Artificial intelligence to reduce misleading publications on social networks

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Abstract

In this paper we investigated about the potential problems occurring worldwide, regarding social networks with misleading advertisements where some authors applied some artificial intelligence techniques such as: Neural networks as mentioned by Guo, Z., et. al, (2021), sentiment analysis, Paschen (2020), Machine learning, Burkov (2019) cited in Kaufman (2020) and, to combat fake news in front of such publications by social networks in this study were able to identify if these techniques allow to solve the fear that people feel of being victims of misleading news or fake videos without checking concerning covid-19. In conclusion, it was possible to detail in this paper that the techniques applied with artificial intelligence used did not manage to identify misleading news in a deep way. These techniques used are not real-time applications, since each artificial intelligence technique is separately, extracting data from the information of social networks, generating diagnoses without real-time alerts.

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1. Introduction

Artificial Intelligence (AI) is one of the technologies with the highest growth prospects today. Global trends in the application of artificial intelligence technologies and their impact on various service industries, allow us to see how much progress has been made in its implementation and give us a clearer picture of the challenges ahead. Moreover, artificial intelligence in our lives is already an undeniable fact, as it has a great impact on its development and on the way we interact. [1]

Artificial intelligence is defined as a computational system that is used to enable machines to perform work that requires human intelligence, through constraint-enabled algorithms, exposed by representations that support model-driven loops linking thought, perception and action.

AI works through algorithms that act from programming rules and its subset Machine Learning (ML) and the various ML techniques such as Deep Learning (DL). Machine Learning (ML) is a branch of Artificial Intelligence and one of the most common that is responsible for developing techniques so that the algorithms that have been developed learn and improve over time. It involves a lot of code and complex mathematical formulas to enable machines to find the solution to a given problem. This aspect of AI is one of the most developed for commercial or business purposes

today, as it is used to process large amounts of data quickly and deposit it in a way that is understandable to humans. Deep Learning (DL) is an even more specific version of Machine Learning (ML) that refers to a set of algorithms (or neural networks) that are intended for automatic machine learning and engage in non-linear reasoning. In this technique, the algorithms are grouped into artificial neural networks that claim to act like the human neural networks present in the brain. It is a technique that allows deep learning without a specific code for it.

The advantages of Artificial Intelligence (AI) are: (i) It automates processes, because artificial Intelligence allows robots to perform repetitive, routine and process optimization tasks automatically and without human intervention; (ii) It enhances creative tasks, because AI frees people from routine and repetitive tasks and allows them to spend more time developing creative functions; iii) It provides precision, because the application of AI is able to provide greater precision than human beings; iv) It reduces human error, because AI reduces failures caused by human limitations; v) It reduces the time spent on data analysis, because it allows the analysis and exploitation of data derived from production to be carried out in real time; vi) Predictive maintenance, because it allows the analysis and exploitation of data derived from production to be carried out in real time, vi) Predictive maintenance, which allows maintenance of industrial equipment based on their operating times and conditions, thus increasing their performance and life cycle, vii) Improved decision making at both production and business level, viii) Control and optimization of production processes and production lines, through AI more efficient processes are achieved, free of errors, obtaining greater control over the production lines in the company, ix) Increased productivity and quality in production, AI not only increases productivity at the level of machinery, but also increases the productivity of workers and the quality of the work they do. Having more information allows them to have a more focused vision of their work and make better decisions.

The disadvantages of artificial intelligence (AI) are: i) Data availability, because data is presented in isolation in companies or is inconsistent and of low quality, thus presenting a major challenge for companies seeking to create value from AI at scale, ii) Lack of qualified professionals, because of the scarcity of profiles with skills and experience in this type of implementations. It is crucial in these cases to have professionals who have already worked on projects of the same size, iii) The cost and implementation time of AI projects, because companies lack internal skills or are unfamiliar with AI systems, should consider outsourcing both implementation and maintenance in order to obtain successful results in their project.

A very common form of communication among the population are social networks, which are sites and applications that operate at different levels - such as professional, relationship, among others - but always allowing the exchange of information between people and/or companies. The concept of social network has been used to analyze interactions between individuals, groups, organizations or even entire societies since the end of the 19th century.

The advantages of using social networks are: i) Sharing the vision of the company: social networks are a kind of showcase of your company; in them you can show the vision of the business, what it believes in, ii) Personalization of the message and direct interaction with the customer: in social networks, it is possible to have a much more personalized and direct relationship with each customer or potential customer, since you can get in touch with each one, either to solve problems or to discover new information; iii) Possibility of audience segmentation: when publishing on social networks, it is possible to segment your posts according to the characteristics of the audience, directing your efforts towards those ranges of the public that have more affinity with your solution; iv) Being able to know more about each of your customers: people share their tastes, desires and other information that can be valuable for companies when approaching their target audience. Be aware of what is relevant to your audience to better connect with them.

On the other hand, the disadvantages are: i) Less close contact, more digital perception, having a stable relationship became a challenge. Many discussions or breakups occur because you did not see "like", because you did not block or because you sent an emoji or "I love" to who you should not, ii) Crisis and risks of personal or professional image, although social networks were not born as a solution to have a review of professional or commercial profiles, the privacy of communicating what you think and making decisions based on your digital behavior, have a great influence to determine your active participation in the company, iii) Anxiety and emotional imbalance, social networks stimulate dopamine in our brain, a substance that makes us happy, and as a consequence generate dependence, iv) Insecurity and cybercrime, among so much information we consume, we lose sight of what is real, we activate our emotional version and end up being naive to hundreds of publications that only seek to profit or create "fake news". From sabotage or hacking, to identity theft and increased cyberbullying of young people or children, social networks are a public square of fragility and an open letter to commit crimes as delicate as grooming or sexting.

Nowadays and worldwide, social networks with misleading advertising or fake news are a danger to the population, because they induce people to consume products or services of uncertain quality, thus affecting the welfare and progress of society. In recent years, online misinformation has increased.

For example, we have the case that false news about the COVID-19 pandemic has been spread, since January 2020, the culprits and antidotes of misinformation have been digital media and social networks, as analyzed by developing and testing the psychometric properties of the 12-item social network misinformation scale (SMDS-12), which assesses social network users' consumption, trust, and sharing of COVID-19 related information. [14]

Additionally, to achieve herd immunity from the pandemic, widespread administration of COVID-19 vaccines is

required, which requires significant cooperation from the general public. As such, it is critical for governments and public health agencies to understand public sentiments towards vaccines, which can help guide educational campaigns and other targeted policy interventions, whereby an artificial intelligence-based approach was developed and applied to analyze public sentiments on social networks in the United Kingdom and the United States towards COVID-19 vaccines to better understand public attitudes and concerns regarding such vaccines. [15]

During the covid-19 pandemic, a considerable amount of data travels rapidly around the world on the web, mainly on social media platform where people from all over the world have constant and easy access to post materials and publications. A considerable amount of shared news incorporates misleading information that negatively affects the cognitive and psychological health of its readers. The present case study focuses on fake news tweeted during the coronavirus pandemic to mislead the target population. [18]

Another situation was the way in which electorates were influenced to vote for the Brexit referendum and presidential elections in both Brazil and the U.S. accelerated the debate as to whether and how machine learning techniques can influence citizens' decisions. Access to balanced information is at risk if digital political manipulation can influence voters. Profiling and targeting techniques in social media communication. Platforms can be used for both advertising and propaganda: through tracking a person's online behavior, social media algorithms platforms can create user profiles. These can be used to provide recommendations or information data to specific target groups. As a result, propaganda and misinformation can influence voters' opinions and (electoral) decisions much more strongly than before. To counteract disinformation and social polarization, a responsibility-based approach is proposed for media on platforms in various political contexts. [16]

The impact of artificial intelligence in advertising, allowed to identify research areas and provide an overview of developing trends; applying the methodology of a narrative review of the research literature on artificial intelligence and advertising, complemented with professional reports, where research focuses on optimizing the traditional phases of the advertising process, however, there is a need for more specialized research with a critical perspective that addresses the transformation of the advertising ecosystem along with the ethical and organizational implications arising from the impact of artificial intelligence in advertising. [8]

Disinformation in social networks occurs through: i) Spam is emerging as a key threat to the Internet of Things (IoT). There are serious security threats to IoT cyberspace, ii) Fake news or fake news, since 2016 in the United States and Europe, the issue of fake news has become a central concern of journalism due to the damage this phenomenon causes especially to the vigorous preservation of democratic systems. In 2018, the electoral process allowed this topic to reach the center of the debates in Brazil. It is in the applications of social networks that fake news proliferate and it is known that both social networks and search engines are today under the control of artificial intelligence algorithms. [29]. If mainstream media meant one sender and messy receivers, today, new media brought the opportunity and the challenge of having innumerable senders and receivers at the same time, in a network of information. Along with polyphonic fragments, inaccurate information penetrates the echo chambers we create, the danger is that unless detected in time, it sows disinformation and polarization, the solution lies, in media literacy skills, in creating awareness about the types of communication products destined for malicious use, especially in social networks. Where content has been user-generated and contributes to the proliferation, dissemination of content at an incredible speed. This article aims to present ways to help individuals to be subject to malicious cognitive and behavioral influences. [30](iii) Deepfakes, one of the newest forms of disinformation, have become a major challenge in the communication environment due to their dissemination through online news and social media spaces. Although fake news has existed for centuries, its circulation is now more harmful than ever, thanks to the ease of its production and dissemination. Thus, technological development has led to the emergence of deepfakes, manipulated videos, audios or photos that use artificial intelligence. Since their beginnings in 2017, the tools and algorithms that allow the modification of faces and sounds in audiovisual content have evolved to the point that there are mobile applications and web services that allow the average user to manipulate them. This research attempts to show how three reputable media outlets, The Wall Street Journal, The Washington Post, and Reuters, and three of the largest Internet companies, Google, Facebook, and Twitter, are dealing with the spread of this new form of fake news.[20] . With the advent of new technological improvements in artificial intelligence, sophisticated new artificial intelligence techniques are being used to create fake videos. Such videos can pose a great threat to society in various social and political ways and can be used for malicious purposes. These fake videos are called deepfakes, which refer to manipulated videos or other digital representations produced by sophisticated artificial intelligence that produce fabricated images and sounds that appear to be real. A deep learning system can produce a persuasive fake by studying photographs and videos of a target person from multiple angles and then mimicking their behavior and speech patterns. Detecting these videos is a huge problem due to the increasing developments in more realistic deepfake creation technologies that emerge from time to time.[31] . To examine deepfakes, including their definition, producers, benefits, threats, examples, and ways to combat them; the methodology of exhaustive review of public news articles on deepfakes was followed to gather information and understand the phenomenon. The results show that deepfakes are a threat to society, the political system and companies. They can be combated through legal action, corporate policies, education, and detection technology that helps to decrease media fakes and fake news. [32]

The purpose of being able to guide researchers in the use of artificial intelligence and the relationship it has with

marketing, providing knowledge that manages to update them, for this they have used as a method the collection of information from different authors analyzing reliable sources of information, where the growth of marketing goes hand in hand with artificial intelligence, because companies include strategies that come to predict consumer preferences. [21]

To study the integration of programmatic advertising in the environment of operators in different sectors, we used bibliographic type, since we have applied the search and analysis of different documents, so that currently the evolution of technologies in various areas that apply artificial intelligence has generated side effects losing reliability in companies. [9]

Also, digital outdoor advertising was evaluated taking into account some factors such as the application of artificial intelligence and the methodology used was based on the review of various bibliographic sources, where artificial intelligence benefits outdoor advertising with the accumulation of big data, allowing the analysis of these databases before placing a sign or display to promote a product.

Artificial intelligence and big data also have a negative impact on democracy and the economy, as they favor large companies, but hinder the development of small and young companies, even if they have better products to offer. [10]

When determining the dangers that consumers run when their personal data are processed by an artificial intelligence, the Soft Law tool method is followed which allows strengthening the protection of personal data by promoting the rights and ethical principles, therefore, data processing must be constantly evaluated, since ill-intentioned people can use them for other purposes, therefore, that currently personal data are in a situation of vulnerability so measures must be taken to protect customers. [11]

Another way, was the implementation of an application to identify counterfeit products and contribute to the fight against product piracy, following the application method of literature review of 35 academic articles on deepfakes that allowed to achieve results such as the fusion of legal, educational and technological advances, with the participation of governmental, academic and scientific actors, since there is currently no effective solution to combat product counterfeiting especially in e-commerce. A deepfake is a hyper-realistic video, digitally manipulated to represent people who say or do things that in reality never happened, with the sophistication of the techniques to develop these fakes, it is increasingly difficult to detect whether public appearances or statements of influential people respond to parameters of reality or, on the contrary, are the result of fictitious representations, these synthetic documents, generated by computerized techniques based on Artificial Intelligence pose serious threats to privacy, in a new scenario in which the risks arising from identity theft increase. [12]

In addition, artificial intelligence influences marketing, because through the descriptive method, a structured bibliographic review of publications in the ScienceDirect database was carried out, finding that artificial intelligence has an impact on marketing, since, through this tool, it will be possible to obtain a better management of resources to carry out the activities that occur in the company, in order to meet the needs of consumers. This means that artificial intelligence and marketing are concepts that a company must take into account if it wants to gain prestige and a place in the market. [13]

The only reliable remedy against anxiety is information, and reliable information and news are of crucial value in times of crisis, such as COVID-19. The media offer almost everyone a platform to publish their own thoughts, opinions, political and other statements, some of which can gain significant interest from others and thus become so-called "influencers" or influencers. In the past, this role has been played mainly by news agencies, but this role is increasingly adopted also by private individuals and, among them, also some who do not necessarily adhere to the high standards of good journalism or scientific ethics. These give rise to fake news, which spread as unconfirmed rumors and possibly cause dramatic impacts on society. With information available almost everywhere on the Internet today, distinguishing between good and bad sources has become a challenge and a very difficult task. We discuss some technical means of judging the quality of information and what anyone, even without much technical expertise, can do to avoid falling victim to false information and news. [19]

It was analyzed whether the self-regulatory measures in force are sufficient to guarantee the principle of authenticity in advertising, especially when it is carried out through the artificial intelligence of social networks and under the pretext of the impartiality of an influencer or influencer. With the deductive type method, the knowledge of general notions of (covert) advertising and the use of social networks was initiated, taking this to a particular case of the situation in Spain, where bad practices of the use of advertising in social networks with AI, indicate that to inform you must have the approval of the Spanish Association of Advertisers, therefore, the use of social networks to disseminate advertising information will be more regulated. [22]

By observing, presenting and understanding the obligation that exists to give an ethical use to AI and thus avoid deception towards consumers, the narrative review method was analyzed through books, scientific articles, reports and etc. Where pages such as Scielo and Dialnet point out the concern about the unethical implementation of AI by citizens and companies, which should be aware of their actions. While there is enthusiasm for this type of technology, there is also a risk to be measured in its development without adequate control. [23]

By conducting a comprehensive analysis over decades of social efforts against disinformation, using the governance mode of the strategy as a proxy to measure the willingness to implement a strategy. Co-regulation has benefits of both self-regulation and legal regulation at the same time, therefore, existing strategies against disinformation cover all levels of effectiveness. Although both prevention and intervention strategies at the organizational and state level

have been taken into account, more emphasis is placed on prevention strategies. [24]

A bibliographic research, based on Microsoft Academic Search found that, the benefits to consumers and companies, both in decision making and strategies used, helps to spread competitive excellence, where through the method of bibliographic search in Google Scholar and Microsoft Academic Search, they collected 97 valid documents for the study, 53 in English (55%) and 44 in Spanish (45%), noting that AI technologies applied to marketing transform the way of interacting with customers, focusing on designing strategies to take into account the behaviors. [25]

Artificial intelligence applications in the detection of false publications, such as, for example, bibliometrix's R package adoption method, VOSviewer 1.6.15 and CiteSpace 5.3R4, show us that there is a growing research interest in artificial intelligence applications for the detection of false news by means of bibliometric analysis; that is, research advances for companies to more easily detect fraudulent information stand out. [2]

To identify the best way to address the problem of online disinformation, taking into account ethical values, rights and democracy, the methodology of analytical approach and literature review was followed. The results tell us that, AI systems directly amplify the dissemination of disinformative content. It is highlighted that the web business model, based on advertising revenue, is the main factor contributing to the spread of disinformation (Jabeur et al., 2023).

This literature review research seeks to understand global trends in the application of artificial intelligence technologies to help reveal and combat the proliferation of misleading or false advertisements that threaten the welfare of the world society.

2. Methods

The methodology corresponds to a narrative review, which aims to search for information from academic sources with scientific validity (Zillmer and Diaz, 2018), the information gathering process was carried out through different databases such as Scopus, Scielo and ProQuest, on the subject of study. The keywords or search engines that allowed us to access the required information were: "artificial intelligence", "social networks", "social media", "fake news", "deepfakes", "misleading advertising", "misleading news", "false news", "false advertising", "disinformation", "false videos", "deceptive advertising", "combat" and "detection", using in the search process Boolean AND and OR indicators, as well as dots, quotation marks, and around.

The search equation is shown below:
(((TITLE-ABS-KEY("artificial intelligence"))) AND ((TITLE-ABS-KEY("social networks"))) OR ((TITLE-ABS-KEY("social medias"))))))) AND ((TITLE-ABS-KEY("fake news"))) OR (TITLE-ABS-KEY("deepfakes")) OR ((TITLE-ABS-KEY("misleading advertising"))) OR (TITLE-ABS-KEY("misleading news")) OR (TITLE-ABS-KEY("misleading news")) OR (TITLE-ABS-KEY("misleading advertising")) OR (TITLE-ABS-KEY("disinformation")) OR (TITLE-ABS-KEY("false videos")) OR (TITLE-ABS-KEY("deceptive advertising")))))) AND ((TITLE-ABS-KEY("combat"))) OR (TITLE-ABS-KEY("detection")))))

The inclusion criteria and filters applied are: (Language: *) (Year of publication: 2019) (Year of publication: 2020) (Year of publication: 2021) (Year of publication: 2022) (Year of publication: 2023) (Citable and non-citable: Citable) (Type of literature: Article).

3. Results

Artificial intelligence has extensively investigated spam detection and identification techniques based on IoT cyberspace literature papers and can be classified into two categories: i) behavioral pattern-based approaches and ii) semantic pattern-based approaches. However, they cannot effectively handle hidden, complicated and changing spam activities, especially in the highly uncertain IoT environment. To address this challenge, in this paper, we leverage the collaborative awareness of both patterns and propose a spammer detection mechanism based on collaborative neural networks (Co-Spam) in social media and applications. In particular, we introduce the fusion of information from multiple sources by collaboratively encoding semantic and long-term behavioral patterns. Therefore, a more complete representation of the feature space can be captured for enhanced spammer detection. The efficiency of the proposed Co-Spam is compared with five baselines with respect to various evaluation measures. Experimental results indicate that the Co-Spam has an average performance improvement of about 5% compared to the baselines. [17]

The proposal for an integrated solution based on machine learning capable of identifying fake accounts, posts and news on social networks, using natural language processing, follows a methodology that uses machine learning and decentralized blockchain architecture, enabling an architecture that provides greater security and reliability on the platform, as well as the ability to identify fake news in real time in order to ensure the authenticity of the content shared. [3]

Another method for deception detection in computer-mediated communication, fake posts on social platforms and deception collected from public trials; used a combination of analysis with n-grams and LIWC with individual approaches as verification, where models trained on DS3 and tested on DS1 data achieved better results than models tested on the DS2 dataset for each of the data processing methods used. However, deception detection has proved to be a rather demanding problem considering the inherent limitations, as there is no reliable absolute method to verify the veracity of the same information. [4]

The method for identifying features that serve as input to train models to classify ad clips as benign or fraudulent used various artificial intelligence models to detect click fraud and assess whether a click is legitimate or illegitimate when

a user or computer program clicks on an ad. However, most of the previous studies failed to identify the most significant critical features after the experiments were conducted, so modern markets are threatened by the widespread occurrence of click fraud. [5]

The research on artificial intelligence in e-commerce conducted an analysis using the Aria and Cuccurullo approach whose methodology is composed of data collection, data analysis and data visualization and reporting. However, to achieve optimization, trust and proper personalization, artificial intelligence and related technologies should be used, because they are and are projected as a great tool to help that could become a massive gateway for misleading advertising. [6]

On the other hand, research on artificial intelligence in E-Commerce propose information systems that contribute to this stream of research, because the method of bibliometric data analysis of 4335 documents and 229 articles published in leading journals of information systems, allow to identify that research on artificial intelligence in e-commerce is based especially on recommender systems, where China is one of the leaders in the research area. The method made a data analysis, used artificial intelligence and ML (Machine Learning), which is a subset of Artificial Intelligence where people "train" machines to recognize patterns based on data and make their predictions. This model allows helping to improve the security of data identification and the perception of decision making, avoiding inappropriate effects and the application of artificial intelligence in developed models helps various sectors to improve marketing, strategy, operational efficiency and supply chain. [7]

To investigate the possibility of reducing counterfeit products using machine learning technology, create an application for consumers and combat product piracy, a machine learning-based approach using image and text recognition technologies was used to classify and detect counterfeit products. This approach proved to have the potential to improve counterfeit product detection through image recognition. While this technology is expected to promote transparency and security in the marketplace, future work is required to improve classification algorithms and online information collection. [26]

By recognizing where artificial marketing intelligence is already being used using mixed methodology, it was found that, several different methods and technologies have been developed to design intelligent systems, and the results show that companies can use many analysis methods, which can connect all online and offline activities and define the content to be delivered, therefore, the tools fit into existing marketing practices to improve functionality and automate tasks. [27]

In order to demonstrate the level of effectiveness of artificial intelligence in the classification of news and to analyze the influence of the emotional aspect in the comprehension of the content, the method of handling an artificial intelligence application was followed for the analysis of 150 articles of real and fake news. The titles are significant in the emotional aspect, it is considered that fake news carry a higher index of negative emotions compared to real news. It is concluded that, it is possible to employ automated tools for news identification and that human intelligence can augment "machine intelligence" to achieve such differentiation. In addition, the creation and dissemination of fake news can have serious consequences for a company's brand. Researchers, policy makers and business practitioners are eagerly seeking solutions to lessen the pernicious effects of the "fake news crisis." [28]

It is important to use artificial intelligence in a positive way in the creation of bots that help to counteract the false news that originate disinformation in the media. The information has been obtained through the methodology of qualitative and quantitative techniques from different scientific texts. In conclusion, artificial intelligence will be used for the production of bots that contribute to provide truthful information and make it possible to restore the confidence of cybernauts. [33]

In order to understand the application of artificial intelligence in marketing and advertising communication, due to the technological development that is being experienced, a bibliographic research was carried out, since different studies and academic sources have been reviewed for its elaboration. As conclusions it can be said that, it is not yet clearly determined what artificial intelligence is capable of, since it is new in the advertising environment, but in the same way it should be forewarned because such effects may be more negative than positive, such as the loss of jobs that will be caused by using this tool, in addition, any company that applies artificial intelligence must ensure the privacy and data protection of consumers. [34]

In exploring the challenges of AI in combating online disinformation, descriptive methodology is followed, and literature review is also used. The results show that more than one solution is needed to curb online disinformation, as well as normative issues. It is concluded that AI is a two-sided tool, and efforts should be made to detect fake news generated by AI. [35]

A study seeks to rethink and innovate about the challenges of a new revolution we are going through. Its methodology is the literature review through which the article explores the challenges presented to society by technological progress in general and artificial intelligence in particular. First, it analyzes the effects of exponential acceleration on data leading to the performance of various actions, however, and in order to promote the development of a positive type of artificial intelligence, it addresses the lack of conceptual traceability of systems. To this end, it raises the need to guide the necessary principles in the structure of Artificial Intelligence for its correct application. [36]

Fake news, fabricated stories, rumors, click-bait headlines are nothing new. The difference in the current context is the potential for circulation of so-called fake news in the online environment, mainly through the use of digital social networks. This article highlights the characteristics of online in the dissemination of fake news, to list recent examples of fake news that have gained large proportions thanks to the dissemination in social networks, with emphasis on the pre-election period in the United States in 2016, and to map

some reactions to the "fake news problem", divided according to the authors into four major groups: Digital platforms; Research, civil society organizations and media; Governments and state agencies; and International Organizations. [37]

It is remarked in detail how misleading advertising undergoes a change of perspective and is now considered a swindle in the field of consumption. The method of normative criteria was followed by the Colombian community, in order to avoid the increase of misleading advertising. The results show that the crime of swindling becomes a consequence of misleading advertising and prevention policies are required by the state. [38]

This study was conducted to analyze the accuracy of health-related information on Twitter during the coronavirus disease pandemic (COVID-19). The authors queried Twitter on three dates for information about COVID-19 and five terms (cure, emergency or emergency room, prevention or prevention, treatment or treatments, vitamins or supplements) evaluating the first 25 results with health-related information. Tweets were authoritative if they were written by governments, hospitals or physicians. Authors of accurate tweets had more followers (19491 vs. 7346; 3446 difference, 95% CI: 234-14,054) versus authors of inaccurate tweets. Likes, retweets, tweet length, botometer scores, writing grade level, and rank order did not differ between accurate and inaccurate tweets. They found that 1/4 of COVID-19 health-related tweets were inaccurate, indicating that the public should not trust COVID-19 health information written on Twitter. Algorithms are needed to ensure that inaccurate information on Twitter is removed. [39]

The term deepfake was first used in a Reddit post in 2017 to refer to videos manipulated using artificial intelligence techniques, and since then it has become increasingly easy to create fake videos. Recent research by cybersecurity firm Deeptrace in September 2019 indicated that the number of what are known as fake videos had doubled in the last nine months and that most were pornographic videos used as revenge to harm many women. The report also highlighted the potential of this technology to be used in political campaigns such as in Gabon and Malaysia. In this sense, the deepfake phenomenon has become a concern for governments because it poses a short-term threat both for politics and also for fraud or cyberbullying. The starting point for this research was Twitter's announcement of a change in its protocols to combat fake news and deepfakes. [40]

Deep concerns have been expressed about the increase in the number of technological innovations used to perpetrate the viral dissemination of disinformation through major social media platforms during multi-party elections. As strategy specialists observe, it is hostile to democratic systems whose electoral outcomes are challenged due to flawed electoral processes. Marxist alienation theory and Marilyn's ex-post facto research designs were used to assess the consequences of adopting political disinformation strategies (PDS) as manipulation tools, through innovative artificial intelligence technologies, in established social networks during recent democratic elections in the U.S. and other emerging hegemonies. The study noted that most governments and expert political activists continue to consider it a politically viable platform suitable for spinning voters' votes in desired directions. The authors recommended stricter regulations for media platforms and party agents, as this would help discontinue the practice of PDS during elections in established and rising hegemonies. [41]

Finally, progress was made with respect to research and researchers published in the last five years on the subject under study.

Table 1. *State of the art*

Authors	How to combat misleading A.I. advertising.
Alshahrani, Hassan, Tarmissi, Mehanna, Motwakel, Yaseen, Abdelmageed, Eldesouki (2023).	Use novel HPOHDL-FND algorithm that allows to recognize and classify misleading news, after analyzing many data several times with the LSTM-RNN approach, although it should incorporate feature selection to improve its effectiveness. [42]
Koplin (2023)	Evaluate the relevance of freely allowing the detection of artificial texts with the use of AI, seeking a balance between requirements and permissiveness to investigate AI even on issues such as deception or misrepresentation. [43]
De Magistris, Russo, Roma, Starczewski, Napoli (2022)	Use of machine learning methodologies coupled with deep learning with native utterance processing, mainly in the selection of remarkable files that are compared to each other to find veracity. [44]
Mughaid, Al-Zu'bi, AL Arjan, AL-Amrat, Alajmi, Abu, Abualigah (2022).	Automatic detection using e.g. website world Rank which shows the notoriety and security of websites, from comparisons to verify accuracy. [45]
Marish, Ghaleb, Ali Saleh, Jaber, Irshad (2022).	Use of a three-period model: first, characterization of news reprocessed with natural language, enriched with term frequency. Second, deep learning-supported model building to obtain important hidden peculiarities. Third, multi-class classifier supported by multilayer perceptron (MLP) was used. Popular data was obtained with known data and valuable findings were obtained. [46]

Canavilhas (2022)	Use hybrid model that offers advantages such as: efficiency in the analysis of feelings and behaviors excluding the pessimism of discarding journalists because the machine is better, also the user has more sources to contrast serving as a guide for action. The union of truthful and competent journalists with AI is useful to fight disinformation in Europe. [47]
Galyashina, Nikishin, (2022)	It is necessary to improve both criminal and civil legislation, because the use of digital models capable of creating human voice affects human rights such as: security, free use, protection, imitation, distortion. [48]
Hakak, Shahid, Jamshidi, Khan, Khan, Isah (2022). Madani, Erritali, Bouikhalene (2021).	Use credibility rating by author. [49] Using machine learning algorithms using keywords and a random forest model generates better results than other options such as the decision tree to detect fake news. It would only be necessary to incorporate an improvement to obtain useful data from tweets linked to certain topics. [50]
Majeed, Oun (2021). Ben, Bouzeghoub, Guetari, Ben (2021). Liang, Straub (2021).	Employ various strategies such as: non-specialized interventions, digital data lifecycle, context detailing, iterative data alignment to identify "peaks". [51] Use of behavioral methods, structural methods and hybrid methods; which should be coupled with performance indicators for partial satisfaction of the desired. [52] Link emotions with feelings to increase accuracy. [53]
Shahed, Mashfiq, Tasnim, Ahsanul, Monirujjaman, Singh, Zaguia, Bourouis (2021). Raj, Meel (2021) Madani, Erritali, Bouikhalene (2021). Martín-Gutierréz, Hernández-Peñaloza, Belmonte, Lozano-Diez, Álvarez. (2021) Vizoso, Vaz-Álvarez, López-García. (2021). Setiawan, Ponnam, Sengan, Anam, Subbiah, Phasinam, Vairaven, Ponnusamy (2021).	Use of CNN algorithms, with convolutional neural network, which makes it possible to identify false images and thus reduce transgression, unwanted suicide and social coercion. [54] Mixing text with classified images, model RNN, CNN and ARCNNN. [55] Machine learning algorithms. [56] Use of Bot-DenseNet that probes previous language in metadata with semantic texts to retrieve valuable information. [57] Develop and implement protocols to curb the propagation of false news in the media as well as in social networks. [58] By means of an automatic verification model, the population can be warned of the falsehood, thus generating awareness of both the sender and the receiver. [59]
Schreiber, Picus, Fischinger, Boyer (2021).	Implement platform that integrates forensic advancement and different forms of AI. [60]
Abdul, Subhani, Varlamis (2020). Assenmacher, Clever, Frischlich, Quandt, Trautmann, Grimme (2020). Kaufman, Santaella (2020).	Probing and unveiling, resorting to processes with specific peculiarities. [61] Use an accounting approach, even a deterministic one; although this requires joining policy efforts in terms of laws and regulations to carry out follow-ups that harmonize with social welfare. [62] Set aside fanciful beliefs and begin to objectively embrace the existence of the positive side of AI. [63]
Brown. (2019) Alatas (2019). Naz, Kamran, Mehmood, Khan (2019).	Co-regulation, with government regulators and group organizations. [64] The possibility of resorting to heuristic killing algorithms and adaptive and hybrid versions to optimize achievements is left open. [65] Using the hashtag argument or also signals or passwords mainly in twitter in which a classifier is used, adjusting architecture and parameters and incorporating chirping or modulation and is more efficient when there is a lot of data as it increases the overall performance. [66]
Marsden, Meyer, Brown (2019).	It is proposed to rely on co-regulation, from government regulators and single or grouped organizations, so that they help or influence each other. [67]

Fake news and brand communication. In the world of social networks many publications that reflect current events are generated daily and among them there are some that are not true. According to Baccarella et al., 2018; Berthon and Pitt, (2018) cited in Paschen, (2020)[68] where he comments on some examples of fake news posted on social networks: This quote certainly rings true today. For example, a 2017 Your News Wire article claimed that,

according to an NPR study, more than 25 million Hillary Clinton votes were fraudulent, suggesting that Clinton had actually lost the popular vote by a huge margin. This claim was false and the study in question was never conducted by NPR; Still, it was among the most viral stories shared on Facebook in 2017. While not a new phenomenon, the generation and impact of fake news and alternative facts have reached new heights, driven primarily by the increased digitization of information and the explosion of social media (p. 1). Another case in point concerning other fake news. "Fake news, defined as news that intentionally presents misinformation with the intent to mislead the audience" (Bakir and McStay, 2018; Horne and Adali, 2017; Kumar and Shah, p. 1, 2018 cited in Paschen, 2020)[68] . Other concepts mentioned by (Hannah et al., 2015 cited in Paschen 2020)[68] , "also known as disinformation". The issue of disinformation when someone does not know about the subject could fall into the statement of this news as it could also put in doubt people with knowledge capacity. Another side the author (Allcott and Gentzkow, 2017 cited in Paschen, 2020)[68] mentions the "serious consequences for brands, companies and societies as a whole. A good example is the 2016 U.S. presidential election and the concern about how false stories on social media may have affected the outcome of the election" (p. 1).

Conceptualization of fake news: facticity and intent to deceive. Some case studies concerning facticity and intent to deceive demonstrated by certain authors: "Fake news has become a buzzword, especially after the 2016 U.S. presidential election, to the point that Collins Dictionary made it "word of the year" in 2017" (HabgoodCoote, 2018 cited in Paschen, 2020, p. 2). "Early studies on the topic of fake news have defined the phrase in terms of particular types of media content, such as political satire, news parodies, or propaganda" (Tandoc et al., 2018 cited in Paschen, 2020, p. 2)[68] . "A key element of fake news as defined by Silvermann, is an underlying profit motive of its creators" (Habgood-Coote, 2018 cited in Paschen, 2020, p. 2). "A second motivation implicit in many definitions of fake news is ideological: Purveyors of fake news create false stories to promote particular ideas or people they favor, often discrediting others" (Allcott and Gentzkow, 2017 cited in Paschen, 2020)[68] .

Identification of fake news: source, receiver and content. The information of the sources, content of the news and the receivers who receive them are exposed to this fake news as commented by certain authors: According to Potthastet al., 2017, cited in Paschen, (2020)[68] . He argued about: Fake news detection has been extensively examined in the field of communications and computer science. Working from three key elements of (brand) communication: source, receiver, and message (i.e., content), the literature on fake news can be classified into three different paradigms: source-based, context-based, and content-based studies (p. 3). "Based on fake news detection studies attempt to identify the degree of

falsification by assessing the reliability of the source reporting the information." For example, Baly et al. (p. 3, 2018) "reduce the veracity of reports and bias of various news sources using a machine learning tool" (p.3). Mukherjee and Weikum (2015) "present a model to predict the trustworthiness of news communities, such as Digg and Reddit, and how trustworthiness interacts with content credibility and user experience" (p.3).

A study referring to emotions in fake news and real news. Paschen, (2020)[68] was guided by the following research questions: (a) RQ1 How do the general valence of sentiment and specific emotions displayed in the titles differ with respect to real and fabricated news? (b) RQ2 How do the general valence of sentiment and specific emotions displayed in the body of the article differ for real and fabricated news? To answer these research questions, he used a dataset that includes political news articles for each of the two types of news: real and fabricated (p. 4).

Analysis of emotions and sentiment using AI. The unit of analysis in this study encompasses the text written in the body text and titles of news articles in the dataset. Following the suggestion of Horne and Adali (2017) the present study analyzes the body text and titles of real news and fake news separately. The first step in analyzing the data analysis included analyzing the dataset using IBM Watson AI application. AI systems, such as IBM Watson, use natural language understanding to assign meaning to human language everyday human language and to detect linguistic patterns, topicality, sentiment, and other linguistic features (Kietzmann et al., 2018; Rubin et al., 2016).

Valencia of sentiment by news type. It is demonstrated in some research on sentiment analysis in collecting information to demonstrate positive or negative results, that is "for each news type, proportions of positive, negative, and neutral sentiment narratives were calculated. Inferential statistics comparing two proportions of the population" (Z-scores; Hair et al, 2011 cited in Paschen, 2020 p. 5). [68]

Specific emotions by type of news. The following are some statistical results argued by author Paschen, 2020[68] on emotions, negativity and hatred concerning fake publications: To test the hypothesis that the two types of news differ in terms of specific emotion, an independent samples t-test was used, and the two types of news differ in the emotion dimensions. The results suggest that emotions in the body of the article itself differed significantly on three of the five emotional dimensions analyzed. Fake news articles were significantly less cheerful than real news articles ($t(144,434)=2.073$, $p=0.040$). In contrast, fake news articles expressed significantly higher levels of disgust ($t(147)= -3.720$ $p=0.000$) and higher levels of anger ($t(136,408)= -3.433$, $p=0.000$) than real news articles. In other words, the body

text of the fake news was less cheerful, but more angry and repulsive than the body text of the real news articles. There were no significant differences in the body of the fake and real news article with respect to the sadness (t(147)=-1.408, p=0.161) and fear (t(140,389)=-1.409, p=0.161) dimensions (p. 5) (p. 5). This implies to us that emotion item information concerning fake news always provides us with negativity, fear and sadness when applied in social networks.

AI prediction model: deep learning. Currently there are different types of programs to generate predictions concerning artificial intelligence. The following develops some aspects that the authors argued in their research, agreeing different aspects (LECUN cited by FORD, 2018, cited in Kaufman, 2020)[69]. In the second decade of the 21st century, the convergence of several technologies - internet of things (IoT), blockchain, digital platforms 3D printing, advanced robotics, new materials genetic manipulation, permeated with AI, has advanced beyond what had been done so far. [...] Intelligent machines and systems are performing tasks that until recently were the prerogative of humans, in some cases faster and with more assertive results. However, they are still limited to predicting scenarios based on large data sets and to performing specific tasks, under the direct supervision of computer experts. The systems lack the essence of human intelligence understood as the ability to understand meaning; they also lack intuitive sense, understood as the ability to form abstract concepts and make analogies and generalizations, they also lack the ability to understand how the world works from observation (concepts such as three-dimensionality, movement and permanence of objects, gravity, inertia and rigidity among others) (p. 3). Therefore, the capacity of artificial intelligence to date has evolved insufficiently to generate welfare for society.

Deep Learning. It consists of prediction, from the database. "Currently, when we access a computing device, in any of its formats, we are probably accessing a deep learning process" (KAUFMAN, 2019, cited in Kaufman, 2020 (p. 4) [29]

Mere. The arguments of BURKOV, (2019) cited in Kaufman, (2020)[29] talks about another model concerning artificial intelligence, here is a brief history: The current success is the "mere" implementation of the statistical model of deep learning (deep learning, DL), inserted in the subfield of AI called machine learning (machine learning, ML). In 1959, Arthur Lee Samuel, an American pioneer in the field of computer games and AI, while employed by IBM, coined the term machine learning, inaugurating a subfield of AI whose purpose is to provide computers with the ability to learn without being programmed. Building on the study of pattern recognition and computational learning theory in AI, ML explores the study and construction of algorithms that, following instructions, make predictions or decisions based on data, models made from sample inputs. Machine learning is employed in a variety of computing tasks, where programming algorithms is difficult or impractical. It is a process of solving a specific problem by algorithmically building a statistical model based on a set of data (p. 4).
With this model it can be understood that deep learning is to provide computers with the ability to learn by themselves without the need to program or build programs.

Neural networks. Nowadays neural networks are being widely used by programmers for their deep learning, reason why the author explains the benefits is when applying it. Inspired by the functioning of the brain, therefore, also known as neural networks, deep learning was conceived in the 1980s, it was implemented between 2010 and 2012 with the exponential growth of data and increased computational capacity: GPU (Graphics Processing Unit) and cloud computing, which reduces the algorithm training time. Deep learning is about data-driven forecasts. "Currently, when we access a computing device, in any of its formats, we are probably simultaneously accessing a deep learning process" (KAUFMAN, 2019, cited in Kaufman, 2020, p. 4)[29] . It can be understood that when the information is in the cloud the processes generate faster to generate a result almost in real time when applied on a simple computer.

AI algorithms and personalized access. According to Kaufman, (2020)[29] talks about some algorithms being applied in social networks that this is no longer a novelty or myth: There has been much discussion regarding the presence of AI algorithms in social networks. While it cannot be denied that they are, in fact, operating there, debates and criticisms must be well argued (p. 6). First, we should keep in mind that, far from Foster's omnipotent "Machine", machine learning operations in AI present vulnerabilities and in this context, it is important to keep in mind that, far from the omnipotent "Machine" of Foster's novel, machine learning operations in AI present vulnerabilities and limitations, as highlighted above (p. 6).

Development of the 12-item social network disinformation scale. According to Lewis (2017) cited in Guelmami (2021): [70] A comprehensive review of the literature showed that information consumption includes a number of behaviors and processes, such as information seeking and information finding (i.e., finding without seeking). The former is defined as the intentional acquisition of information, whereas information encounter describes how individuals find information without deliberately seeking or retrieving news (p. 3).
Understanding social network consumption has proven to be a very important dimension to incorporate in the measurement instrument, as it can help to analyze how people may deal with disinformation. The literature has shown that people who consume disinformation make a judgment about the credibility of the message, depending on the source of the information, the story and the context (Moscadelli et. al., 2020 p.3).

In fact, the work of Rosnow (n.d.) cited in Guelmami (2021)[70] "has shown that, if misinformation circulates repeatedly, it will be absorbed, reinforced and accepted as credible" (p. 3).

The COVID-19 fear scale. "The Arabic adapted short version of the COVID-19 Fear Scale" by Alyami et al (2020) was used. The scale assesses fear of COVID-19 using a unidimensional factor tool divided into seven items, which are evaluated on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Concomitant and confirmatory reliability and validity were examined in a group of Saudi participants (p. 4).

The 10-item perceived stress scale. Guelmami (2021)[70] determines some factors concerning the stress scale. An Arabic version of the 10-item Perceived Stress Scale (PSS-10) by Cohen et al. (n.d.), adapted by Almadi et al. (2012) cited in Guelmami (2021)[70], "was used to assess stress. The PSS-10 is divided into two subscales: the first assesses perceived psychological distress, while the second measures coping strategy." Furthermore, Guelmami (2021)[70] documents about of his research study where "we only considered the negative related factor, which is distress; as such, coping strategy was not taken into account (p. 4). This study verifies the reaction of people who receive or read false news, where the psychological perception is affected and distressed by these publications on social networks.

The Arabic Internet addiction test. A study was conducted where Guelmami (2021)[70] cited other actors in his study to measure addiction concerning the internet: To measure internet addiction, we used Hawi's (2013) Arabic adapted scale. The Arabic version of the Internet Addiction Test (IAT) is an adapted version of the instrument originally developed by Young (2017). It consists of 20 items, each of which is scored on a 6-point Likert scale, ranging from 1 (strongly disagree) to 6 (strongly agree). The scale exhibits a unidimensional construct with robust psychometric properties: the goodness-of-fit indices demonstrated by confirmatory factor analysis were all adequate (normalized fit index [NFI] = 0.96; CFI = 0.98; Tucker-Lewis index [TLI] = 0.98; goodness-of-fit index [GFI] and adjusted goodness-of-fit index [AGFI] above the recommended thresholds of 0.90). In particular, the internal consistency examined using Cronbach's classic α-statistic index was satisfactory (α = .92) (p. 4).

Malicious use of social networks: towards media awareness. The awareness that is applied by this information medium that some people use as a method to be able to generate false content, is the argument described by the author Popescu (2020)[71]. To combat misinformation from the first steps and grasp the difference between malicious and benign social network content, media literacy skills must be developed or consolidated towards the methods used to generate the

harmful and misleading information (p. 3). The information generated by these people does harm to Internet users who review daily information from around the world.

Impersonation. Popescu (2020)[71] argues about the definition impersonation: originally meaning pretending to be someone else, according to Cambridge Dictionary (2020) in social networks it refers to misinformation and social engineering attacks that allow the creation of events similar to reality. Spread online, artificial intelligence contributed to the development of deep fake content, a type of content very similar to reality that depicts images or videos of popular figures (intended to generate credibility) and induce malicious behavior change (p. 3). Impersonation under some laws is punishable and if these people are identified they could go to jail for identity theft by impersonating other people.

Social engineering attacks. Social engineering attacks are currently in vogue, this technique is used to be able to steal private information from a telephone or face-to-face medium, Popescu (2020)[71] argues in his article: social engineering, another way to produce malicious content, targets a large amount of information displayed on social networks while advancing security systems. Social engineering approaches materialize in posts, applications that require personal data, data that can break the accounts themselves, extract information from users by creating opportunities to log into various applications in exchange for providing birthday, mother's name, street where you grew up, name of your pet. Thus, security issues of personal accounts are hacked and then used for other purposes. Romance fraud is another tactic where military personnel appear to be seeking romantic involvement, asking for friendship through Facebook or Instagram accounts. In reality, these are software agents created to extract personal and especially financial information about the targeted person. An alarming sign, if such a case is found, is that these accounts do not have a number of friends or followers, have no posts, manifest themselves as a newbie, as someone new to the social networking environment (p. 3). Social engineering attacks can be applied in different ways by a person or by using software for the extraction of personal data.

Fake news. Popescu (2020)[71] mentions about some cases of fake news, from its beginnings and how it was created: it is prolific due to the abundance of information and technological variety. It was first fabricated with movable printing, in 1439, due to the lack of journalistic and ethical integrity. Fake news was then a story about sea monsters, despite the struggle of writers and educated people to combat the phenomenon (Voltaire preached against religious fake news, while in the United States propaganda used scalped Indians for gory images and control). Fake news also continued to spread in the press, with the "yellow" or tabloid press - The Sun - in the United States in 1830, as an example. At that time, the

newspaper published news about life on the moon, with bipedal weasels and unicorn goats (p. 4).

Disinformation. It must be taken into account that disinformation of this magnitude is very drastic as this could generate anger and disagreement, and this is argued by Popescu (2020)[71] about some techniques used today: Disinformation is aided today by social media tools, bots and trolls, which generate violence and are mainly used in elections and political relations, in state-sponsored campaigns (Russia and EU) Bots and trolls are hostile actors exploiting human biases and the social media ecosystem. Trolls target users who engage in controversial discussions and aim to spread anger and disagreement. Bots are automated, anonymous and become visible due to intense activity, conventional material, but lack of interaction with other users (p. 4). Disinformation intervenes in the neural networks producing a quick and positive emotion effect that induces error. Individuals who are overwhelmed by the stress generated by the different activities performed every day, are threatened by the temporary relief of watching videos with false or misleading information; this is detected by the discrepancies that emerge after several observation sessions. [72] Of every three pieces of information linked to covid-19, one was false or distorted and had been directed by social bots taking advantage of their mediated role in the communications developed through networks. [73] On the other hand, dataset is used in Kaggle for the Deepfake detection challenge, the frames of the videos are eliminated by cutting the face of the person found, and so several times, and learning is generated by transfer, adjusting the parameters according to established precision; achieving reliable detection of sufficient elements to qualify the analyzed information as false or misleading. [74] The use of Blockchain technology generates concern because repetitive transactions are recorded and serve as a basis for generating false or misleading information, which threatens the security of individuals since it is very difficult for them to verify its authenticity and consequently it generates chaos or harmful confusion when the number of people is high. Error is becoming more and more frequent, to the point that it is more attractive than truthful information. In response to this situation, a network based on pairs of information is being used, which are compared until they reach an important level of veracity. [75] Deepfakes are fake videos of feasible confection, being used mostly to offend women through pornography or political candidates who are harassed for extortion. The use of the social network analysis technique through NodeXL helps to understand actors and the network of connections between linked accounts. In addition, the semantic networks of the tweets were analyzed to discover hidden patterns of meaning. The results show that half of the actors participate as bridges to journalists and the media, which contributes to manipulation, and therefore it is necessary to continue improving the ways of detecting deepfakes. [76]

Fake news strategy: bias, form and content. Next, real cases that reinforce fake news are mentioned, and Popescu (2020)[30] argues thus: Since fake news is what users face in their daily effort to stay informed and inform others, we will focus on fake news from all malicious uses of social networks. On a deeper level, fake news appeals because of brain structure (cognitive biases) and congruent emotional structures. Research has shown that information is decoded based on what one has already experienced or learned, according to one's own belief, a process coined as cognitive bias. An example of how cognitive bias works is that of Frida Sofia, the 12-year-old girl from Mexico who, in the context of a very severe earthquake in Mexico in 2017, a case was reported of a 12-year-old girl named Frida Sofia who was apparently trapped under the rubble of the school she was attending. Mexicans were captivated watching the news as rescuers struggled to find the girl even with dog rescue teams. Eventually, the story was reported to be false. The question is why the event had been so captivating, why it was so successful and truthful and no one in the audience questioned its validity as they watched. In the end, the media claimed that Frida "won the hearts of the world, except that she didn't exist." The answer lies in the collective desire to help that everyone felt and the knowledge of the seriousness of such cases, gained from previous similar earthquake experiences some years earlier. The vigilance of Mexicans took care of the biases. These stories, although false, were successful and attractive because of confirmation bias. With confirmation bias, the brain looks for information that confirms what one believes to be true. In addition, implicit bias that refers to stereotypes that affect understanding, actions and decisions unconsciously is what helps people believe false information and eliminate what is contrary to their own beliefs. This is what malicious actors rely on when creating effective fake news, knowing that people's attraction to the news is driven by famous names and places that the source readily accepts, some real facts of temporal proximity, while many new contextualized sources provide legitimacy, appealing to eyewitness, psychological and emotional investments. Other examples of successful fake news include those inoculated through COVID-19 pandemic anxiety. For example, most of the fake stories generated by Russia in these times were about Western countries apparently responsible for the whole phenomenon, in stories mentioning that the virus was created as a weapon of mass destruction, as a biological weapon that fell from the sky or was manufactured in the laboratory, either for the United States, for Europe, or for both (p. 5).

4. Discussion

We are in agreement with Paschen (2020)[77] where he indicates that the problems of the fake news crisis have not yet been solved. In addition, Kaufman, Santaella,

(2020)[78] mentions about fake news proliferating in social networks that are under the control of search controlled by artificial intelligence algorithm, but does not control whether the news is fake or true have to be intervened by collaboration of third party users or consumers internet users.[79-81]

Similarly, we agree with Guelmami et. al. (2021)[82] and Popescu (2020)[83] who talk about misinformation and polarization regarding digital media and social networks, making a psychometric study of the scale of misinformation in the consumption, trust and sharing of information by users.[84-27]

Likewise, we agree with Daoud et al. (2020)[88] in the sense of giving a new sense or orientation to new technologies such as machine learning that is used for image and text recognition to help detect counterfeit products or fake news; mainly because it has the potential to further improve algorithms and perform detection faster so that government entities can promote transparency and security in the market.[89-93]

Also, we harmonize with authors Guo et al. (2021)[94] in the sense of further improving collaborative awareness as a spammer detection mechanism based on collaborative neural networks (Co-Spam) in social media and applications. That is, to optimize collaborative coding of semantic and behavioral patterns in the long run, capturing a more complete representation of the feature space for further spammer detection. [96-99]

As shown in this research paper, potential problems were identified where the authors argue that there are programs that detect false and misleading videos, it is also discussed that these programs use sentiment analysis to detect misleading advertising concern, regarding the inability to vaccinate from covid-19, and highlights the fact that no technological artifact has been researched or created concerning the identification of misleading fake news on social networks worldwide and no technological artifact exists that can identify it. [100-105]

From the point of view of each individual, it corresponds to strengthen their learning to improve their judgment and be able to make decisions with less probability of making mistakes, for example: buy those products that come from companies that have quality certifications, the greater the quantity the better. Misleading advertising is less likely because they take care of the value of their image and positioning, and the greater the number of quality certifications will be less likely to commit misleading advertising. [106-109]

The contribution then is that there is a known global trend in the application of artificial intelligence technologies to help reveal and combat the proliferation of misleading or false advertisements that threaten the welfare of the world society. Such global trends in the application of artificial intelligence technologies, and their impact on various service industries, allow us to become aware of the progression of advances in their implementation to overcome challenges.[110-112] Artificial intelligence in our lives is already an undeniable fact, with great impact in its development and in the way we interact, and an example

is the following event: in the official newspaper El Peruano of Peru, in the first days of July 2023 a law is published that encourages the use of artificial intelligence to benefit socio-economic progress, and in the sixth principle stipulates respect for the privacy of individuals seeking to generate tangible effectiveness with prosperity of citizenship. [77]

5. Conclusions

It is concluded that the disinformation spread through social networks is very dangerous and has generated a growing demand to create artificial intelligence tools that are able to identify such dangers in real time and allow a comparison analysis of search patterns regarding possible false publications to reduce disinformation of false news, videos or some misleading publications that generates uncertainty or dangers in the user who browses social networks. Emotions and positive and negative feelings play a very important role in the publication of false or true news. Artificial intelligence has not evolved enough to solve this type of problem of false publications or bad intentions. Neural networks have evolved greatly in such a way that they allow data-driven predictions. Today there is a high dependence on social networks and the internet that cannot be controlled, and which require treatment. There are crimes typified in the penal code in such a way that by means of social engineering they carry out for example the impersonation of identity to steal, kidnap information or do damage.

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