

# MENTAL DISORDER DETECTION USING SOCIAL MEDIA MINING

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# ABSTRACT

- In our paper, we assert that analyzing online social behavior offers a valuable avenue for early identification of Social Network Mental Disorders (SNMDs). Detecting SNMDs poses challenges as mental states cannot be directly observed in online social activity logs. Our novel approach to SNMD detection diverges from conventional methods by circumventing reliance on self-disclosure through psychological questionnaires. Instead, we introduce a pioneering machine learning framework known as Social Network Mental Disorder Detection (SNMDD), which harnesses features derived from social network data to effectively pinpoint potential SNMD cases.



# EXISTING SYSTEM

- There was a study to investigate the association of sleep quality and suicide attempt of Internet addicts. On the other hand, recent research in Psychology and Sociology reports a number of mental factors related to social network mental disorders.
- Chang et. al employ an NLP-based approach to collect and extract linguistic and content-based features from online social media to identify Borderline Personality Disorder and Bipolar Disorder patients.



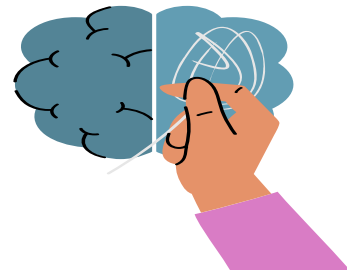
# DISADVANTAGES OF EXISTING SYSTEM

- Although previous work in Psychology has identified several crucial mental factors related to SNMDs, they are mostly examined as standard diagnostic criteria in survey questionnaires.
- To automatically detect potential SNMD cases of OSN users, extracting these factors to assess users' online mental states is very challenging. For example, the extent of loneliness and the effect of disinhibition of OSN users are not easily observable
- The developed schemes are not designed to handle the sparse data from multiple OSNs.
- The SNMD data from different OSNs may be incomplete due to the heterogeneity



# PROPOSED SYSTEM

- We argue that mining the social network data of individuals as a complementary alternative to the conventional psychological approaches provides an excellent opportunity to *actively identify* those cases at an early stage.
- In this paper, we develop a machine learning framework for detecting SNMDs, which we call *Social Network Mental Disorder Detection (SNMDD)*.
- We propose an *SNMD-based Tensor Model (STM)* to deal with this multi-source learning problem in SNMDD.



- We propose an innovative approach, new to the current practice of SNMD detection, by mining data logs of OSN users as an early detection system.
- We develop a machine learning framework to detect SNMDs, called *Social Network Mental Disorder Detection (SNMDD)*. We also design and analyze many important features for identifying SNMDs from OSNs, such as disinhibition, parasociality, self-disclosure, etc. The proposed framework can be deployed to provide an early alert for potential patients.



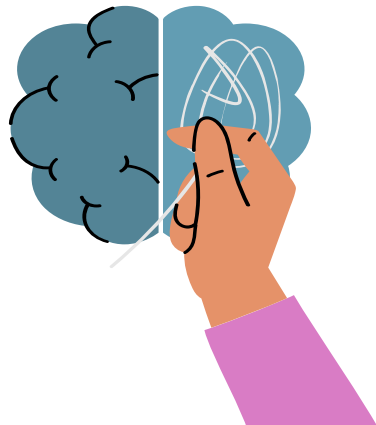
# ADVANTAGES OF PROPOSED SYSTEM

Advantages of our approach are:

- The novel *STM* incorporates the SNMD characteristics into the tensor model according to Tucker decomposition; and
- The tensor factorization captures the structure, latent factors, and correlation of features to derive a full portrait of user behavior.
- We further exploit CANDECOMP/PARAFAC (CP) decomposition based *STM* and design a stochastic gradient descent algorithm, i.e., *STM-CP-SGD*, to address the efficiency and solution uniqueness issues in traditional Tucker decomposition.

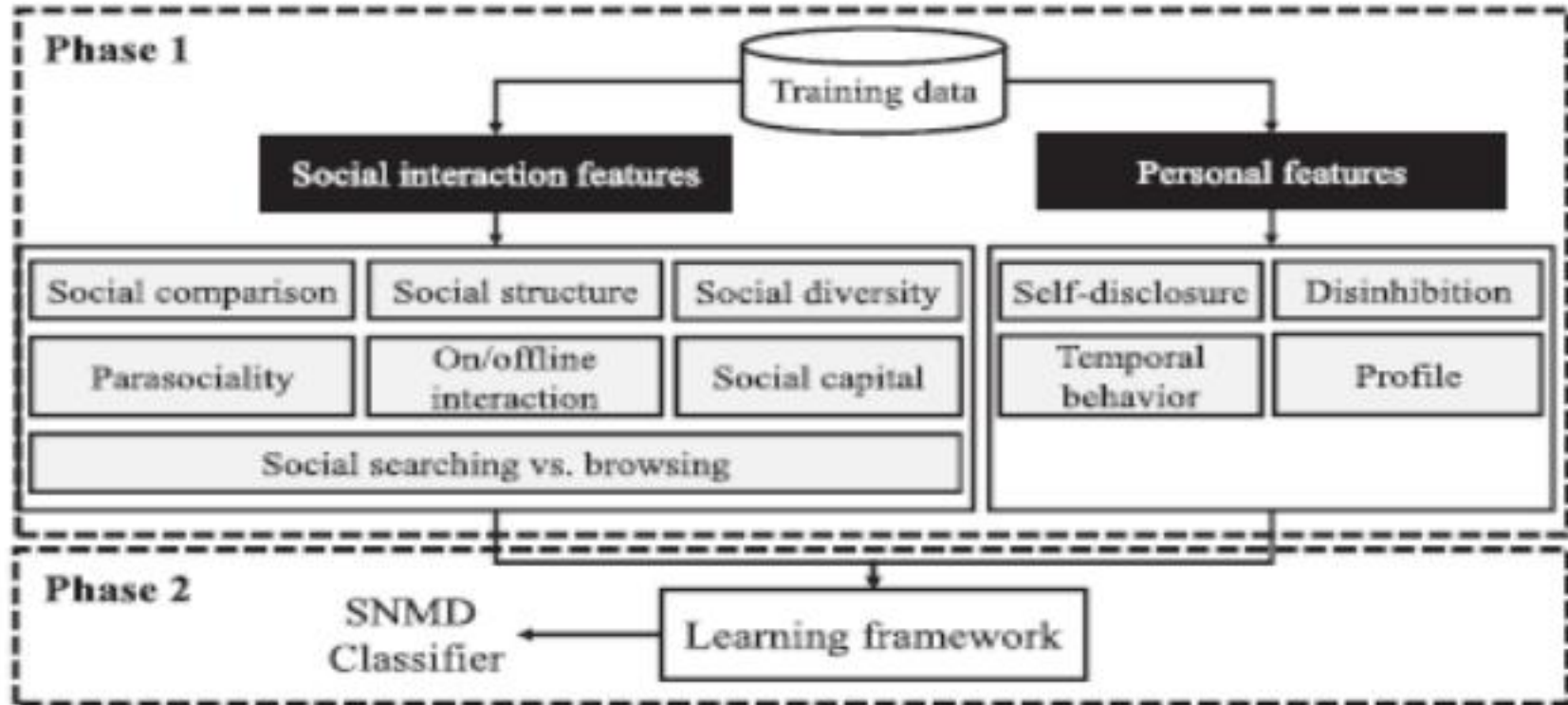


- The convergence rate is significantly improved by the proposed second-order stochastic gradient descent algorithm, namely, *STM-CP-2SGD*.
- To further reduce the computation time, we design an approximation scheme of the second-order derivative, i.e., Hessian matrix, and provide a theoretical analysis.





# SYSTEM ARCHITECTURE



# HARDWARE REQUIREMENTS

● System	:	Pentium Dual Core.
● Hard Disk	:	120 GB.
● Monitor	:	15" LED
● Input Devices	:	Keyboard, Mouse
● Ram	:	1 GB



# SOFTWARE REQUIREMENTS

- Operating system : Windows 7.
- Coding Language : JAVA/J2EE
- Tool : Netbeans 7.2.1
- Database : MYSQL

# Conclusion



In conclusion, our project on a Mental Health Evaluator utilizing social media showcases the potential of technology to address mental health challenges. By harnessing data from social platforms, we've developed a tool capable of providing insights into users' mental well-being. Through sentiment analysis and machine learning algorithms, we've demonstrated the feasibility of identifying potential mental health concerns early on. Our project not only highlights the power of technology in mental health assessment but also emphasizes the importance of responsible data usage and privacy considerations. Moving forward, integrating user feedback and refining the tool can enhance its effectiveness and contribute positively to mental health support systems.





THANK YOU

