The Role of Artificial Intelligence in Monitoring Social Media

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Abstract. Although social media relies relatively on short phrases, pictures and symbols, it is considered a rich source of information. Thus, all categories of society members resort to it in search of information, fun or work. And with the spread of social networking sites, an increasing need emerged to develop smart methods to monitor them. Henceforth, applications of artificial intelligence appeared as human attempts to control everything in the space of these programs, with the aim of protection, surveillance and security. This raised the curiosity of researchers to know the extent of the effect of artificial intelligence applications in monitoring social media. In fact, this work aims at studying the extent of the effectiveness of artificial intelligence applications in monitoring social media. And because this topic bifurcates and covers many areas, it has been addressed through three axes: The first is the detection of fake news and rumors, the second is marketing products and knowing the tendencies of consumers, and the third is increasing security and the protection of communication platforms from spying and fraud. Moreover, and in order to achieve the goal of the study, the researchers used the evaluation method to review the theoretical literature and previous studies related to the study subjects. It also aimed at identifying the objectives pursued by the studies, results, and recommendations, and clarifying the aspects of agreement and disagreement in light of the data. This study reached several results namely the high capacity of smart applications in tracking, monitoring, and analyzing human tendencies and desires, the diversity of the quality of smart algorithms in the accuracy of results between accurate and average performance, and that artificial intelligence applications broke into most aspects of life, which made robots and machine learning systems the main feature of the new era. Thus, we find that the field needs to increase research, develop new types of algorithms and apply them in practice to produce the best, most accurate results that are similar to human intelligence and its decisions.

Keywords: artificial intelligence, social media, smart algorithms, consumer preferences, fake news, marketing, cyber security, protection.

1 INTRODUCTION

In recent years, the world is witnessing a type of social communication between people in a virtual electronic space called *social networks*, which shortened distances between peoples, abolished borders and melted cultures. These networks multiplied rapidly and accounted for a wide audience of recipients. Indeed, political and natural events in the world had a prominent role in introducing these networks, and in return, the credit for these networks was to deliver quick news, text messages and video clips about these events, which helped in the fame and spread of these networks, the most important of which are: Facebook, Twitter, YouTube, Snapchat (Meligy et al., 2015).

Amidst the widespread influence of social media today, there is still an effort made by scientists and researchers to employ artificial intelligence mechanisms and applications to address many of the drawbacks of these platforms, such as fake news and rumors, and work to employ such smart systems to benefit from the identification of users' tendencies, orientations and preferences.

Artificial intelligence is a scientific system that officially began in 1956 A.D at Dartmouth College in Hanover, USA, where the scientist John McCarthy was the first to use this term, along with several other scientists such as Allen Newell, Herbert Simon and Claude Shannon, who are considered the founders of this field. Since its goals and methods of work are to simulate the human mind, there were several basic factors for it, such as general learning, language comprehension, perception and problem solving.

Artificial intelligence has a superior ability to analyze data and use scientific methods to extract value from this data. Therefore, institutions and companies rely on it and employ it in order to obtain large investments with a rewarding return, as artificial intelligence combines its ability to analyze data collected from multiple sources of scientific knowledge with the skills drawn from other areas such as statistics and computer science.

AI has become an umbrella term for applications that perform complex tasks that required human input in the past such as communicating with customers online or monitoring stock and stock movement. The term is often used interchangeably with its sub-domains, which include machine learning and deep learning.

According to an article published in Harvard Business Review (Ozbay et al., 2019) titled *"How do companies around the world use artificial intelligence technologies?"* which included a survey of 835 large companies and found that IT companies were among the first to use artificial intelligence to detect and deter security interventions by 44%, technical problems of users by 41%. However, in the field of marketing, it was found that there is a use of artificial intelligence technology by 16% in monitoring social media comments and for identifying issues and problems related to brands, and a rate of 19% to predict customer purchases and improve advertising spending.

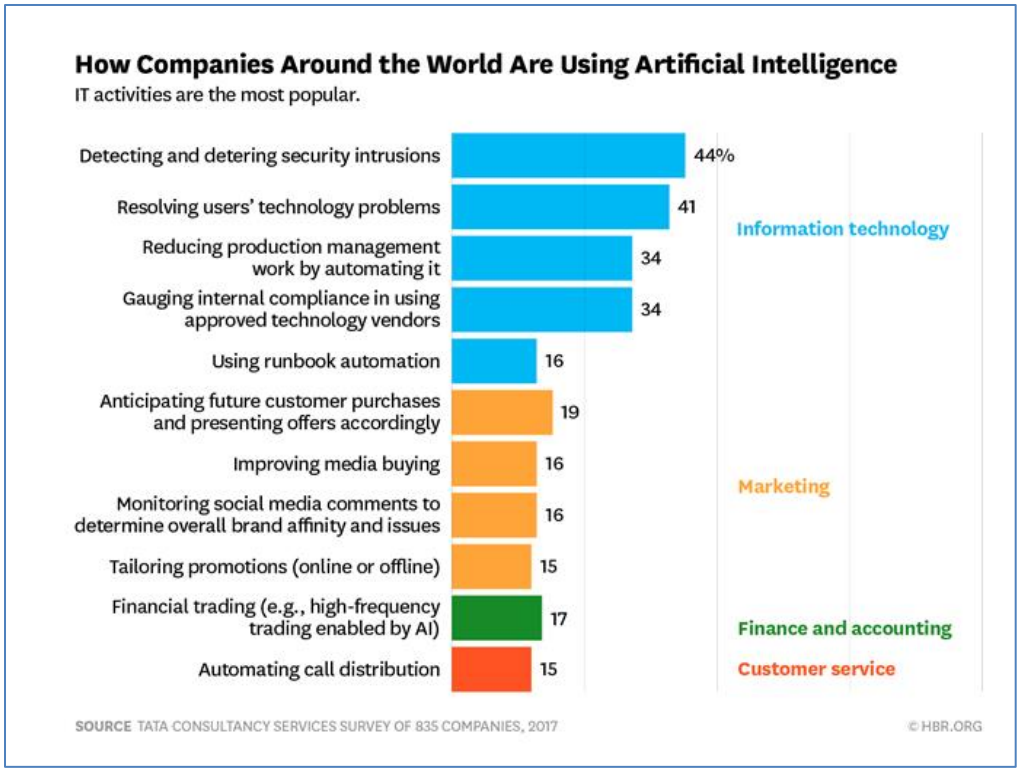


Fig.1 How companies Around the world Are Using Artificial Intelligence - (Ozbay et al., 2019)

From this standpoint, the idea of this work emerged, which is the main question: What is the impact of artificial intelligence applications in monitoring social media by using the method of critical evaluation through literature and related studies review. The researchers thought that this article should shed light on the most prominent areas in which the latest artificial intelligence technologies were employed to identify their effectiveness in the following main axes: Detecting fake news and rumors, marketing products and knowing the preferences of consumers, and increasing the security and protection of communication platforms from spying and fraud.

They also noted that all the studies that have been reviewed in this work use different methods to monitor these means. This work came to reveal these methods and means and to demonstrate their effectiveness in monitoring social media.

The importance of this paper lies in the importance of artificial intelligence applications and their role in monitoring social media since, from a scientific point of view, AI has an enormous ability of applications to face some of the biggest challenges in analyzing huge information through social media. Besides, the importance of the paper appears through the ability of applications to reduce social media platforms problems and defects. We also noted that they show how to exploit the potential of artificial intelligence technologies to monitor social media. In practice, the importance of the paper appears through the ability of artificial intelligence applications to develop protection and control systems and activate the role of self-security for all Internet users in general and social media in particular.

2 RELATED WORK

This research section aims to discuss and analyze some previous studies related to the subject of the study and deal with them with critical analysis. They were divided according to the main axes of the study:

The first axis: the role of artificial intelligence applications in detecting fake news and rumors:

a- Study (Ozbay et al., 2019) entitled *"Fake news detection within online social media using supervised artificial intelligence algorithms"* (2019) aims to uncover the advantages and disadvantages of spreading news through multiple social media, which made it easier for news producers to publish them and for recipients to obtain them at the lowest cost and fastest time. However, the risk of transmitting false and fake news remains high, as the statistics of some previous studies revealed the role of the recipient in filtering this news and distinguishing between the real and the fake.

The researcher used the experimental evaluation method, applying two methods to detect false news:

The first: Several procedures are undertaken for a large data set to convert it from an unstructured group to a structured group, using the methodology of the weighted TF algorithm, which is based on retrieving information or data based on the number of frequencies in the document and then compiling it to be subjected to follow-up and monitoring in order to complete tracing its sources and assessing its reliability.

The second: in which 23 algorithms for artificial intelligence applications are applied to the data set that have been converted and processed using data mining techniques. In this study, the researcher conducted an experimental evaluation of the smart classification methods under study including the following 23 algorithms:

BayesNet, JRip, OneR, Decision Stump, ZeroR, Stochastic Gradient Descent (SGD), CV Parameter Selection (CVPS), Randomizable Filtered Classifier (RFC), Logistic Model Tree (LMT), Locally Weighted Learning (LWL), Classification Via Clustering (CvC), Weighted Instances Handler Wrapper (WIHW), Ridor, Multi-Layer Perceptron (MLP), Ordinal Learning Model (OLM), Simple Cart, Attribute Selected Classifier (ASC), J48, Sequential Minimal Optimization (SMO), Bagging, Decision Tree, IBk, and Kernel Logistic Regression (KLR).

Table 5
The performance of different supervised artificial intelligence algorithms for the BuzzFeed Political News data set.

	Accuracy	Precision	Recall	F-measure
BayesNet	0,620	0,640	0,582	0,610
JRip	0,589	0,592	0,626	0,609
OneR	0,507	0,514	0,639	0,569
Decision Stump	0,532	**0,747**	0,534	0,534
ZeroR	0,510	0,509	**1,000**	**0,675**
SGD	0,605	0,619	0,590	0,604
CVPS	0,509	0,509	**1,000**	**0,675**
RFC	0,604	0,621	0,574	0,604
LMT	0,619	0,627	0,621	0,627
LWL	0,558	0,642	0,558	0,490
CvC	0,501	0,507	0,777	0,613
WIHW	0,509	0,509	**1,000**	**0,675**
Ridor	0,562	0,567	0,592	0,579
MLP	0,638	0,640	0,639	0,639
OLM	0,538	0,573	0,573	0,489
SimpleCart	0,646	0,654	0,649	0,652
ASC	0,563	0,616	0,563	0,516
J48	**0,655**	0,655	0,681	0,668
SMO	0,619	0,629	0,616	0,622
Bagging	0,653	0,666	0,642	0,653
Decision Tree	0,634	0,626	0,707	0,664
IBk	0,513	0,441	0,480	0,460
KLR	0,521	0,481	0,583	0,527

Fig.2 Algorithms used in the study- [3]

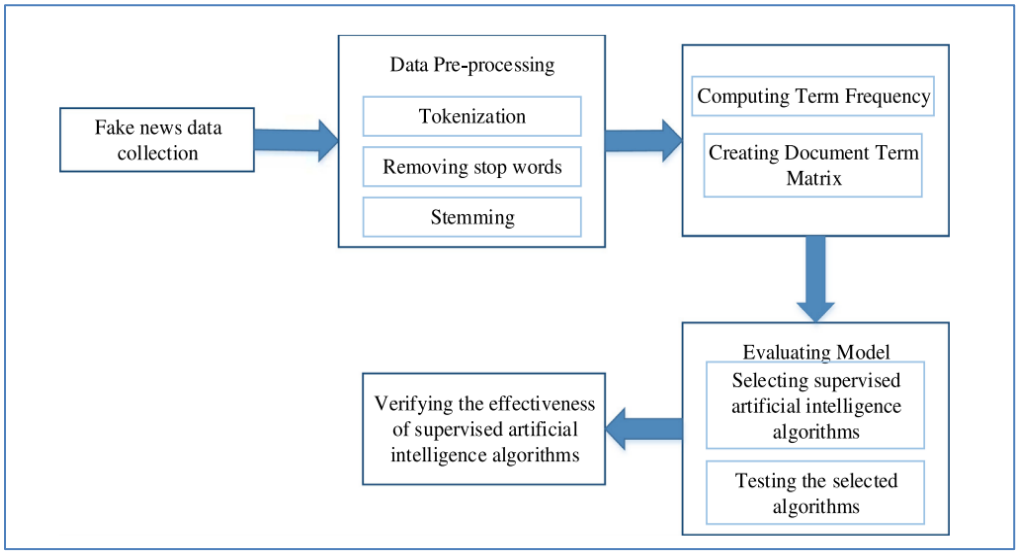


Fig.3 The Process of the Proposed Model- [3]

The above figure illustrates the mechanism of the proposed model using the aforementioned algorithms, where it begins by collecting fake news and then filters it by filtering and deleting the stop words and coding and then calculates the number of times the terms repeat and creates an array for them. Then, the filtering process begins in which the most effective algorithm is chosen. Finally, the algorithm is evaluated in relation to its effective role in filtering fake news.
b- * Study (Ozbay et al., 2019) titled *"A Novel Approach for Detection of Fake News on Social Media Using Metaheuristic Optimization Algorithms"* (2019) The study aims to use new

techniques (algorithms) based on improvement to search the problem of fake news on social networks and eliminate it. It proposed two new algorithms model as follows:

2.1 Gray Wolf Optimization Algorithm (GWO):

The idea of these algorithms is influenced by the principles of hunting and social relations, where (GW) refers to the gray wolf, which is a member of the Canidae family of wolves, where gray wolves usually live in a group consisting of 5-12 animals.

The optimization process begins with proposing solutions to a problem where it divides the solutions into 4 groups: alpha (α), beta (β), delta (δ), and omega (ω).

The first step is to choose the best three wolves, which are (α), (β), and (δ), the rest of the gray wolves track these three to get the best results and so on until the required criteria are met, and when this optimization process is finished, the alpha is returned with the best value.

Initialize the grey wolf population X_i *(i = 1, 2, ..., n)*
Initialize a, A, and C
Calculate the fitness of each search agent
X_α *= the best search agent*
X_β *= the second best search agent*
X_δ *= the third best search agent*
while *(t < Max number of iterations)*
  for *each search agent*
    Update the position of the current search agent
  end for
  Update a, A, and C
  Calculate the fitness of all search agents
  Update X_α, X_β, *and* X_δ
  $t = t + 1$
end while
return X_α

Fig.4 The pseudo-code of the GWO algorithm [4]

2.2 (SSO) Slap Swarm Optimization Algorithm

These algorithms are based on the idea of swarm movement to search for food. The SSO algorithm begins with a set of random solutions for the optimization process. Best and fastest slap is assigned to the variable F which represents the food source to be tracked by a chain.

```
Initialize the salp population xi (i = 1, 2, ..., n) considering
ub and lb
while (end condition is not satisfied)
Calculate the fitness of search agent (salp)
F = the best search agent
Update c1
   for each salp (xi)
      if (i == 1)
           Update the position of the leading salp
      else
           Update the position of the follower salp
      end
  end
Amend the salps based on the upper and lower bounds of
variables
end
return F
```

Fig.5 The pseudo-code for the used algorithm- [4]

As this study followed the applied approach, the proposed method for detecting fake news by algorithms consists of three stages. The first stage is the preprocessing of the data. The second stage is to adapt the GWO and SSO to build a new FND model. The final stage consists of testing the proposed model and the results are compared to seven supervised artificial intelligence algorithms. The results have shown that the GWO algorithm has the best performance compared to the SSO algorithm and has an effective role in solving different types of social media problems. The results also showed the superiority of the SSO algorithm over all algorithms in terms of accuracy only. In conclusion, the results from the two proposed algorithms are very promising, according to what the article stated.
This study adds the utmost importance to the current paper as it proposed new algorithms for improvement and underwent a test that showed their effectiveness to detect fake and false news.

III- * Study (Kertysova et al., 2018) entitled *"Artificial Intelligence and Disinformation: How AI Changes the Way Disinformation is Produced, Disseminated, and Can Be Countered. Security and Human Rights"* (2018) This article examines the challenges and opportunities presented by artificial intelligence (AI) and ways in which artificial intelligence can be used to counter disinformation online, as it is based on the idea of identifying user characteristics and accurately targeting false information and has used a descriptive analytical approach.
It also discussed machine learning (ML) technology, that is, the use of algorithms that are computationally prepared to train computer systems to distinguish valuable information and audiovisual analysis to recognize and modify questionable content and computations.
An Automated Fact-Checking (AFC) technique that will assist practitioners to identify, verify and correct social media content through media scanning tools for texts and identification of claims and which claims can be verified.
The article also mentioned artificial intelligence techniques that have successfully examined and identified fake robots - techniques known as bot-spotting and bot-labeling. By classifying the accounts that have been identified as robots.
The study reached several findings and recommendations, most notably the fact that it is important for social media companies to update their news feed algorithms to remove the emphasis on misinformation. In addition to reporting and reducing false content, social media platforms can deploy technical tools and other capabilities to address disinformation through self-regulation and investment in research and development.

The second axis: the role of artificial intelligence applications in marketing and consumer preferences:

IV- Study (Taylor , 2019**)** entitled *"Understanding Consumer Preferences from Social Media Data, NIM Marketing Intelligence Review"* (2019)

It dealt with consumers' preferences in terms of purchasing, as it is clear that the consumer, by browsing the Internet and social media sites, produces huge amounts of data, which helps the artificial intelligence software to evaluate user trends by referring to words and search tools and predicting their preferences. The larger the data is the greater the number of new algorithms that work on processing and analyzing unstructured data becomes. The researchers used the experimental approach, where the study was applied to a research project of GFK to measure the ability of artificial intelligence programs to predict consumer preferences using the Word Embedding mechanism. A random sample of social media users who have purchasing tendencies for televisions was selected, analyzed texts using specific algorithms, and then analyzed them and compared the results with actual sales data.. Data were collected from several sources:

***-** From a single seller's website (with a total of 3000 reviews)

****-** A website for multiple vendors (4,500 total reviews)

*****-** Multiple and random websites (a total of 35,000 reviews) to create mathematical models, clarify consumers 'choices and assist in purchasing decision-making.

The results showed the ability of the artificial intelligence mechanism to understand and analyze user preferences and tendencies, but the study lacked future recommendations for developing such algorithms.

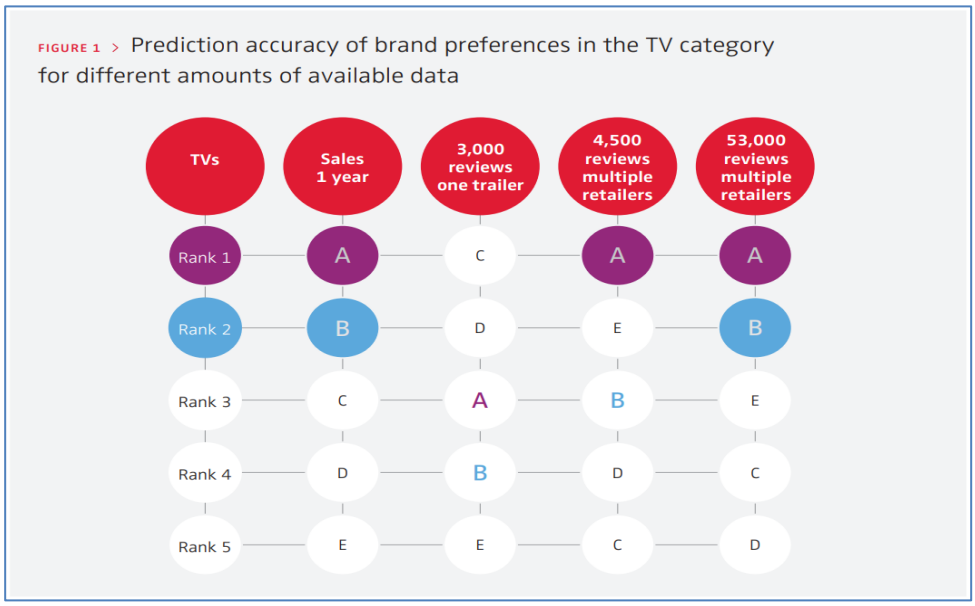


Fig.6 Study Model - [6]

5- * Study (Basarslan and Kayaalp, 2020**)** entitled *"Sentiment Analysis with Machine Learning Methods on Social Media, The Advances in Distributed Computing and Artificial Intelligence Journal"* (2020) focuses on analyzing the feelings of social media users based on their posts through the work of algorithms that represent texts in order to analyze the preferences and

feelings of the users. The researchers used the survey approach. The study was applied to two groups (extracted data and tweets).

I- Data extracted from user reviews about movies shown on IMDB that are referenced by Kozias

II- Users' tweets about health topics in English during 2019, as they were collected via API

The researchers used Python to implement classification and analysis of the data models in question using NB, SVM - Industrial Neural Networks, and ANN industrial network algorithms, where user feelings will be studied after analyzing the data, whether positive or negative.

The study concluded by extrapolating the features from the dataset using modeling techniques that have a reverse effect, where the artificial neural network achieved the best performance according to the results: in terms of accuracy and reliability, ANN was the best performing industrial network algorithms compared to the traditional repetition methods based on TF-IDF and W2V. According to the results of the experiments on IMDB and Yelp groups and the tweets collected, the ANN, W2V algorithm was the most accurate and the best in results. The study was distinguished by the repetition of applied experiments to ensure the accuracy of the results, so that they are taken as being free of future recommendations and neglecting the importance of such results.

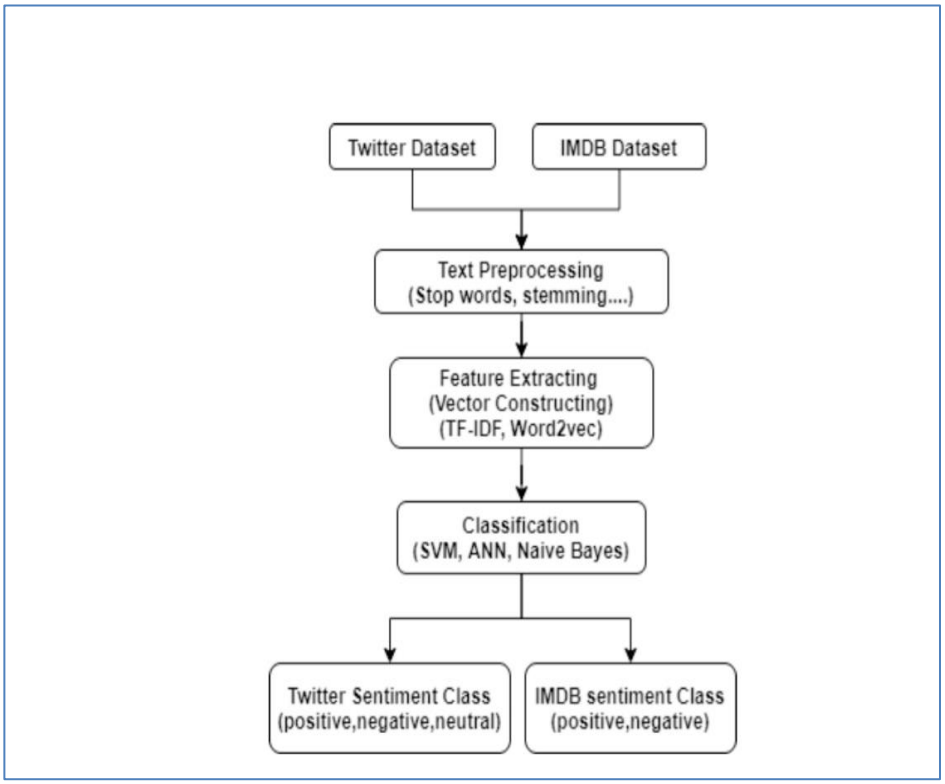


Fig.7 Study flowchart- [7]

V- Study (Geru et al., 2018) titled *"Using Artificial Intelligence on Social Media User Generated Content for Disruptive Marketing Strategies in e-Commerce"* (2018) examines how the marketing content added by the recipient appears on social media. A sample (images) were

taken from Instagram as a marketing tool, where the digital images were named using a machine learning algorithm.

The study relied on machine learning algorithms, taking into account the ever-changing nature of the content. An algorithm such as K-mean can be used to find commonalities and collect information as this algorithm is considered an unsupervised learning system, which is a subset of artificial intelligence algorithms that do not require any prior training and can be used to aggregate and divide information.

This algorithm found that images have become the preferred method of communication on social media platforms, through images that users can share and apply this knowledge in marketing strategies that can represent a competitive advantage. This analysis has implications for understanding user behavior as well as for improving targeting the desired audience.

V1- Study (Perakakis et al., 2019) entitled *"Social Media Monitoring: An Innovative Intelligent Approach"* aims to monitor social media powered by artificial intelligence, which enables digital marketers to better understand customers with smart insights in an unprecedented way. In addition, the paper details contributions related to social media monitoring issues, and analyzes and reveals smarter knowledge and insights, tailored advice to help improve the web for brands and social presence, negative and positive conversations, and analyzes competitors to ensure brands survive and improve social media strategy.

The study introduces a smart system S.I.A (Social Intelligence Advisor) that performs the following steps:

***-** Data collection.

***-** The partial analysis of artificial intelligence of the data it collected.

***-** Group data analysis.

The study found that it is possible to monitor social media through the SIA system, as the system allows brands to measure or evaluate the negative impact through shoppers' posts on the media. The system can also control the selection of the right time to publish advertising content and verify its arrival on time, as well as It allows to verify the ad content whether it will succeed or not and can also remind you to re-post the ad if needed. The system can also target social media influencers through followers by applying analytical techniques to followers' tendencies and interest, and a platform for the system has been adopted, which is a monitoring and analysis platform for social media. In fact, this is what the current study aims at i.e monitoring social media content through artificial intelligence applications. This study was also distinguished by the integration of the elements of scientific research namely the clarity of the method and tools used in it. However, the recommendations were not clear and were not at the level of the results of the study.

VI- Study (Wael, 2020**)** entitled *"Examining the Impact of Artificial Intelligence (AI) -Assisted Social Media Marketing on the Performance of Small and Medium Enterprises: Toward Effective Business Management in the Saudi Arabian Context"* (2020) tried to learn about the impact of social media marketing with the help of artificial intelligence (AISMM) on the performance of startups in the Kingdom of Saudi Arabia. A survey method was used, in which primary and secondary data were collected, analyzed and interpreted. The data were analyzed using the partial modeling of the square structure equation (PLS-SEM). This study aimed to find out the effect of AISMM on the performance of organizations in the Kingdom of Saudi Arabia using the five-point Likert scale.

This study also proved that AISMM is a basic pillar in the stability, growth and organizational processes of the majority of startups and small and medium-sized companies in the Kingdom of Saudi Arabia, as it has proven that the use of artificial intelligence applications led to improving the user experience as well as led to the tremendous growth in electronic retail business. This is what our study seeks to prove whether the applications of artificial intelligence have an effect on content monitoring, but it differs with it in the approach used in this study.

One of the most prominent strengths of this study is that it is complementary in terms of clarity of the title and its relevance to the nature of the presented study, as well as the clarity of the approach, objectives and main questions in it and the results and recommendations presented therein, which made it an important and useful reference in this topic.

VII- * Study (Benabdelouahed, 2020**)** entitled *"Use of Artificial Intelligence in Social Media: Opportunities and Perspectives. Expert Journal of Marketing"* (2020) states that the problem of social media users is not a lack of information or processing tools, but rather a lack of time. Therefore, it used the descriptive approach to review the most important applications of artificial intelligence in social media, namely

a. Chat robots

b. Predictive analytics

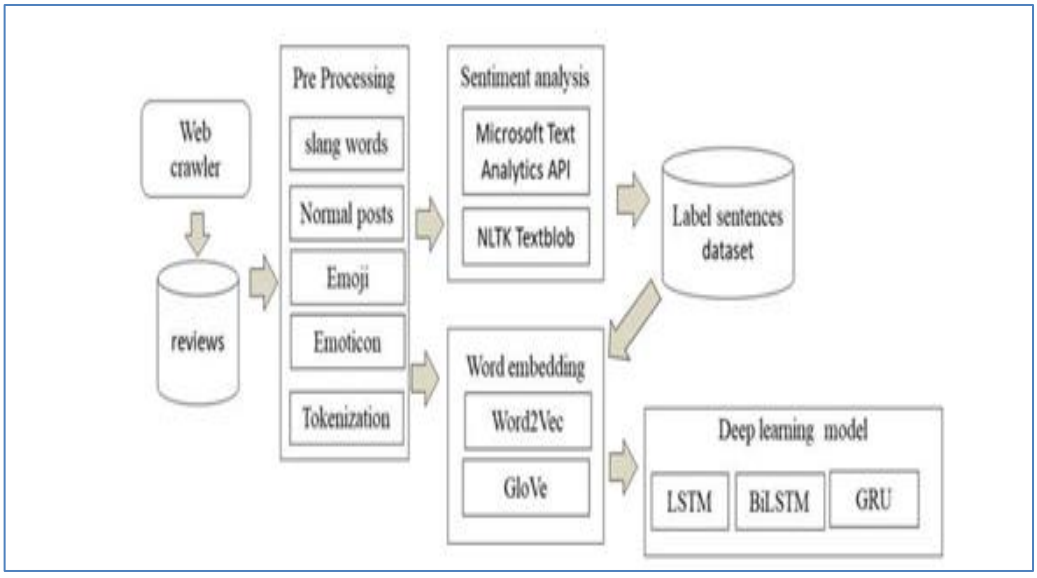
The work reached to many results, the most important of which are:

- These applications are of great use when the amount of data is enormous, which can benefit the experienced people of data analysts and marketing researchers.

- Through these technologies, processing all this data has now become easy by using this technology, especially in the field of social media marketing.

- Through the applications of artificial intelligence, campaign marketing allows the generation of personal information and its use in successful campaigns.
- There is an opportunity for companies to use artificial intelligence technology to identify the potential of customers, analyze their behavior, follow their habits, determine their motivations, etc. in order to provide a product or service that meets their needs and their estimations.
- Social networks are an important arena for companies, and for a personal relationship with customers
- Marketing tools using modern techniques of social media marketing are not enough.

VIII- * Study (Cheng, 2019) entitled *"Deep learning for automated sentiment analysis of social media*" (2019) proposes a framework based on deep learning models by means of sentiment analysis (WOM) word-of-mouth through web link tracking where the proposed framework contains pre-treatment for informal SMS that contain special words and symbols,



including emoticons and colloquial. It followed the applied approach and use the following form:

Fig.8 Proposed Study Framework- [12]

The study concluded that sentiment analysis is a useful tool for analyzing content on social media. However, the complexity and dynamic nature of social media data make it difficult to be defined.

The third axis: the role of artificial intelligence applications in security and protection of social networking sites:

IX- *Study (Thuraisingham, 2020**)** entitled "The Role of Artificial Intelligence and Cyber Security for Social Media" (2020) discussed the role of social media in influencing human life, as it contributed to educating the individual, conveying news and climate predictions, and monitoring the situation of the world and humanity in all aspects. However, its negative role may outweigh its advantages, such as transmitting fake news or violating the privacy of an individual and spying on his devices and possibly stealing it. From this standpoint, this study discusses the role of artificial intelligence applications in addressing such drawbacks along with protection and cybersecurity programs and reducing their risks, and the role of machine learning techniques in extracting useful information, helping and providing protection from harmful attacks, identifying sites and predicting their interests and feelings, as such technologies can protect users by programming algorithms that track harmful attacks and detect spying and thefts and protect users from them, which is what the researcher called *hostile machine learning*. The study used the analytical method by studying the dimensions of the problem and dealing with it with critical analysis. However, it is criticized for treating the topic just from a purely theoretical side and there is no practical application to use machine learning algorithms in providing protection for users. It concluded by recommending activating the role of the artificial intelligence initiative for good and exploiting it to protect the users of the means of communication.

X- Study (Malik, 2020) entitled *"ARTIFICIAL INTELLIGENCE FOR SOCIAL MEDIA SAFETY AND SECURITY"* (2020) seeks to clarify the role of artificial intelligence in the safety and security of social media. The study also mentioned that there is a relationship with the stages of artificial intelligence programming that helped use social media marketing. The study relied on some pattern algorithm that can help the use of artificial intelligence.

It found that artificial intelligence and social communication via web networks became an effective value for organizations. Indeed, managers of organizations can use artificial intelligence departments by examining client practices and solving customer problems, this would ultimately encourage access to the intended interest group and this is what the mechanism of the current study seeks which is to know how much the applications of artificial intelligence affect monitoring the content of social networking sites. It has become clear to us through this study that the company manager can know the preferences of the customer.

The study also concluded that artificial intelligence applications can help provide huge amounts of financial transactions through advertising technology through social media. One of its most prominent weaknesses is its lack of some elements of scientific research, as it does not clearly present the method used in it or the tools used in the research except for its review of relevant work, and it did not give any future visions for other research that could complement it.

3 RESEARCH METHODOLOGY

This paper adopted the method of critical evaluation for a number of foreign studies, which are (12) studies, which were obtained through available databases through:
- The Saudi Digital Library
- Databases: IEEE, ISI, Scopas
- Google Scholar

Ranging in time from 2016 to 2021. They were arranged according to the axes of the study **(the effect of artificial intelligence applications in monitoring social media)**. It is an approach based on the criticism and analysis of previous studies in terms of the method used, goals, questions and results, and then evaluated to reveal strengths and weaknesses to reach the results that answer the questions of the current studyMain section headings are in 11-pt, bold font and in all capital letters. The heading starts with the section number.

4 RESULTS AND DISCUSSION

Through the analysis of previous studies, they are consistent in showing the important role of artificial intelligence applications in monitoring social media, especially after placing several algorithms under observation and tracking of results, which resulted in their overall positive role in supporting the field for which they were made. We have found that **Studies (III), (IV) and (V)** discussed the problem of spreading fake news and rumors. The three studies are similar in showing multiple algorithms that follow the path of the rumor from its launch by its promoters until it reaches its users.

On other hand, the study (**3**) suggested 23 algorithms. It placed them under evaluation indicators to prove their accuracy of information and their ability to distinguish truthful news from rumors. The study came out with the effectiveness of some algorithms and the accuracy of their results than others and recommended the development of new types by integrating more than one algorithm.

As for the **study (V),** it applied its experiment to two types of artificial intelligence algorithms that work to follow the path of the popular algorithm GWO, SSO. It suggested applying it in 3 stages, the data processing stage, the data conditioning stage and finally the testing phase, and the results showed the superiority of the GWO algorithm in handling Social Media rumors.

While **Study (V)** was distinguished from Studies **(III) and (IV)** in that it discusses the idea of tracking the path of a rumor using user identification technology, where the Bot-spotting and Bot-labeling algorithm distinguishes the identity of the human user from robots and AFC technology, which helps in determining the content of the media and distinguishing its content, whether it is a rumor or real news.

We find that the three studies agreed in their methodology, in which they relied on the application of different types of algorithms and put them under observation and experiment to produce results that support or do not support their future use, as most of the results were positive for a large number of algorithms used.

We also note that all previous studies agreed that artificial intelligence techniques have an effective role in monitoring social media. Studies **(VII), (VIII), (IX), (X), (XI), (XII) and (XIII)** concluded that Through their use of artificial intelligence algorithms, they were able to assess user trends and learn about preferences. However, the studies differed in the type of algorithm used in monitoring social media. The study **(VI), (VIII) and (XIII**) agreed on the methodology used for the study. The analytical method was used through the intelligence algorithm. The study (**6**) used a text-tracking mechanism (Word Embedding) as it had the ability to assess the direction of users through word analysis and predict their preferences. The study (**VIII**) also used the machine - learning algorithm (K-mean) through the analytical approach, as the algorithm became able to understand the user's behavior and its direction. We also see

that the study (**XIII**) used the WOM (world of mouth) deep learning model, which concluded its ability to analyze social media content by analyzing users' feelings.

The studies (**VII**) and (**X**) also agreed on the use of the survey method for social media content through the intelligence algorithm, but study (**XII**) was unique in using the descriptive approach. The study (**VII**) used the (SVM, NB) algorithm by means of the survey method, which was able to know the users' tendencies and understand their feelings. The study (**VII**) also used the (SIA) algorithm that summarized its ability to monitor social media by measuring the negative evaluation of shoppers.

The study (**XII**) used the descriptive approach through the robotic algorithm and predictive analysis, and it resulted in that through these techniques it is possible to identify clients' capabilities and analyze their behavior and motivations.

As for the studies (**XV**) and (**XVI**), they discussed how to employ artificial intelligence applications in preserving the private information of users in the most famous social media such as YouTube, Twitter and LinkedIn. The study (**XII**) listed the harmful activities that personal accounts on social media are exposed to and that violate the privacy of the individual through spreading rumors as well as cyber-attacks from malware. It discussed the question: *Can machine learning techniques detect such harmful activities?* as this study analyzed how to switch from machine learning to hostile machine learning and how technical attackers can adapt to reach this hostile pattern.

As for the study (**XVI**), it briefly explains how the social media users can control the settings of their accounts relying on the use of computerized learning ability, thereby reducing the risks faced by customers and administrators on the web. The defect in studies (**XV**) and (**XVI**) is that they didn't mention any application of modern artificial intelligence techniques in the field of security in particular, as this is of utmost importance in the midst of the current technical development and the integration between artificial intelligence tools and this technical development.

5 CONCLUSIONS

Accordingly, the goal of this work is to clarify the impact of artificial intelligence applications in monitoring social media, and thus contribute to finding appropriate solutions by programmers and specialists, and to take advantage of the features and advantages of applications to face rumors and false news, and also to know followers' tendencies through them. After review and analysis, the researchers came up with several results, the most important of which are the following:

- ✓ Most of the studies have similar results as they have proven the effectiveness of artificial intelligence algorithms in combating hacks, spreading rumors and marketing.
- ✓ The multiplicity of foreign studies and research that dealt with the impact of applying artificial intelligence in several social, medical and scientific fields, but it is very few in the Arab world, and the female researchers did not find Arab research that supports this type of research.
- ✓ Studies have proven the effective role of artificial intelligence techniques in reducing the problems and defects of social media platforms, and that the field needs to be further supported by applied research for new types of algorithms.
- ✓ Keeping pace with the rapid development and progress in research, and with the solutions of the Internet of Things and the virtual world, we stress the importance of such research and its support in the knowledge transfer of the machine and relying on smart applications to make decisions in community and communication matters.

- ✓ Despite the progress made by artificial intelligence systems, as a science, it needs more research and development in order to overcome the drawbacks resulting from its use and improve its systems to keep pace with the human mind in most of its decisions.
- ✓ By reviewing and analyzing such studies, it has become clear that such research is capable of developing protection and monitoring systems and activating the role of self-security for all Internet users in general and social media in particular if they are developed and ensured the effectiveness of their role.
- ✓ Some studies have shown that companies that have adopted artificial intelligence systems in monitoring the tendencies of their customers and marketing for them had a positive impact on them as their services developed and were able to meet the needs of their customers and gain their loyalty.

In conclusion, after studies and research have proven that artificial intelligence applications have been involved in most aspects of life, which made robots and machine learning systems a feature of the new era. Thus, they will be relied upon and used in several broad fields, so we find that the field needs to increase research and develop new types of algorithms and applying them in practice to produce the best results, the most accurate and similar to human intelligence and its decisions.

Henceforth, the current study recommends the following:

- Conducting intensive future studies aimed at making use of artificial intelligence applications to control the mechanism of ads through social media, display advertising content and attract customers without disturbing them.
- It is required from companies to adopt machine learning systems in the marketing of their products and to follow up on users' tendencies and interests to develop their logistics services.
- Opening the door to integrating artificial intelligence applications with cybersecurity experts to develop social media protection systems in particular and the Internet in general, to address rumors, fake news, spyware and unethical programs to reach the safe space stage.
- Conducting extensive applied research dealing with artificial intelligence and its applications in Arabic, because of its lack.

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