Predicting Personality With Social Network

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Introduction

Personality is the most complex one among all the human attributes and it describes the uniqueness of a person. It has been a long-term goal for psychologists to understand human personality and it's impact on human behavior. Behavior involves an interaction between a person's underlying personality traits and situational variables. The situation, that a person finds himself or herself in, plays a major role on his or her reaction. However, in most of the cases, people respond with respect to their underlying personality traits. With time, this area has attracted researchers from different fields, especially researcher in the human-machine interaction and behavioral analysis.

Several studies have been done on dependencies of style of communication like emails, blog entries and the choice of particular parts of speech on individuals personality. Social media is a place where users present themselves to the world, revealing personal details and insights into their lives. We are beginning to understand how some of this information can be utilized to improve the users' experiences with interfaces and with one another.

Following are the most widely used Big 5 personality traits to describe the personality characteristics of individuals.

- Openness to experience: (inventive/curious vs. consistent/cautious)
- Conscientiousness: (efficient/organized vs. easy-going/careless)
- Extraversion: (outgoing/energetic vs. solitary/reserved)
- Agreeableness: (friendly/compassionate vs. analytical/detached)
- Neuroticism: (sensitive/nervous vs. secure/confident)

In our project we would like measure above given personality traits by analysis of profile and activities of individuals in a social networking sites through machine learning techniques.

Technical Details

Proposed personality prediction system will be consisting of two components for finding values of personality traits independently. One component will be a questionnaire which is used for finding values of personality traits in traditional way. We may use a 45 question version of Big5 traits test for this purpose. The other component will collect individuals information from social networking site and perform various machine learning methods on them for estimating the values of personality traits. Then values obtained from each component of system will be compared for accuracy measurement purpose.

There are several features in a social networking site that can be used for evaluating personality traits. If we consider facebook, following are the features that can be used for analysis.

I. Internal facebook statistics

A number of features are available that describes user's experience, settings, and history with facebook. This included the user ID, an integer value that corresponds to when the user joined the network (lower values indicate an earlier join time), the unix timestamp of their last profile update, the number of notes (short messages) posted, and other features that proved less useful such as the URL of the profile picture, whether or not their profile was blocked, whether the person is an app user, and if they has provided a status update.

II. Personal Information

Facebook graph api allow use to access a lot of personal information such as name, gender, age, religion, hometown, education history, work history, type of positions hold, ..etc. Among these gender, age and work history can have strong correlation with personality traits. Some features which can't have correlation with personality traits can be ignored.

III. Activities and Preferences

Providing lists of personal activities or favorite things has always been a part of Facebook. Users list favorite TV shows, movies, music, book, quotes, as well as political and organizational affiliations and favorite activities.

IV. Language Features

Similar to the activities and likes described above, users also have opportunities to share more personal written information through the "About Me" and "blurb" text in their profiles, and through status updates. Previous research has shown that linguistic features can be used to predict personality traits. Since there is text available on users' Facebook profiles, there is potential to apply these linguistic analysis methods to help in predicting personality.

V. Structural features

Using facebook API we can access friends network of individuals and that can be used for the analysis of behavior of group of individuals. This factor will be more important if we study about influence of personality of one person on his friends.

Language specifications

This project aim to develop a facebook based web application. Following languages will be used for the purpose.

- HTML/CSS (User interface)
- Javascript (User events)
- PHP (Server side scripting)
- MySQL (Database management)

Areas of Application

Following are the few of the areas of applications of personality analysis using social networking sites.

1. If a user's personality can be predicted from their social media profile, online marketing and applications can use this to personalize their message and its presentation.
2. There is no need to answer lengthy questionnaires. Instead it can be calculated within few seconds using the behavior of individuals in social media.
3. Organizations may select people with desirable personality for job, without giving them a personality test.
4. Answering lengthy questionnaire for personality analysis is somewhat irritating. It can be avoided.

Future Scope

One area that deserves attention is the connection between personality and the actual social network. In our project we will consider two structural features - number of friends and network density -but we don't look at personality scores between friends. Understanding the connections between personality, tie strength , trust , and other related factors is an open space for research. By improving our knowledge of these relationships, we can begin to answer more sophisticated questions about how to present trusted, socially-relevant, and well-presented information to users.

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