Predicting Personality Using Data from Facebook

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Abstract **- We examine to which degree behavioural measures can be used to predict personality. Personality is one factor that dictates people's propensity to trust and their relationships with others. One's personality is widely accepted as an indicator of job performance, job satisfaction and tenure intention. The ability to measure an applicant's personality in the selection process helps recruiters, hiring managers and the applicant make better hiring decisions.**

Personality can be predicted relatively accurately by analysing social media profiles. We demonstrated this using public data from Facebook profiles. As social situations are crucial in the formation of one's personality, one's social behaviour could be a strong indicator of her personality. Given most users of social media sites typically have a large number of friends and followers, considering only these aspects may not provide an accurate picture of personality. To overcome this problem, we develop a set of measures based on one's behaviour towards her friends and followers. We introduce a number of measures that are based on the intensity and number of social interactions one has with friends along a number of dimensions such as reciprocity and priority. We analyse these features along with a set of features based on the textual analysis of the messages sent by the users. We show that behavioural features are very useful in determining personality and perform as well as textual features.

Index Terms **- Personality traits, influence, trust and relationship with others, Social Situations, Accurate Personality Prediction.**

I.INTRODUCTION

Personality is determined as a set of characteristics which make an individual unique, and the study of personality considered as a central aim of psychology. One of the most influential and generally accepted personality theories is the big-five personality theory, which envelope five basic traits: Extraversion (sociable vs shy), Agreeableness (friendly vs uncooperative), Conscientiousness (organized vs careless), Openness (insightful vs unimaginative), and Neuroticism (neurotic vs calm) to compose human personality. With the wide spread of social networks sites nowadays, Facebook becomes one of the most popular social networking services in the world. As a consequence, Facebook plays a big role in people' normal life. Thus, the platform provides an ideal online platform for personality research and relative application.

Meanwhile, predicting user's personality through social networks is not an easy task. One of the critical factors that affect personality detection at the scale of social platforms is the predictive accuracy as an outcome of limited available training data. One of Facebook advantages (easy access to large amounts of personal data) introduce serious ethical challenges that have yet to be addressed in a pragmatic manner by the applicable legal and ethical guidelines. Several authors have looked at the Big Five personality traits of Facebook users. However, there is fewer work that analyze the usage of like button in the Facebook social platform in term of personality prediction. Likes can be used by Facebook users to endorse content such as status updates, comments, photos, links shared by friends, Facebook pages, or external Web sites. Endorsements also result in users receiving updates on a given piece of content, such as comments on a liked status update.

II. FEATURED SYSTEM

This study uses several features to see the comparison of the results and capabilities between them. The main reason is to investigate the suitability and performance of this various features for personality modeling. The features used are differentiated for each learning implementation. For traditional machine learning implementation, we used linguistic feature with closed-vocabulary approach. Closed vocabulary is a feature based on the number of words content in accordance with predefined features. For this approach, we used linguistic features such as LIWC 13 and SPLICE 14.

III. SYSTEM REQUIREMENT

Software Requirement	Description
Technology	Java
Front End	HTML, CSS, Bootstrap
Back end	MySQL
Algorithm	Data mining
OS	Windows, Linux, Mac

Hardware Requirement	Description
Processor	Min core- i3
RAM	Min 2 GB
Hard Disk	40GB

Testing environment Software required	Description
OS	Windows, Linux, Mac

IV. OBJECTIVES

- The personality recognition based on linguistic features can help in marketing intelligence, employee recruitment and social psychology.
- The personality traits prediction may give a qualitative sight to text mining in social media.
- There have been studied with several approaches to automatically predict users' personality based on different kind of datasets such as essays, video and social media post, and social media behavior.
- With the rapid growth of social media, numerous studies have been done to identify a user's personality traits from publicly accessible information on social media domain.

V. SYSTEM ARCHITECTURE

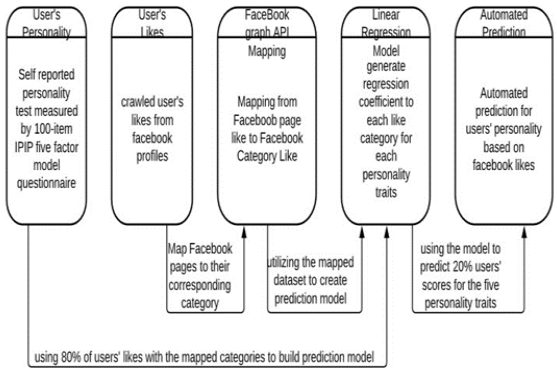

Fig 1 : Model For Predicting Big 5 personality traits

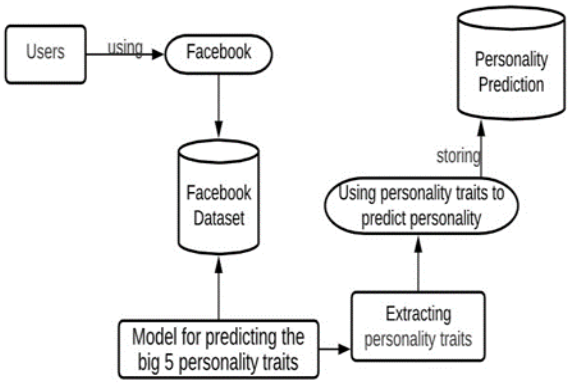

Fig 2: Architecture of System

VI. PROPOSED SYSTEM

The purpose of this model is that it predicts user's personality scores by analyzing their online social fingerprints to access this prediction. We aim to utilize the hierarchy that Facebook employs to categories pages as features, then we used this feature to train our machine learning models to predict user's Big Five scores for each of the personality traits. We observed a hidden relationship between the metadata of the Facebook like's objects. Therefore, we decided to investigate this relationship and map each like object to it corresponding category using Facebook Graph API2 and evaluated different classifiers (boosted trees, linear regression, k-nearest neighbour, and neural networks) for predicting personality traits of each like category.

VII. APPLICATIONS

As a foundation for our research, we used the "big5" and "user likes" datasets from the "myPersonality project". This dataset contains information about Big Five personality scores and Facebook likes. The personality scores are represented on a scale according to the Big Five personality traits "openness to experience", "conscientiousness", "extraversion", "agreeableness", and "neuroticism". It also includes information about the size of the questionnaire that users responded to associated with their ids.

VIII. CONCLUSION

We presented how Facebook posts can be utilized to infer one's personality from their language use. We reported the feasibility of modelling the Big 5

personality traits of users based on extracting metadata of pages users liked on Facebook. We used the hierarchy that Facebook employs to categorize pages as features to train our machine learning models to effectively predict the Big Five personality scores. This allows for a quite accurate assessment of a person's personality traits and can be used in a wide variety of applications. While the prediction performance differs between the traits, our results show that we can predict the personality scores within 8-15% of the actual value.

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