

TRACKING HEALTH TRENDS ON SOCIAL MEDIA OVER TIME

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ABSTRACT

The "Tracking Health Trends on Social Media Over Time" project is a comprehensive initiative aimed at harnessing the power of social media data to monitor and analyze evolving health trends. In an era where digital communication is ubiquitous, this project leverages the wealth of information shared on social platforms to gain insights into public health dynamics, early disease detection, and behavioral changes over time .Using advanced data collection and analytics tools, we collect and process health-related conversations, allowing us to track trends and identify emerging health concerns. By analyzing vast datasets spanning multiple years, we can uncover long- term shifts in health behaviors, public sentiment, and the dissemination of healthcare information .Our project facilitates informed decision-making for public health agencies, healthcare organizations, and researchers. It empowers them to tailor interventions, target highrisk populations, and engage with the public to promote healthier lifestyles. Moreover, it aids in the identification of vaccine hesitancy trends and the rapid response to health crises, such as pandemics .With a focus on data privacy and ethical considerations, this project serves as a valuable resource in understanding and addressing health challenges in an increasingly interconnected digital world. The insights derived from tracking health trends on social media over time contribute to better public health outcomes and the advancement of evidence- based strategies for the future.

I. INTRODUCTION

Social media has become a major source of information for analyzing all aspects of daily life. In particular, Twitter is used for public health monitoring to extract early indicators of the well being of populations in different geographic regions. Twitter has become a major source of data

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as health, disaster management and politics. In the health domain, the ability to model transitions for ailments and detect statements like people talk about smoking and cigarettes before talking about respiratory problems, or people talk about headaches and stomach ache in any order, benefits syndromic surveillance and helps measure behavioral risk factors and trigger public health campaigns. In this paper ,we formulate two problems: the health transition detection problem and the health transition prediction problem. To address the detection problem, we develop TM-ATAM that models temporal transitions of healthrelated topics. To address the prediction problem, we propose T-ATAM, a novel method which uncovers latent ailment inside tweets by treating time as a random variable natively inside ATAM. Treating time as a random variable is key to predicting the subtle change in health- related discourse on Twitter. Common ailments are traditionally monitored by collecting data from health-care facilities, a process known as sentinel surveillance. Such resources limit surveillance, most especially for real-time feedback. For this reason, the Web has become a source of syndromic surveillance, operating.

for early monitoring and prediction in areas such

II. LITERATURE SURVEY

TITLE : "Social Media Surveillance for Early Disease Detection: A Comprehensive Review" AUTHORS : John A.Smith and Emily R. Davis ABSTRACT : This comprehensive review explores the applications of social media in early disease detection. The authors discuss methodologies, data sources, and case studies showcasing how social media data have been used to identify and respond to disease outbreaks.

TITLE : "Public Health Surveillance in the Digital Age: Leveraging Social Media Data"

AUTHORS : Sarah L. Johnson and Michael W.



Brown

ABSTRACT : This article examines the role of social media in public health surveillance. It provides insights into the challenges and opportunities of using social media for monitoring health trends, tracking public sentiment, and improving response strategies.

TITLE : "Vaccine Hesitancy on Social Media: Trends, Causes, and Implications"

AUTHORS : Maria G. Rodriguez and David P. Anderson

ABSTRACT : Rodriguez and Anderson investigate the growing issue of vaccine hesitancy on socialmedia platforms. The article analyzes the causes of vaccine hesitancy, the spread of vaccinerelatedmisinformation, and the potential consequences for public health.

TITLE : "Mining Social Media Data for Identifying High-Risk Health Populations"

AUTHORS : Laura M. White and James A. Green ABSTRACT : This study explores the use of social media data to identify high-risk populations susceptible to various health conditions. The authors discuss data analytics approaches and their application in targeting interventions and resource allocation.

TITLE : "Health Behavior Trends on Twitter: Insights from Sentiment Analysis"

AUTHORS : Mark E. Johnson and Rachel S. Carter

ABSTRACT : Johnson and Carter present findings from sentiment analysis of health- related tweetson Twitter. The study sheds light on trends in health behaviors, including exercise, diet, smoking, and substance use, which can inform public health campaigns.

III. SYSTEM ANALYSIS & DESIGN EXISTING SYSTEM

In the existing system, the authors propose a method that learns changing word distributions of topics over time and in the system, the authors leverage the structure of a social network to learn how topics temporally evolve in a community. TM–ATAM and T–ATAM are however different from dynamic topic models such as and , and from the work of Wang et al, as they are designed to

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learn topic transition patterns from temporallyordered posts, while dynamic topic models focus on changing word distributions of topics over time. TM–ATAM learns transition parameters that dictate the evolution of health-related topics by minimizing the prediction error on ailment distributions of consecutive periods at different temporal and geographic granularities. T–ATAM on the other hand discovers latent ailments in health tweets by treating time as a corpus-specific multinomial distribution.

DISADVANTAGES

- > There is no Mapping Tweets to Documents.
- There is Uncovering Health Topics with ATAM.

PROPOSED SYSTEM

In the proposed system, the system formulates and solves two problems: the health transition detection problem and the health transition prediction problem. To address the detection problem, the system develops TM– ATAM that models temporal transitions of health-related topics. To address the prediction problem, we propose T– ATAM, a novel method which uncovers latent ailment inside tweets by treating time as a random variable natively inside ATAM. Treating time as a random variable change in health- related discourse on Twitter

ADVANTAGES

TM-ATAM, a model able to detect health-related tweets and their evolution over time and space. TM- ATAM learns, for a given region, transition parameters by minimizing the prediction error on ailment distributions of pre-determined time periods. T-ATAM, a new model able to predict health-related tweets by treating time as a variable whose values are drawn from a corpus-specific multinomial distribution. Extensive experiments that show the superiority of T-ATAM for predicting health transitions, when compared against TM-LDA and TM-ATAM, and its effectiveness against a ground truth.

SYSTEM ARCHITECTURE





IV. IMPLEMENTATION MODULES

- Admin
- User

MODULE DESCRIPTION

Admin

In this module, the Admin has to login by using valid user name and password. After login successful he can perform some operations such as View All Users And Authorize, View All Friend Request and Response, Add Health Filter, View All Health Tweets with Discussion Comments, Capture and View Different Health Monitoring for different geographic regions, Capture and View Different Health Monitoring Based On Disease, View Number of Same Disease in Chart, View Health Tweet Scores in Chart Friend Request & Response In this module, the admin can view all the friend requests and responses. Here all the requests and responses will be displayed with their tags such as Id, requested user photo, requested user name, user name request to, status and time & date. If the user accepts the request then the status will be changed to accepted or else the status will remains as waiting.

User

In this module, there are n numbers of users are present. User should register before performing any operations. Once user registers, their details will be stored to the database. After registration successful, he has to login by using authorized user name and password. Verify finger print and Login Once Login is successful user can perform some operations like My Profile, Search Friend Track and Find Friend Request, View All My Friends, Create Your Health Tweet, View All My Health Page | 1933

Index in Cosmos JUNE 2025, Volume 15, ISSUE 2 UGC Approved Journal Tweets, View and Monitor All My Friends Health Tweets. Searching Users to make friends In this module, the user searches for users in Same Network and in the Networks and sends friend requests to them. The user can search for users in other Networks to make friends only if they have permission.

V. SCREENSHOTS



FIG 4 : CREATE TWEET







FIG 7: VIEW USERS AS ADMIN VI. CONCLUSION



We develop methods to uncover ailments over time from social media. We formulated health transition detection and prediction problems and proposed two models to solve them. Detection is addressed with TM-ATAM, a granularitybased model to conduct region-specific analysis that leads to the identification of time periods and characterizing homogeneous disease discourse, per region. Prediction is addressed with T-ATAM,that treats time natively as a random variable whose values are drawn from a multinomial distribution. The fine- grained nature of T-ATAM results insignificant improvements in modeling and predicting transitions of health-related tweets. We believe our approach is applicable to other domains with time- sensitive topics such as

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FUTURE SCOPE

The project of tracking health trends on social media has significant potential for future scope and expansion, as technology and data analysis capabilities continue to evolve. Here are some potential future directions and areas of expansion for such a project:

REFERENCES

- L. Manikonda and M. D. Choudhury, —Modeling and understanding visual attributes of mental health disclosures in social media, in Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems, Denver, CO, USA, May 06-11, 2017., 2017, pp.170–181.
- 2. S. R. Chowdhury, M. Imran, M. R. Asghar, S. Amer-Yahia, and C. Castillo, —Tweet4act: Using incident-specific profiles for classifying crisis-related messages, in 10th Proceedings of the International Conference on Information Systems for Crisis Response and Management, Baden-Baden, Germany, May 12-15, 2013., 2013.
- T. Davidson, D. Warmsley, M. W. Macy, and I. Weber, —Automated hate speech detection and the problem of offensive language, in Proceedings of the Eleventh International Conference on Web and Social Media, ICWSM 2017, Montréal, Québec, Canada, May 15-18, 2017.,2017, pp. 512– 515.
- M. J. Paul and M. Dredze, —You Are What You Tweet: Analyzing Twitter for Public Health, I in ICWSM'11, 2011.
- T. Hofmann, —Probabilistic Latent Semantic Indexing, I in SIGIR'99, 1999, pp. 50-57.
- D. M. Blei, A. Y. Ng, and M. I. Jordan, —Latent Dirichlet Allocation, Journal of Machine Learning, vol. 3, pp. 993–1022, 2003.
- Y. Wang, E. Agichtein, and M. Benzi, —TM-LDA: Efficient Online Modeling of Latent Topic Transitions in Social Media, I in KDD'12,2012, pp. 123–131.



- S. Sidana, S. Mishra, S. Amer-Yahia, M. Clausel, and M. Amini,—Health monitoring on social media over time, l in Proceedings of the 39th International ACM SIGIR conference on Research and Development in Information Retrieval, SIGIR 2016, Pisa, Italy, July17-21, 2016, 2016, pp. 849–852.
- D. M. Blei and J. D. Lafferty, —Dynamic Topic Models, *I* in ICML'06,2006, pp. 113– 120.
- C. X. Lin, Q. Mei, J. Han, Y. Jiang, and M. Danilevsky, —The Joint Inference of Topic Diffusion and Evolution in Social Communities, lin ICDM'11, 2011, pp. 378–387.
- X. Wang and A. McCallum, —Topics Over Time: A Non-Markov Continuous- time Model of Topical Trends, l in KDD'06, 2006, pp.424–433.
- K. W. Prier, M. S. Smith, C. Giraud-Carrier, and C. L. Hanson,—Identifying Healthrelated Topics On Twitter, I in Social computing, behavioral-cultural modeling and prediction. Springer, 2011, pp.18–25.
- C. Cortes and V. Vapnik, —Support-vector networks, Machine Learning, vol. 20, no. 3, pp. 273–297, 1995. [Online]. Available: http://dx.doi.org/10.1007/BF00994018
- M. De Choudhury, —Anorexia on Tumblr: A Characterization Study, I in DH'15, 2015, pp. 43–50.
- 15. M. De Choudhury, A. Monroy-Hernández, and G. Mark, —"narco" Emotions: Affect and Desensitization in Social Media During the Mexican Drug War, I in CHI'14, 2014, pp. 3563–3572.

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