Review on Predicting Personality through the Twitter

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ABSTRACT: Social media sites are now the most popular destination for Internet users, providing social scientists with a great opportunity to understand online behavior. There are a growing number of research papers related to social media, a small number of which focus on personality prediction. To date, studies have typically focused on the Big Five traits of personality, but one area which is relatively unexplored is that of the anti-social traits of narcissism, Machiavellianism and psychopathy, commonly referred to as the Dark Triad. This study explored the extent to which it is possible to determine antisocial personality traits based on Twitter use. Social media is a place where users present themselves to the world, revealing non-public info and insights into their lives. we're beginning to understand how some of this data may be applied to enhance the customers' studies with interfaces and with each other. In this paper, we're involved in the persona of customers. personality has been shown to be applicable to many styles of interactions; it has been shown to be useful in predicting task pleasure, expert and romantic courting achievement, or even desire for special interfaces. Until now, to appropriately gauge users' personalities, they needed to take a personality check. This made it impractical to apply personality evaluation in many social media domains. in this paper, we give a technique by means of which a consumer's persona may be as it should be predicted through the publicly available facts on their Twitter profile. We are able to describe the type of information accumulated, our strategies of analysis, and the system gaining knowledge of techniques that permit us to efficiently expect personality. We then discuss the implications this has for social media design, interface layout, and broader domain names.

KEYWORDS: Predicting, Personality, social media, Social networking, Twitter.

1. INTRODUCTION

Social networking at the web has grown dramatically over the ultimate decade. In January 2005, a survey of social networking web sites estimated that among all websites on the internet there were kind of a hundred and fifteen million participants. just over five years later, Twitter alone has surpassed 200 million members. within the process of making social networking profiles, users screen a lot approximately themselves each in what they share and how they say it[1]. The self-description, reputation updates, snap shots, and interests, tons of a consumer's character comes out through their profile. For many years, psychology researchers have labored to apprehend personality in a scientific manner. After sizable work to increase and validate a widely standard persona version, researchers have proven connections between preferred character tendencies and many varieties of behavior. Relationships had been located among persona and psychological issues, job performance and satisfaction and even romantic achievement[2].

The growth of online social networking has increased dramatically during the past decade. A prime example of this growth is the social networking tool and micro-blogging service, Twitter. In the six months from January to July 2012, the number of Twitter accounts increased 35%, from approximately 383 million to 517 million [7]. This progressive use of social networking technology provides an interesting area of study, although research is still in its infancy. Some services, such as Facebook, have been studied fairly extensively; however, there is much less research on Twitter. Online behavioral analysis may offer important insight into how large numbers of people interact and whether those interactions are changing over time. One area of social media that has had very little research is that of anti-social personality constructs and their relation to online behavior, and thus to address this, the present study examines the self-reported 'Dark Triad' personality traits of 2,927 Twitter users. We present a summary of the current state of social media personality research, then provide a background on the Dark Triad constructs of narcissism, Machiavellianism and psychopathy. We examine the relationship between these traits and Twitter activities and then apply machine learning techniques to determine the predictability of Dark Triad constructs based solely on Twitter usage. To avoid incorrectly labelling an individual, we pay particular attention to the evaluation metrics of predictive models, because criteria such as Mean Average Error (MAE) and Root Mean Square Error (RMSE) can present good results over an entire model, but can mask inaccuracies when trying to predict the top and bottom percentiles. Since social media personality prediction could be used to label an individual, it is important to ensure the correct evaluation metrics are selected in research studies. We demonstrate that there are links between Dark Triad constructs and Twitter usage and employ a variety of machine learning techniques to attempt to predict these

constructs in users. While the margin of error is too great for examining individuals, there may still be a practical use in examining large groups of people, although important ethical issues must first be addressed.

This paper tries to bridge the distance between social media and character research by using the usage of the records people monitor in their online profiles. Our middle research query asks whether or not social media profiles can predict personality traits. If so, then there is an opportunity to integrate the many results at the implications of personal factors and behavior into the users' on-line experiences and to use social media profiles as a source of data to better understand people[3]. For instance, the buddy notion system could be tailored to a consumer based on whether or not they may be more introverted or extraverted. Preceding work has proven that the facts in customer's fb profiles are reflective of their real personalities, not an "idealized" version of themselves. We expect Twitter to have comparable traits, and that plus a broad consumer base of 300 million humans makes it a really perfect platform for examination[4].

We administered the big five-character stock to 280 topics via a Twitter utility. inside the system, we accrued their 3000 maximum current public Twitter posts (tweets). This turned into aggregated, quantified, and handed through a text evaluation tool to acquire a function set. Using these data, we have been capable of developing a model that can expect a persona on every of the 5 persona elements to be inside between eleven% and 18% of the actual values. The capability to expect character has implications in many areas[5]. Present studies have shown connections between character traits and achievement in both professional and personal relationships. Social media tools that are seeking to aid these relationships ought to advantage from character insights. additionally, previous paintings on personality and interfaces confirmed that users are more receptive to and have more belief in interfaces and data this is provided from the perspective in their very own personal features (i.e. introverts choose messages presented from an introvert's attitude)[6].

If a person's persona may be predicted from their social media profile, online marketing and programs can use this to customize their message and its presentation. We begin by presenting heritage at the large five-character index and related work on character and social media. We then present our experimental setup and techniques for analyzing and quantifying Twitter profile statistics. To recognize the relationship between personality and social media profiles, we present results on correlations between every profile function and personality thing. primarily based in this, we describe the gadget getting to know techniques used for category and show how we acquire large and sizable enhancements over baseline category on every personality issue. We finish with a discussion of the implications that this work has for social media websites and for agencies which can make use of social media to better understand the people with whom they have interaction.

2. DISCUSSION

The present paper sought to examine the relationship between Dark Triad personality traits and Twitter activity and examine whether machine learning could be used to predict these constructs based solely on Twitter usage. Our results identify a number of statistically significant correlations between Dark Trait traits and Twitter usage. In terms of linguistic analysis, it was noted that people higher in scores of psychopathy and Machiavellianism tend to use more swear words and more words associated with anger. Both traits were also significantly negatively correlated with first person plurals and words associated with positive emotion. The major differences between psychopathy and Machiavellianism are in the frequency of words associated with sex, relativity, motion and time.

2.1. The Big Five Personality Inventory:

The "large 5" model of personality dimensions has emerged as one of the most nicely-researched and nicely-seemed measures of character shape in recent years. The fashions 5 domains of character, Openness, Conscientiousness, extroversion, Agreeableness, and Neuroticism, had been conceived by Tupes and Christal as the fundamental trends that emerged from analyses of previous personality tests. McCrae & Costa and John persisted in 5-component model research and always located generality across age, gender, and cultural lines. extra research has proved that exceptional assessments, languages, and techniques of analysis do not alter the models validity. Such big studies have caused many psychologists to simply accept the huge 5 as the cutting-edge definitive version of character[7]. It ought to be noted that the models dependence on trait terms indicates that the large five tendencies are based on a lexical method to personal size. The big 5 traits are characterized via the following:

- Openness to revel in: curious, wise, imaginative excessive scorers tend to be inventive and sophisticated in flavor and admire numerous perspectives, thoughts, and reports.
- Conscientiousness: accountable, prepared, persevering. Conscientious people are extraordinarily dependable and tend to be high achievers, difficult employees, and planners.
- extroversion: outgoing, amicable, assertive. friendly and lively, extroverts draw proposals from social situations.
- Agreeableness: cooperative, helpful, nurturing. Human beings who score excessive in agreeableness are peace-keepers who are typically optimistic and trusting of others.
- Neuroticism: stressful, insecure, touchy. Neurotics are moody, disturbing, and without problems tipped into experiencing terrible feelings.

2.2. *Applications of the Big Five*

A great deal of work has been performed with personality as it pertains to our lives and the selections we make. In phrases of relationships with others, many relationships were recognized. Character type is connected to whom users choose to friend on fb. Observed that extraversion, agreeableness, and openness all correlated with friendship selection. persona capabilities have additionally, been tied to many elements of romantic relationships, consisting of accomplice preference, stage of attachment and achievement. In terms of interpersonal warfare, studies have related big 5 tendencies with coping responses, vengefulness, and rumination[8]. Social relationships aside, character additionally pertains to alternatives. Renfrew and Gosling is one of many studies that determined that character is an issue that pertains to the song a person prefers to listen to. Jost et al. additionally discovered that the character sort of an individual was capable of expecting whether or not they might be more likely to vote for McCain or Obama in 2008. studies have also found personal differences between self-professed "canine people" and "cat people" '. within the context of marketing and advertising, large 5 character tendencies had been shown to appropriately expect a client's preference for countrywide manufacturers or unbiased manufacturers. studies like this show a promising destiny for the combination of persona evaluation and patron profiling. Many studies have established the usefulness of persona profiles within the expert context. Hodgkinson and Ford found that personality trends affect process performance and delight, and Barrick and Mount correlated precise tendencies with occupational selections and proficiency. huge five dimensions have proved valid predictors for crew overall performance counterproductive behaviors and entrepreneurial repute among many other elements[9].

Additionally, discovered relationships among persona and behavior among managers, and Barrick and mount observed routine character profiles among each high-autonomy and occasional-autonomy positions in the personnel. In the space of Human-computer interplay, one of the pioneering research on the connection between character and interface choice was offered in users listened to audio readings of 5 eBook evaluations which had been written from the angle of introverts vs. extroverts. subjects were capable to identify the persona variations between the critiques and showed an enchantment to those which have been closest to their own character kind. whilst the persona type matched, topics had been even much more likely to shop for the e-book being reviewed. This painting was extended into thoughts of Graphical person Interface design in. specific GUIs were advanced to represent introverted vs. extroverted persona sorts. As in, they may want to perceive the personality variations and desire the interface that matches their personal character type.

2.3. *Personality Research and Social Media*

To the satisfaction of our information, our work is most of the first to observe the connection between profile records provided in social networks and personality trends. but, there have been some preceding research on how character relates to social networking more normally. It's been proven in that extraversion and conscientiousness undoubtedly correlate with the perceived ease of use of social media websites. extroversion changed into also proven to have a wonderful correlation with perceived usefulness of such websites[10]. Now not fairly, extroversion turned into also shown to correlate with the dimensions of a user's social network in numerous studies. There have also been mixed outcomes for different character tendencies. paintings showed that people with high agreeableness ratings were selected more often as pals and that human beings tended to pick buddies with comparable agreeableness, extroversion, and openness ratings. This changed into not repeated in but a correlation between openness and variety of friends[11].

2.4.   Social Media and Personality

A large proportion of articles in this field focus on 'Identity Presentation', which can be defined as the examination of personality in relation to social network activity. These articles can be broadly divided into two categories: observer rated studies and automated feature extraction studies. Observer rated studies ask participants to self-assess their personalities, after which independent observers are asked to rate the participants' personalities based on their social media profiles. Studies have found that observers are able to form a reasonably accurate picture of someone's Big Five personality traits with the greatest success in rating extraversion and openness.

Papers focusing on automated feature extraction, however, typically consist of analyzing profile attribute and linguistic usage against self-reported personality tests. Profile attributes include features such as number of friends, number of groups and number of status updates. Linguistic analysis examines the frequency of words in pre-defined categories in order to identify patterns that can reveal personality traits. These studies have consistently demonstrated statistically significant relationships between profile attributes, linguistic analysis and personality, although the practical application of these results is limited.

The majority of automated feature extraction studies in this area have focused on examining the relationship between social media usage and personality. We are, however, seeing the emergence of data mining and machine learning techniques in exploring the prediction of personalities through social media, rather than purely identifying relationships. Data mining may help expose the low-validity cues proposed within the Realistic Accuracy Model as an explanation of the ability of observers to intuitively detect personality cues in others.

2.5.   The Dark Triad of Personality

The personality construct of psychopathy has begun to be studied in combination with Machiavellianism and narcissism. The three constructs are "overlapping, but distinct", and have been named the Dark Triad of personality because they all focus, to varying degrees on social malevolence, self-promotion, emotional coldness, duplicity and aggressiveness. Narcissism is arguably the oldest of the three constructs and originated from the Greek myth of Narcissus, who, as legend has it, was doomed to fall in love with his own reflection in a pool of water.

a narcissistic personality as a pervasive pattern of grandiosity, need for admiration, and lack of empathy, all of which begin by early adulthood and are present in a variety of contexts. Narcissism is the only member of the Dark Triad listed in the DSM-IV. The narcissist tends to view him- or herself as intelligent, powerful, physically attractive, unique and entitled. Although previously believed to have been a sub-clinical form of psychopathy, whilst there is an overlap; Machiavellianism and psychopathy are indeed "distinct constructs". Individuals are given a psychopathy score between 0 and 40, with a generally accepted cut off between 25 and 30. Individuals receiving a score above the cut off will typically be labelled a Psychopath, with approximately 1% of the population falling into this category. Research shows that neurological abnormalities are responsible for a predisposition to psychopathy, but also that early childhood experience is an important factor in whether an individual will turn to crime and/or violent crime.

2.6.   Social Media and the Dark Triad

We were able to identify several papers on narcissism and social networking, but to our knowledge, there is only one publicly available paper, examining psychopathy and social media usage. users who scored higher (more psychopathic) on the SelfReport, used more swear words and words related to anger, and psychologically distanced themselves from their messages, all reflecting emotional deficits and disagreeableness fundamental to the psychopathic personality. We were unable to find any papers covering all three Dark Triad traits and social media.

3. CONCLUSION

On this paper, we've shown that a customers' large 5 character traits may be anticipated from the general public statistics they percentage on Twitter. Our topics completed a personality take a look at and through the Twitter API, we accumulated publicly reachable data from their profiles. After processing this information, we observed many small correlations in the facts. Using the profile facts as a characteristic set, we have been capable of educating gadget gaining knowledge of algorithms - Zero and Gaussian strategies – to predict ratings on each of the 5 persona traits to within 12% - 19% in their actual cost.

With the potential to guess a person's personality tendencies, many possibilities are opened for personalizing interfaces and statistics. We discussed a number of those opportunities for advertising and interface design above. However, there are an awful lot of paintings to be pursued in this place. One location that merits attention is the relationship among personal and the actual social network. We considered two structural functions - number of pals and network density but we did not observe personal rankings among friends. Expertise the connections among personality, tie strength and other associated elements is an open space for studies. by means of enhancing our understanding of those relationships, we are able to start to answer more sophisticated questions about the way gifts depended on, socially-applicable, and nicely-offered facts to users.

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