good profile pictures should have a plain background with no objects present in the frame. The person should be standing closer to the camera, giving him/her higher visibility. The two parameters developed in these criteria are -

(i) Object detection, and (ii) Person occupied area.

Three parameters that we considered to assist quality were — brightness, sharpness, and contrast.

Facial attributes describe facial expressions, face alignment, face tilted measurement, and face visibility.

A total of seven parameters were implemented — face count, face area, face distance, angle, smile, Open/closed eye analysis, and age.

Gender, Color, Age, and Beauty are not taken into consideration for rating the profile pictures.

OpenCV and other techniques used to achieve the above goal.

Verified the face count of a face detection model with the person count of the YOLOV3 model.

Mouth and lips locations were received from the DL model.

2. **ANALYSIS OF SOCIAL MEDIA IMAGES TO PREDICT USER PERSONALITY ASSESSMENT**

https://iaeme.com/MasterAdmin/Journal_uploads/IJEET/VOLUME_11_ISSUE_7/IJEET_11_07_001.pdf

The Big five characteristics, called "OCEAN": Openness, Conscientiousness, Extraversion, Neuroticism and Agreeableness are being analyzed to determine the personality of the person.

Most photos on the profile include faces known to represent

personality. For this study, general image features such as basic color, image type and image

pixels.

3. **Assessing the Big Five personality traits using real-life static facial images**

https://www.nature.com/articles/s41598-020-65358-6

4. **Facial Emotion Recognition Using Machine Learning**

https://scholarworks.sjsu.edu/cgi/viewcontent.cgi?article=1643&context=etd_projects

Discusses the variety of for feature extraction methods and Machine Larning algorithms that can be used for emotion detection.

5. **Criminal tendency detection from facial images and the gender bias effect**

https://journalofbigdata.springeropen.com/articles/10.1186/s40537-019-0282-4

The goal in facial emotion detection is to train a machine using CNN to distinguish among six emotional facial expressions: happiness, surprise, sadness, disgust, anger, and fear by excluding bias due to race, gender and background effect.

6. **Instagram photos reveal predictive markers of depression**

https://link.springer.com/content/pdf/10.1140/epjds/s13688-017-0110-z.pdf

Continuous dataset has been analyzed to come to the conclusion that the people who are more depressed post more grey or dark images.

Computational machine learning techniques to screen for depression using photographs posted to Instagram.

Also employed a suite of supervised machine learning algorithms to estimate the predictive capacity of our models. Report prediction results only from the best-performing algorithm, a Random Forests classifier.

7. FACE FEATURES-BASED PERSONALITY ASSESSMENT

https://www.ihci-conf.org/wp-content/uploads/2021/07/02_202107L006_Singh.pdf

8. Personality judgments from everyday images of faces

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4621398/

Facial judgments of four of the Big Five dimensions were substantially correlated with each other, but that impressions of conscientiousness diverged from impressions of the other Big Five dimensions.