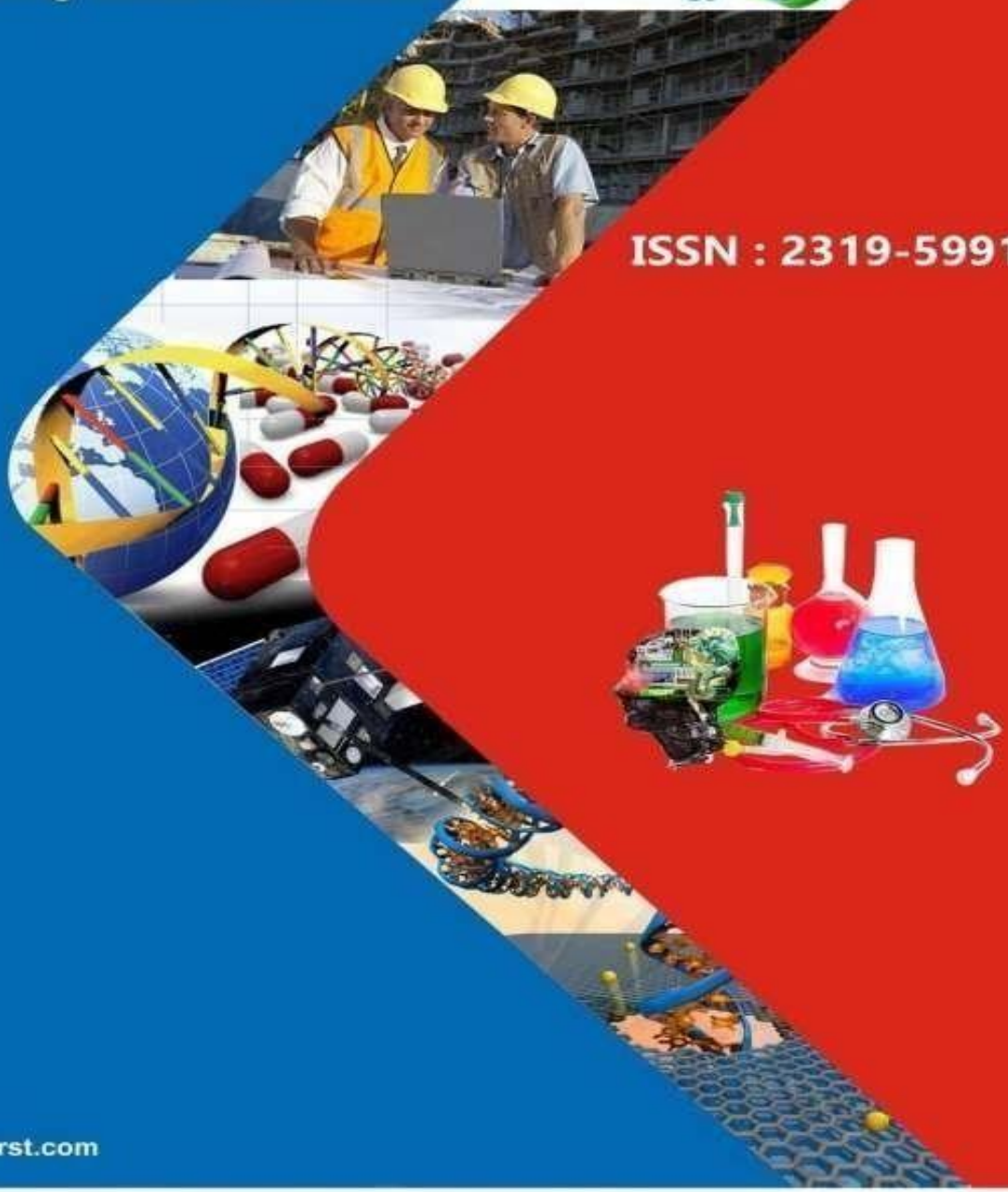
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PREDICTION OF ELECTION RESULTS BASED ONSOCIAL MEDIA REVIEWS

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ABSTRACT

The way politicians communicate with the electorate and run electoral campaigns was reshaped by the emergence and popularization of contemporary social media (SM), such as Facebook, Twitter, and Instagram social networks (SNs). Due to the inherent capabilities of SM, such as the large amount of available data accessed in real time, a new research subject has emerged, focusing on using the SM data to predict election outcomes. Despite many studies conducted in the last decade, results are very controversial and many times challenged. In this context, this article aims to investigate and summarize how research on predicting elections based on the SM data has evolved since its beginning, to outline the state of both the art and the practice, and to identify research opportunities within this field. In terms of method, we performed a systematic literature review analyzing the quantity and quality of publications, the electoral context of studies, the main approaches to and characteristics of the successful studies, as well as their main strengths and challenges and compared our results with previous reviews. We identified and analyzed 83 relevant studies, and the challenges were identified in many areas such as process, sampling, modeling, performance evaluation, and scientific rigor. Main findings include the low success of the most-used approach, namely volume and sentiment analysis on Twitter, and the better results with new approaches, such as regression methods trained with traditional polls. Finally, a vision of future research on integrating advances in process definitions, modeling, and evaluation is also discussed, pointing out, among others, the need for better investigating the application of state-of-the-art machine learning approaches.

1.INTRODUCTION

Over the last ten years, social media (SM) has become more influential in electoral politics. A new era has begun, one mediated by social media, where politicians run perpetual campaigns regardless of time or place, and where more information about

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them can be found not only in the press but also on their SN profiles and through the sharing and amplifying of other people's voices on SN. Political campaigns in this new era make heavy use of SM [1], and the outcome of an election may hinge on the effectiveness of an online campaign. Just recently, there have been instances of social media engagement leading to electoral victories. One such instance was Donald Trump's use of free-media marketing in the 2016 US presidential election [2]. Another was the candidate in Brazil's 2018 presidential election who had higher levels of social media engagement but barely touched traditional media [3].

As an added bonus, there is a method to track the amount of attention a politician is getting or the number of people talking about them on social media by tracking the spread of their message. This has led to the emergence of a new area of study: the use of social media data for election result prediction. This is in light of the abundance of real-time data, the decreasing cost of acquiring it, and the improvements in data processing methods.

Two years after Twitter and Facebook were made publicly available, studies began to be published using social media data to forecast elections: The 2008 publication by Tilton [4] might be seen as a first investigation into student elections. Tumasjan et al. [5] and O'Connor et al. [6], both published at the same conference in 2010, are both regarded as foundational works on the topic of using SM to forecast upcoming political elections. Both methods relied on certain aspects of Twitter postings; one used the sheer number of tweets (tweets) as its basis, while the other used sentiment analysis to draw conclusions.

A number of projects targeted at election prediction globally, including in Europe [7], [8], Asia [9], [10], Latin America [11], [12], Africa [13], [14], and the USA [15]-[17], among others, one decade after the groundbreaking research of Tumasjan and O'Connor had claimed encouraging findings. In addition to presenting a wide range of methodologies, the studies also used a wide range of election situations, SNs as sources of information, and produced a wide range of results. Research has shown mixed findings on the predictive value of SM, with some research claiming highly favorable outcomes and others challenging it. It is interesting to note that the same study may

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yield positive results in one setting but negative ones in another [18].

This article's objective is to offer comprehensive overview of the current research and practice in forecasting election results using SM data, as well as to highlight important research difficulties and prospects in this area. From 2008 to 2019, 83 investigations were rigorously examined. We aimed to identify the studies' background, primary models, strengths, and limitations in this new field. Additionally, we determined the main characteristics of successful studies and thoroughly discussed potential future possibilities.

The rest of the piece is structured like this: An examination of the key aspects of comparable comparative studies is provided in Section II, together with the relevant background and prior research. Section IV gives a general overview of the chosen studies and evaluates their quality, after which Section III explains the review process and approach used in this research. In Section V, we go over the responses to three of the specified research questions about the study's electoral setting, primary methodologies, and defining features of a good study. Finally, Section VI summarizes the findings, addresses the last study question concerning the primary strengths and problems, and concludes with a discussion of potential future directions. The results are summarized and concluded in Section VIII after a comparison with prior research and an assessment of the study's limitations are presented in Section VII.

2.LITERATURE SURVEY

During recent elections, Twitter has become an indispensable instrument. Politicians, political parties, news outlets, and an ever-growing portion of the general population are all utilizing Twitter to discuss, debate, and study popular opinion on political issues. Scholarly interest in these applications is on the rise.

The current state of this field of study is disjointed, with no unified body of information and no agreed-upon methods for gathering or selecting relevant material. This article summarizes the findings of a 127-study meta-analysis on the topic of political campaigns' usage of Twitter. This study will summarize the existing literature on the topic of Twitter use in political campaigns and mediated campaign events from the

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perspectives of parties, candidates, and the general public. In addition, I will discuss well-known research methodologies, including strategies for data gathering and analysis. Politicians' interactions with people and the nature of election campaigns are being transformed by the novel phenomena of social media's incorporation into contemporary political activity. The winner of Brazil's most recent presidential campaign relied heavily on social media to spread his message, despite receiving only eight seconds of airtime and garnering minimal party backing. Against this backdrop, this article aims to analyze the candidates' relative make use of social media to investigate the connection between the two and their results in the 2018 Brazilian presidential election. We discovered the following after analyzing over 41,000 posts and 291 million interactions: i) Candidates utilized social media frequently throughout the year, focusing on engaging language rather than contentious issues. Instagram gained more followers and had a higher rate of interactions with posts than Facebook and Twitter. iii) There was no correlation between the number of votes cast and the number of posts, but there was a slight negative correlation between posting about sensitive subjects and the number of votes cast. iv) On Instagram specifically, there is a strong correlation between votes and engagement as well as followers and votes. v) combining data from all of these networks to create a general prediction model necessitates additional research.

3. EXISTING SYSTEM

The predictive value of SM was the subject of a systematic study published by Kalampokis et al. [29] in 2013, which sought to comprehend it beyond the election setting. The primary methods relied on volume, sentiment, and user profile, according to an analysis of 52 research, eleven of them dealt with election forecasting.

The use of linear regression for predictive analysis was also discovered, but not in the political context-specific research. Additionally, they confirmed that 65% of lexicon-based methods were unsuccessful,and that 40% of research that employed sentiment-related factors failed to test SM prediction ability. Lastly, they brought attention to the contentious findings of research that attempted to anticipate elections and the

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widespread absence of assessments of predictive analytics. We believe that the first assessment focusing on election prediction using SM, with a concentration on Gayo-Avello published Twitter in the same year [30]. After reviewing ten previous studies conducted between 2010 and 2013, the author concluded that "the presumed predictive power regarding electoral prediction has been somewhat exaggerated." He also emphasized the necessity of employing cutting-edge sentiment analysis techniques and the significance of volume and sentiment analysis as primary approaches,as mentioned in [29]. A number of issues were added to the list by him, including the fact that researchers' choices about keywords, parties, candidates, and the data collection period are often arbitrary; issues specific to Twitter, such as self-selection bias and demographic bias; and bias associated with spam, misleading propaganda, and astroturfing. At the study's conclusion, he hinted that regression models may be a promising avenue for further research.

Both Prada [31] and O'Leary [32] provided high-level overviews of the most popular methods for Twitter prediction over a wide range of areas in 2015, with the former providing a concise description of two research pertaining to election prediction and the latter eleven. As an alternative to using SM for election forecasting, Kwak and Cho [33] surveyed 69 publications in 2018 that lent credence to the idea that SM might be used to comprehend political agenda. Finally, two more recent investigations [34] and [35] conducted short nonsystematic surveys of 13 publications each, supplementing the initial study by Gayo-Avello [30] with some additional reasons. Because of the greater literacy rate and internet availability in wealthy nations, Koli et al. [34] said that Twitter prediction may have better outcomes than in poor ones. Bilal et al. [35] also took non-English language sentiment analysis into account. Regardless of these fresh arguments, current research has failed to uncover fresh methods or methods that make use of social media beyond Facebook and Twitter.

Disadvantages

1) Data uncover is the main weakness in the existing system.

2) The system doesn’t have a techniques to test and train for large scale data sets

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3.1 PROPOSED SYSTEM

The suggested method is to determine the electoral settings underinvestigation, including the location and year of the election as well as the kind of election that was held. To what extent do the studies cater to or focus on a certain electoral setting is the goal of this topic.

The goal of this system that has been suggested is to catalog the primary methods, define their key features, explain how they are used to forecast elections, and provide the measures that are used to evaluate their efficacy.

ϖThis suggested methodology aims to synthesize the most important features of purportedly successful research so that we may pinpoint the precise settings, methods, and variables that produce the best outcomes. To help direct future research in this emerging field, the purpose of this question is to synthesize the key apparent advantages, disadvantages, obstacles, and possibilities after reviewing the background, methods, and characteristics of successful studies.

The Benefits

Specialized research encompasses methods that are either used alone or in conjunction with other methods that have already been discussed, such as prediction markets, cluster discovery, centrality scores, statistical physics of complex networks, and study of supporter groups. The findings were checked for statistical significance by the system using statistical tests.

In this stage, we assess the project's viability and provide a business proposal outlining the project's broad strokes and rough budget. Conducting a feasibility assessment of the proposed system is an essential part of system analysis. Making sure the suggested solution won't be a financial strain on the business is our first priority. A basic familiarity with the system's primary needs is necessary for conducting a feasibility study.

Economic, technical, and social feasibility are the three main factors that are taken into account in a feasibility study.

4. OUTPUT SCREENS

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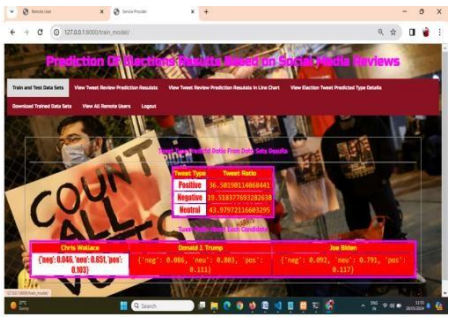
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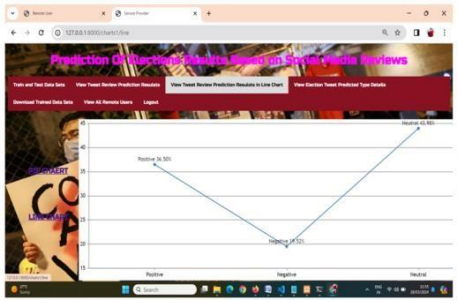
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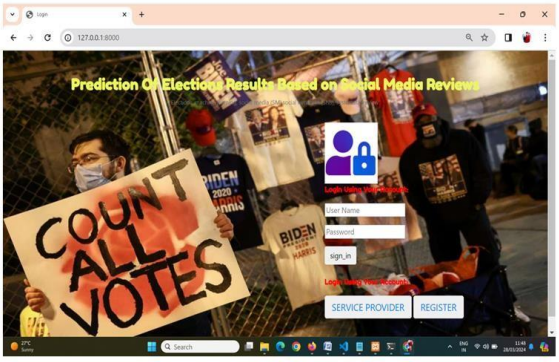
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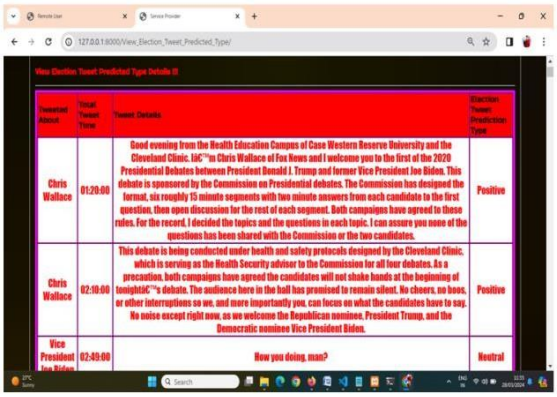
Line Chart



Service Provider Login



Tweet Prediction Details



5. CONCLUSION

The study conducted a comprehensive analysis of over 500 articles concerning the

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prediction of elections using social media (SM) data since 2008. Among these, 90 articles specifically focused on election prediction, reflecting a growing interest in this research field across 28 countries worldwide. However, the study found no discernible presence of prominent researchers or research groups, nor a common platform for publication. Most studies were concentrated on singular presidential elections, particularly in the context of the U.S., potentially limiting the generalizability of findings. The predominant model utilized was volume/sentiment analysis on Twitter, although regression and time series analysis were also explored. Despite the prevalence of volume/sentiment analysis, its success rates varied inconsistently. Challenges identified encompassed standardizing processes, sampling biases, modeling complexities, and a lack of rigorous evaluation standards. Moving forward, the study suggests the establishment of repeatable processes, adoption of advanced machine learning techniques such as Artificial Neural Networks (ANN) for regression, and the incorporation of statistical tests for robust evaluation. Overall, the review aims to provide insights into the research landscape and highlight avenues for future investigation, with potential extensions including expanding the search scope or updating the timeframe for analysis.

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