A Survey on Social Network Mental Healthcare System Using Machine Learning Techniques

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ABSTRACT

In today's world, The dangerous development in prominence of informal communication prompts the risky utilization. An expanding number of social arrange mental clutters (SNMDs, for example, Cyber-Relationship Addiction, Information Overload, and Net Compulsion, have been as of late noted. Mental illness has a deep impact on individuals, families, and by extension, society as a whole. Social networks allow individuals with mental disorders to communicate with others. Manifestations of this psychological issue are typically watched latently today, bringing about deferred clinical mediation. In this paper, we contend that mining on the web social conduct gives a chance to effectively distinguish SNMDs at a beginning period. The paper also examine the associations of suicidal attempt with Internet addiction and Internet activities in a large representative. The paper gives a detailed survey of what users face when they use excessive Internet in their day to day life

KEYWORDS: Machine learning, healthcare, Facebook, twitter, analysis,SNMDs

I. INTRODUCTION

While OSNs apparently grow their clients' ability in expanding social contacts, they may really diminish the eye to eye relational collaborations in reality. Because of the pandemic size of these marvels, new terms, for example, Phubbing (Phone Snubbing) and Nomophobia (No Mobile Phone Phobia) have been made to depict the individuals who can't quit utilizing portable person to person communication applications. Nonetheless, an ongoing report demonstrates a solid relationship between's self-destructive endeavor and SNMDs, which shows that young people experiencing informal community addictions have a substantially higher danger of self-destructive. Mental health disorders are prevalent around the world. Estimates from the World Health Organization (WHO) suggest that the lifetime prevalence of disorders in the Diagnostic and Statistical Manual of Mental Disorders (DSM) is between 18% and 36% or between 10% and 19% of a population within a 12-month period

II. LITERATURE SURVEY

They introduce an information theoretic approach that reveals community structure in weighted and directed networks. They use the probability flow of random walks on a network as a proxy for information flows in the real system and

decompose the network into modules. They show that one can achieve this rate by assigning to each node a unique dictionary over the outgoing transitions. They have shown how to formalize this cartographer's precept by using the mathematical apparatus of information theory.[1]

Advantages1]It tally the whole data as journal-by-journal.2]It suggests reasonable names for each cluster of journals.[1]

Disadvantages1].Not much comparative to real world. 2]The lost in the process of simplification is more.[1]

A second difference between the spread of happiness and loneliness concerns the effect of gender. The observations that loneliness can be passed from person to person. In other words, whether people took their own lives depended on the kind of society they inhabited. The results advance understanding of the broad social forces that drive loneliness and suggest that efforts to reduce loneliness in society may benefit by aggressively targeting the people. They had used these tracking sheets to develop network links for FHS Offspring participants to other participants in any of the four FHS cohorts.[2]

Advantages1]The system presents simpler and more easily interpret-able linear specifications. 2]They create a protective barrier against loneliness.

Disadvantages1]Unable to establish proper comparisons between some of the algorithms. 2]The size of the effect for people at two degreesof separation.[2]

The demonstration at user-level sentiment analysis can be significantly improved by incorporating link information from a social network. These links can correspond to attention, such as when a Twitter user wants to pay attention to another status updates, or homophily. The main motivation behind our approach is that users that are somehow "connected" may be more]likely to hold similar opinions; therefore, relationship information can complement what they can extract about a user's viewpoints from their utterances.**Advantages** 1]Improvements over the performance of an approach. 2]They work within a semi-supervised, user-level framework.

Disadvantages1]Unable to finding which parts of the whole network are helpful. 2]Also not build a larger labelled dataset across more general topics. [3]

This paper does so through a questionnaire of over 400 Facebook users and non-users. Results show that non-use is not an atomic category but encompasses a broad array of practices. This paper provides an understanding of both the variety of those practices and the motivations and justifications given therefor. These results not only contribute to our understanding of online sociality by examining this under-explored area, but they also build on previous work. Their analysis provides an account of the motivations and justifications that respondents provide for these varying degrees of (non)use.[4]

Advantages1]Sociological processes of determining what technologies are appropriate. 2]It gives a quantitative description of who our respondents.

Disadvantages1]This technologies are deemed inappropriate, undesirable, or unwanted 2]Qualitative analysis reveals numerous complex.[4]

The results of this study indicated a significant association between Internet addiction and increased suicidal risk among adolescents. Prevention of suicide schemes should pay more attention to adolescents with Internet addiction. Greater regulation of web content and more education regarding the interpretation of web content should be provided. The aims of this cross-sectional study were to examine the associations of suicidal ideation and attempt with Internet addiction and Internet activities in a large representative Taiwanese adolescent population

Advantages1]Watching online news was associated with a reduced risk of suicidal attempt. 2]Various Internet activities were predicted to have different associations.

Disadvantages 1]Unable to decreased risk of suicidal ideation. 2] The cross sectional research design could not confirm the causal relationship between Internet addiction and suicidality. [5]

In the paper they presented a streaming algorithm of NMF that can handle a Twitter stream. Their proposed algorithm can simultaneously perform real-time topic detection and filtering of outsiders and MG-phrases. They apply the proposed streaming algorithm to the Japanese Twitter stream and successfully demonstrate that, compared with other online non-negative matrix factorization methods [6]

Advantages1]Algorithm is superior in terms of scalability. 2]It is possible to predict the geographical movement of natural disasters such as earthquakes.[6]

Disadvantages

Filtering method not works that much of accuracy.

Internet security and the detection of malicious URLs is complex. [6]

They proposed a framework to exploit the dynamical information from the Electronic Medical Records of patients who are admitted to the ICU. Their method provides a fully dynamic framework that takes into account future uncertainty by training the model using the complete patient path from admission to discharge/death. The test of proposed approach using 15,000 Electronic Medical Records (EMRs) obtained from the MIMIC II public dataset. They incorporate the text information into the model by developing a method to convert the unstructured text information into discriminative features [7]

Advantages

1]Demonstrate that the dynamic combination of text and numerical information improves the prediction.

2]Improve the performance in the prediction of patient's probability.

Disadvantages

1]The number of features with a moderate increase in complexity.

2]Optimal data sampling is not used which can help us better predict.[7]

The proposed a novel Harmonic Modularity (HAM) method for simultaneously detecting the potential communities and the top-k SH spanners, using only the topological structure of the network. The proposed algorithm significantly outperforms several comparative methods (even the methods using the supervised community. Furthermore, by removing the SH spanners spotted by our method, Also show that the quality of other community detection methods can be further improved. [8]

Advantages

1] The detection methods can be further improved.

2] It can measure easily the harmonic modularity.[8]

Disadvantages

1] Real world networks are hard to find.

2] Nonparametric Guidance.[8]

Healthcare System Using Hadoop

Today online SNMDs are generally treated at a late stage. To effectively distinguish potential SNMD cases, we propose an inventive methodology, new to the present routine with regards to SNMD recognition, by mining information logs.[10]
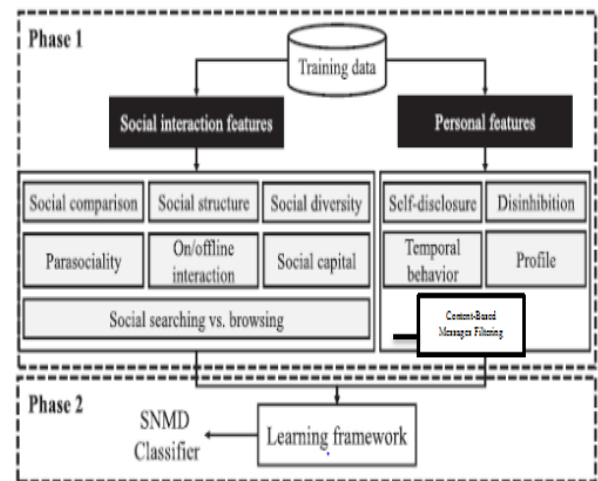

Fig 1. SNMD FRAMEWORK

Today online Social Network Mental Disorder Detection (SNMDs) are generally treated at a late stage. To effectively distinguish potential SNMD cases, we propose an inventive methodology, new to the present routine with regards to SNMD recognition, by mining information logs. To make an attempt to automatically identify potential online users with SNMDs. Propose an SNMDD framework that explores various features from data logs of OSNs and a new tensor technique for deriving latent features from multiple OSNs for SNMD detection. Also study the features extracted from multimedia contents by techniques on NLP and computer vision.[10]

Their framework is evaluated via a user study with 3126 online social network users. They conduct a feature analysis, and also apply SNMDD on large-scale datasets and analyze the characteristics of the three SNMD types.

This base paper proposed Social Network Mental Disorder Detection (SNMDD) framework. This work detects Mental Disorder in 3 ways. i) Cyber-Relationship Addiction, which shows addictive behavior for building online relationships; ii) Net Compulsion, which shows compulsive behavior for online social gaming or gambling; and iii) Information Overload, which is related to uncontrollable surfing.[10]

III. MACHINE LEARNING TECHNIQUES

Machine Learning is a technique where the computer system will have the ability to learn from the data, without explicitly programming machine Learning is the basics for Artificial Intelligence [11] We follow the following steps in Machine Learning :

- Collecting data
- Filtering data

- Analyzing data
- Training algorithms
- Testing algorithms
- Using algorithms for future predictions

1) Supervised Learning

The learning feedback is always available to the system; we give it to sample data to learn from. The system holds example inputs and desired outputs, The goal is to maps inputs to outputs. One such example Machine Learning will be to search for images on Facebook using keywords centered around the contents of the image. Under Supervised Learning, we have the following Machine Learning Techniques:

- Semi-Supervised Learning — A system receives an incomplete training signal. The training set have some missing output.
- Active Learning — The computer can secure training labels for only some instances. It also needs to make an optimal choice of objects to secure labels.
- Reinforcement Learning — The feedback comes from a learning data set on how a program acts in a dynamic environment. Examples playing against an opponent or include driving a vehicle.

Steps involved in Supervised Machine Learning:

- Training
- Testing

Among many Supervised Machine Learning Algorithms for beginners, we observe:

- Decision trees
- Support Vector Machines
- Naïve Bayes
- K-nearest neighbor
- Linear regression

2) Unsupervised Learning

- In unsupervised learning, the Python Machine Learning Algorithm receives no labels; we only give the machine a set of inputs. It must rely on itself to find structure in its input. This kind of learning can be a goal or a means toward future learning. We can classify unsupervised learning as-

- Clustering — The act of grouping data inherently. One example of this will be to group consumers by their shopping habits so they can target the right consumers to advertise.

Association — In association, we identify rules explaining large sets of our data. One example will be to associate books around author/ category.

Following are the unsupervised learning.

- Hierarchical clustering
- K-means clustering

IV. CONCLUSION AND FUTURE WORK

The inappropriate and excess use of Social Network can affect a human life not only personally but also mentally and physically. To overcome the side affect of Social Networking. We make an endeavor to consequently distinguish potential online clients with SNMDs. We will propose a SNMDD structure that investigates different highlights from information logs of OSNs and another tensor strategy for determining inactive highlights from numerous OSNs for SNMD location. To deal with text filteration problem, we will proposed Content-Based Messages Filtering (CBMF) with the Short Text Classifier Algorithm. Using this algorithm we can get accurate results. Further explore new issues from the perspective of a social network service provider, e.g., Facebook or Instagram. Improve the well-beings of OSN users without compromising the user engagement. Also we will explore new issues from the perspective of a social network.

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