A REVIEW OF THE USE OF MACHINE LEARNING TECHNIQUES BY SOCIAL MEDIA ENTERPRISES

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ABSTRACT

This review found out how social enterprises are now exploring machine literacy methods. First, an overview of social media's fashion potential, the kinds of big data it produces, and its real applications was given. There was a general consensus regarding machine literacy, its components, styles, and methods of operation. In light of this, certain approaches and phases used in social media machine analytics were examined using illustrative plates that were duplicated from the colorful writers' workshop. Because of their advantages over other styles, the most commonly utilized styles are the Bayesian Network and Support Vector Machine. Opinion mining, sentiment analysis, and trend analysis heavily utilize these types. Though it has been used in many other domains as well, the most common operations are social network analysis and corporate operations. In an effort to address the issues with present styles, a plethora of new styles as well as variants on existing styles are created almost daily. The methods used in machine literacy nowadays have drawbacks as well. Big data samples might not always accurately reflect the population. Certain impulses can arise from the massive volume of data, low value intensity, distributed across multiple sources, and dynamic nature of the data. Big data handling requires powerful computers and complex slicing, birth, and analysis techniques. The issue gets worse when multiple data sources are used because the delicate and impartial nature of social media data isn't always guaranteed. Issues with access and ethics could surface.

KEYWORDS: Machine Learning, Statistics, Social Media

1. INTRODUCTION

Globally, there were 4.6 billion social media users in 2017. The top three social media platforms in 2017 were Facebook (2234 million users), YouTube (1500 million users), and WhatsApp (1500 million users each) (Statista, 2018). Over 20% of users' time is spent on social media [2]. Their usage in mobile phones is becoming more quickly. Daily, billions of data are created as a result of the widespread usage of social media. Businesses may learn a lot about client preferences, decisions, and purchasing patterns from the likes, dislikes, and comments left on social media platforms. Businesses can utilize this information to create plans that will increase sales. Machine learning is a data analytics approach that teaches computers to learn from experience in a manner comparable to that of humans, according to Mathsworks, the company that creates Matlab. Computational techniques are utilized in machine learning algorithms to extract information directly from data without relying on a predefined model equation. Increasing the frequency of learning and the quantity of samples or instances causes adaptive improvements in algorithm performance (Mathworks, 2018)[3]. According to Zeng et al. (2010), Fan and Gordon (2014) defined social media analytics as "the process of creating and assessing informatics tools and frameworks to gather, track, analyze, summarize, and display social media data generally led by specific criteria from a target application are published in the Journal of Contemporary Scientific Research (ISSN (Online) 2209-0142) Volume 2 Issue 4 on April 2, 2018 | www.jcsronline.com. Machine learning is now a crucial tool for problem solving in many fields thanks to the emergence of big data. Algorithms for machine learning look for inherent patterns in data, which provide insights and improve decision- and prediction-making. They are employed daily to make important choices. Media websites that utilize machine learning to analyze a wide range of possibilities and provide suggestions to consumers are one illustration of its social benefit. Retailers utilizing it to gain understanding of consumers' purchase patterns is another example. When there is no formula or equation available to solve a complicated task or problem requiring a lot of data and

variables, machine learning can be employed. Face and speech recognition, fraud detection in transaction records, and the dynamic nature of data necessitating constant adaptation—akin to online shopping—all fall under this category. Two different kinds of machines can be seen in Fig. 1, which is a reproduction from Mathworks (2018).
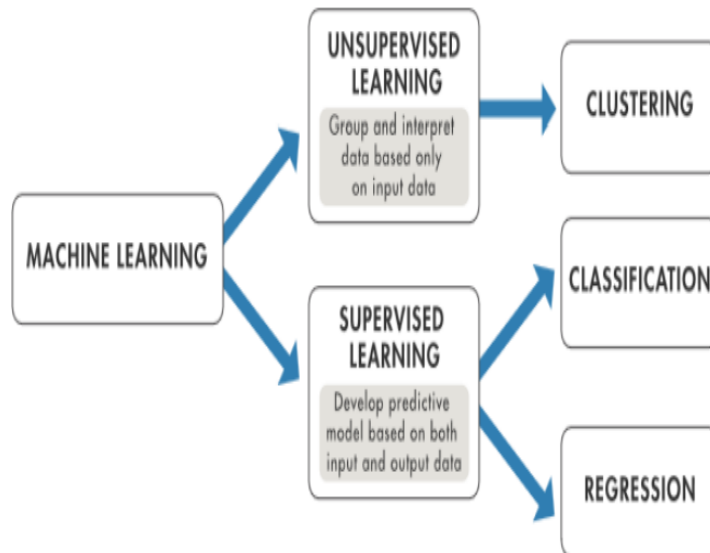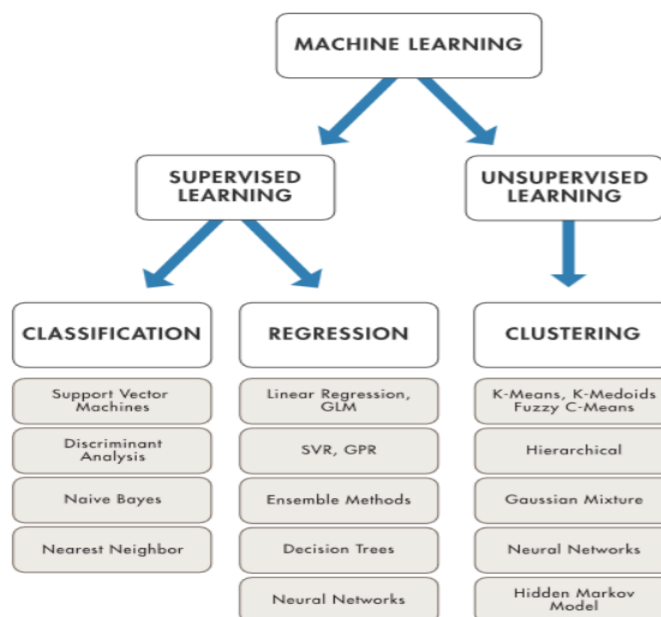

Fig: 1

Fig: 2

Social media companies employ machine learning techniques. Because of the vast volume and variety of research papers on this subject, the debate on this review topic is restricted to evaluation of the current situation rather than critical review. Several significant papers over the past ten years have been chosen for debates on the approaches and uses of machine learning techniques in social media. The complete image By using search engine query terms and making selections based on research quality, Jadat et al. (2016) examined the social media data mining methods that are currently accessible. Researchers found that 19 different methods of data mining were being used[4]. An alphabetical order of the methods given by the authors (p 5) Journal of Contemporary

Scientific Research (ISSN (Online) 2209-0142) Volume 2 Issue 4 4 April 2018 Issue | www.jcsronline.com is: AdaBoost, Artificial Neural Network (ANN), Apriori, Bayesian Networks (BN), Decision Trees (DT), Density Based Algorithm (DBA), Fuzzy, Genetic Algorithm (GA), Hierarchical Clustering (HC), K-Means, k-nearest Neighbours (k-NN), Linear Discriminant Analysis (LDA), Linear-Regression (Lin-R), Logistic Regression (LR), Markov, Maximum Entropy (ME), Novel, Support Vector Machine (SVM) and Wrapper. SVM (22%) and BN (20%) were the most used methods. Others were used only to the extent of less than 10%. The most common applications were in Business and Management (BM), Education (EDU), Finance (FIN), Government and Public (GP), Medical and Health (MH) and Social Networks (SN) (p 6 of the authors). Social network heads the list with 62%, followed by Business Management with 17% and the rest are below 10% of reported applications. Within social media, micro blogging topped with 31%, followed by social networks (12%) and videos and photos sharing (11%). Research objectives were distributed among (p 7): Biometric, Content Analysis, Cyber Crime, Disease Awareness, Geo locating, Quality Improvement, Risk Management, Semantic analysis and Sentiment analysis, with quality improvement an sentiment analysis as the most frequent objectives[5]. Machine learning methods, especially SVM, BN and DT, were more popular among researchers, although non-machine learning methods are also important. Best method of data mining in social media were SVM and BN.

2. METHODS USED IN MACHINE LEARNING TECHNIQUES

Brooke (2018) provides a succinct overview of machine learning methods in social media. Social media platforms, such as Facebook, which began as a platform for user interaction, recognized the potential presented by the large amount of data about consumer preferences and distaste for goods and services on the market. As a result, these social media platforms are now used by businesses as information sources and marketing channels to pinpoint the requirements and issues of their target audience and develop marketing plans that will increase sales[6]. Social media posts are unstructured data that don't adhere to any guidelines. Posts on social networking platforms include a variety of text, image, sound, and video content. Using machine learning in social media has the following benefits: actionable insights, scalability, context and text differentiation, relevance and authority, and communicating for customers in their native tongue. Magesh and Nirmala (2016) reviewed popular machine learning techniques for big data analysis. Narula (2018) examined and enumerated the benefits and drawbacks of popular machine learning approaches for various applications in his paper[7]. The following methods were examined: K-nearest neighbors, logistic regression, neural networks, support vector machines, decision tree classifiers, Bayesian classifiers, and neural networks.

Big data in social media was termed "social big data" and some recent methods of social big data analytics were discussed by Bello-Orgaz, et al. (2016). Importantly, the interface between big data, social media and analysis was depicted diagrammatically, reproduced in Fig 3. At the interface, all the three merge.
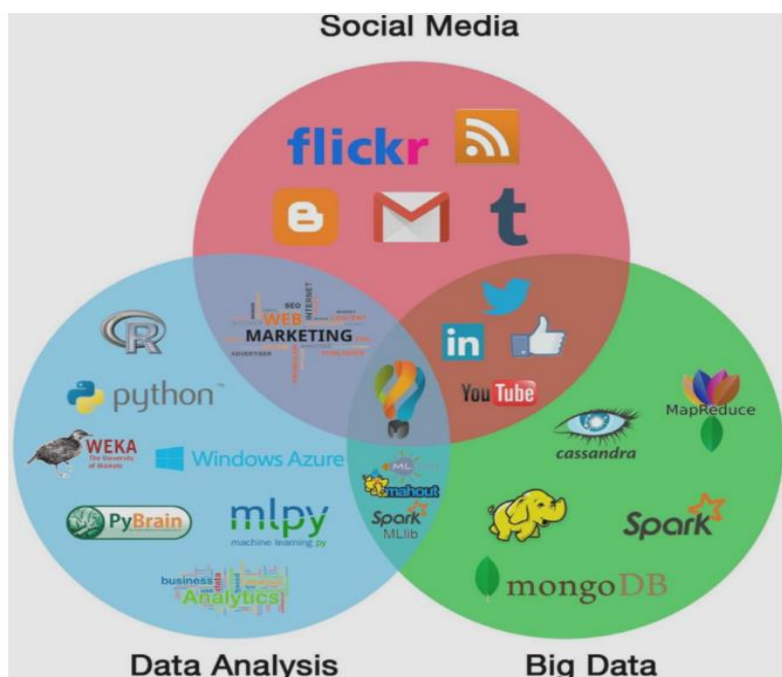
Fig : 3

The methods of acquiring competitive intelligence from social media were described by Dey, et al. (2011). The sources of data, framework (Fig 4) and analytics tools for use in various stage been shown.
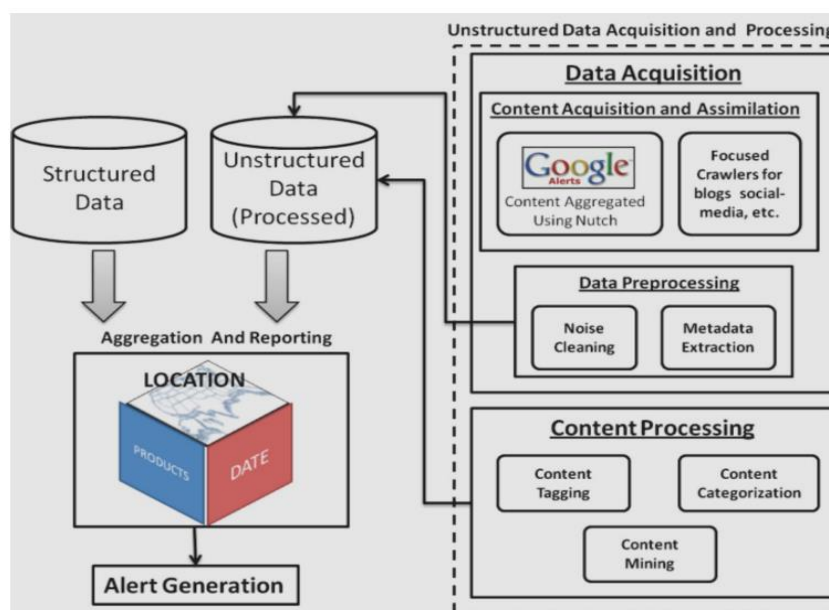

Fig: 4

3. APPLICATIONS OF MACHINE LEARNING TECHNIQUES IN SOCIAL MEDIA

Kwok and Yu (2013) examined 982 Facebook messages to identify the social media messages that are most effective for consumer-restaurant industry interactions. Words pertaining to the market, like winner or check, were less common than information regarding the business, such as menu descriptions[8].More people like photo and status media than link or embedded videos. Compared to sales and marketing messages, conversational messaging were more well-received. As a result, this

study's likes and dislikes of social media users were clearly patterned. According to He, et al. (2013)'s assessment of three pizza companies, the proportion of followers on various social media platforms may change for each company. As a result, a company on Facebook may have more followers than another company on Twitter. Overall followers across all social media platforms can be more important. All of the businesses actively engaged their clients on social media to advertise their services and maintain a relationship with them.

4. CONCLUSIONS

There are several social media analytics approaches that use machine learning or non-machine learning techniques. Depending on the research setting, field of study, goals, social media taken into consideration, types of big data available, machine learning limits, and human skill limitations, decisions are made regarding whether machine learning is superior and how best to apply these methods.

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