

Artificial Intelligence Analyzation of Social Medial Content

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Abstract— *The use of artificial intelligence in social media has grown in recent years, opening new doors for different opportunities, and raising concerns about many ethical issues. In this paper, we seek to discover how the possible users of social media platforms perceive the effect of artificial intelligence in their life and we try to measure their awareness level about the different possibilities and the ethical concerns.*

Keywords— *artificial intelligence, social media.*

I. INTRODUCTION

A. Background

The term artificial intelligence was first defined as "the science and engineering of making intelligent machines" in 1956 [1]. Artificial intelligence has evolved progressively as fast as the time passes, into intelligent machines and algorithms that can reason and adapt based on sets of rules and environments which mimic human intelligence (e.g., smart home appliances, smartphones, Google, Siri). Wang broadened the definition of artificial intelligence which can perform cognitive tasks particularly learning and problem-solving with the exciting technological innovations such as machine learning and neural networks [2].

Artificial intelligence is present in our daily lives, yet we are often unaware of it. For example, powerful artificial intelligence has been increasingly used in social media platforms to analyze user behavior, mental state, and physical context. Artificial intelligence is fed by the vast flows of speech, video, and sensed data that platforms capture [3], as in Facebook which employs cutting-edge machine learning to serve you content, recognize your face in photos, and target users with advertisements, Instagram (which is owned by Facebook) uses artificial intelligence to recognize visuals. LinkedIn uses artificial intelligence to make job recommendations, recommend people to connect with, and serve you specific posts in your feed, Snapchat uses computer vision, an artificial intelligence technology, to track your features and overlay filters that move in real-time with your face [4]. In addition, using artificial intelligence to analyze user preferences in social media platforms is beneficial to marketing accuracy and reducing human work [5]. Artificial intelligence is essential for good social media analysis because more data leads to more accurate insights, big data is used in social media analysis to gain a better understanding of your marketing strategy, the more you learn about your social

media audience, the better you will be able to market your products, this is because artificial intelligence can quickly recognize important conversations and analyze text in any language, can draw insights from images, and can discover emerging topics and trends [6].

The main questions this paper asks are "How the possible users of social media platforms perceive the effect of artificial intelligence in their life?", and "Are the possible users of social media platforms aware about the different possibilities and the ethical concerns?", we will try to answer these questions in this paper.

B. Literature Review

- *Moral Decision Making Frameworks for Artificial Intelligence*

In a study conducted by Vincent Conitzer, Walter Sinnott, Jana Schaich, Yuan Deng and Max Kramer at Duke University, pointed out that the concept of expected utility maximization was a key part that artificial intelligence systems will need to be equipped with moral reasoning capability before we can grant them autonomy in the world [7].

- *Modeling Social Media User Content Generation Using Interpretable Point Process Models*

Social media platforms rely on user contributed content. Due to the growing popularity of these social media websites. In this work, the people study user content generating behavior. They have noticed several interesting characteristics. First, the posting times of a user are highly clustered. Second, the user can generate original content referred to as an original post. These two different types of content are distinguished in the datasets. Third, they found that user covariates can be correlated with the temporal patterns of one type of event but not the other [8].

- *The Use of Artificial Intelligence in Social Media: Opportunities and Perspectives*

This study infers that artificial intelligence applications are able to analyze and interpret a large amount of data in the same way as humans. These applications already have a great impact on marketing techniques even if they are new. For example, it offers a multitude of management system solutions. There is an opportunity to side-by-side

comparisons of incoming communications. Now with the marketing of artificial intelligence, it is no longer a question of wondering if a user is ready for a discussion or a sale; it is now up to the data to provide the answer [9].

- *Matching the future capabilities of an artificial intelligence-based software for social media marketing with potential users' expectations*

Alexandra, Maher, Jessica, Adrian, Angela and Fedrica main point about Artificial intelligence techniques, is that they are highly effective in monitoring social media to get a complete picture of what people interacting on social networks about a specific brand. Furthermore, its tools provide effective support to social media marketers. Such as, optimize audience, image and sentiment analysis [10].

- *Ethical issues in service robotics and artificial intelligence*

Russell Belk pointed out that there are growing number of ethical concerns to be considered by both service providers and consumers. This work focused on five such issues (1) ubiquitous surveillance, (2) social engineering, (3) military robots, (4) sex robots, and (5) transhumanism [11].

C. Ethical Issues

The use of artificial intelligence in social media has grown significantly in recent years especially in advertising and recommendation algorithms which raises many ethical concerns since the use of social media has become a daily necessity, and the content suggested by artificial intelligence might build the users image of reality. As highlighted by [11] one of the main concerns about the use of artificial intelligence in social media is that artificial intelligence collects personal information under the allegation that these data are needed from the users to analyze their behavior and suggest content that matches it with algorithms that specifically made to make it possible to manipulate the users into leaving more information. The personal analyzation and suggestions which artificial intelligence provides might make social media more addictive to users. In addition, [12] remarks that oftentimes artificial intelligence builds a knowledge on personal preference and then uses it -whether intentionally or not- to make the users a target for advertisement, political propaganda, conspiracy theories or misleading scientific information. Artificial intelligence evolves by analyzing huge amounts of data from users, these data might include biases and discrimination, and since algorithms cannot differentiate between right and wrong, artificial intelligence will be developed replicating the human biases, which will affect minorities.

The effects mentioned can be major threats to national security. Like what happened recently in the United States Presidential elections 2016 being influenced by the spread of political propaganda on Facebook [13].

II. METHOD

To support our research, we used a survey to get the opinion of people in our community to measure the level of awareness about the use of artificial intelligence in social media for promoting advertisements or suggesting content. Our sample consisted of 47 King Saud University students and faculty members above the age of 18, and our survey was on participant's knowledge, experience and expectations on artificial intelligence in social media.

The questions in the survey are as follows:

- Do you think that artificial intelligence is able to mimic human intelligence?
- Have you ever heard about the use of artificial intelligence in social media?
- Do you think artificial intelligence is capable of analyzing the mental health of users of social media platforms?
- Have you ever got content suggestions from social media platforms that matches your preferences?
- Have you ever got advertisements from social media platforms about something you thought about buying?
- Have you ever encountered content being blocked and classified as sensitive content in social media platforms?
- In your opinion, does the use of artificial intelligence in social media invade privacy?
- In your opinion, can artificial intelligence in social media be used as intellectual weapons to manage our way of thinking?
- In your opinion, can social media platforms promote harmful content?
- Do you think that the ability of AI to analyze users' preferences can cause users to be addicted to social media platforms?

III. RESULT

In this study, 47 questionnaires were administered to the participants. Notably, most of the participants had their ages range between 18 and 21 years. These participants were 91.5% of the responses that were received, implying that they were 43 individuals. Individuals aged 22–25 years and. Those who were 30 years old and more reflected 8.6% of the resultant responses. Hence, the latter groups involved 2 participants for each one. Those who belonged to the age bracket of 26–29 years were 0%, which implied that this group did not participate in our study.

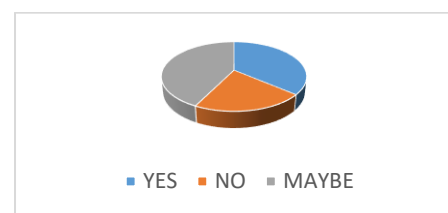


Figure 1: Results of the question "Do you think that Artificial intelligence is able to mimic human intelligence"

For our first question, as shown in figure 1: 36.2% (17) were YES and 21.3% (10) were NO ,42.6% (20) were MAYBE.

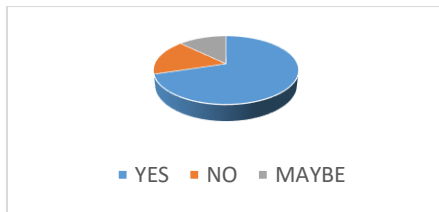


Figure 2: Results of the question "Have you ever heard about the use of artificial intelligence in social media?"

The second question, as shown in Figure 2: Got, (30) YES answer 70.2% and (8) NO answers 17%, (6) MAYBE answers 12.8%.

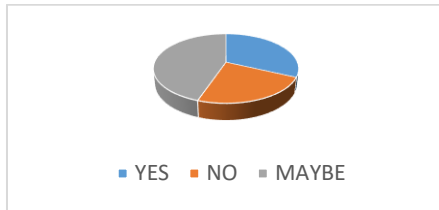


Figure 3: Results of the question "Do you think artificial intelligence is capable of analyzing the mental health of users of social media platforms?"

For the third question, the answers as shown in Figure 3: were 31.9% (15) YES, 23.4% (11) of the answers were NO and 44.7% (21) were MAYBE.

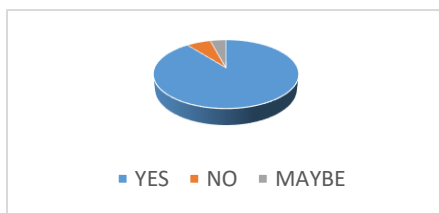


Figure 4: Results of the question "Have you ever got content suggestions from social media platforms that matches your preferences?"

The fourth question, as shown in Figure 4: had 89.4% (42) YES answers, 6.4% (3) NO answers and 4.3% (2) MAYBE answers.

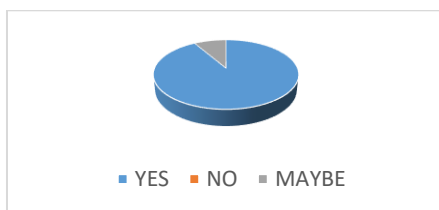


Figure 5: Results of the question "Have you ever got advertisements from social media platforms about something you thought about buying?"

Most of the answers for the fifth question, as shown in Figure 5: were YES 91.5% (43) and 8.5% (4) were MAYBE answers, 0% NO answer.

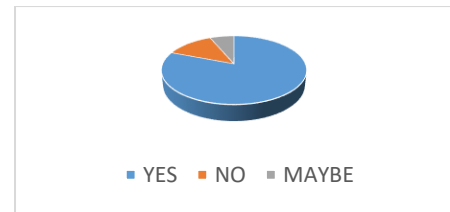


Figure 6: Results of the question "Have you ever encountered content being blocked and classified as sensitive content in social media platforms?"

The sixth question, as shown in Figure 6: had 80.9% (38) YES answers, 12.8% (6) NO answers and 6.4% (3) MAYBE answers.

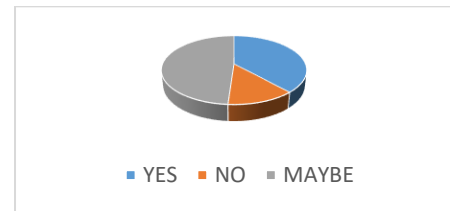


Figure 7: Results of the question "In your opinion, does the use of artificial intelligence in social media invade privacy?"

The seventh question, as shown in Figure 7: had 38.3% (18) YES answers, 12.8% (6) NO answers and, 48.9% (23) were MAYBE answers.

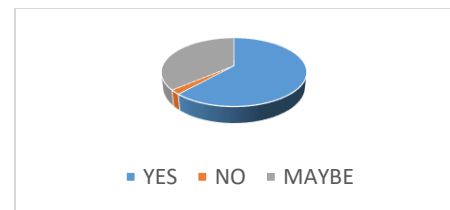


Figure 8: Results of the question "In your opinion, can artificial intelligence in social media be used as intellectual weapons to manage our way of thinking?"

Most of the answers for the eighth question, as shown in Figure 8: were YES answers with 61.7% (29) of the participants, 36.2% (17) MAYBE answers and 2.1% (1) NO answer.

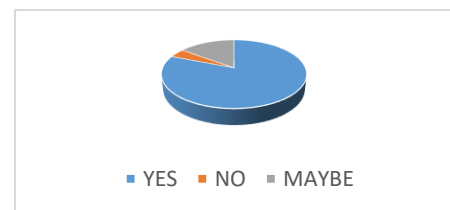


Figure 9: Results of the question "In your opinion, can social media platforms promote harmful content?"

The majority of the answers for the ninth question, as shown in Figure 9: were YES with 80.9% (38), 14.9% (7) were MAYBE answers and 4.3% (2) answered with NO.

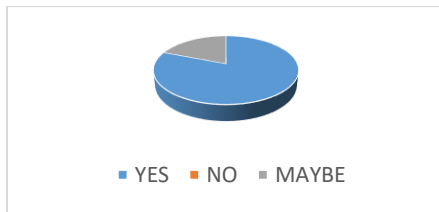


Figure 10: Results of the question "Do you think that the ability of AI to analyze users' preferences can cause users to be addicted to social media platforms?"

For our last question, most of the answers as shown in Figure 10: were YES answers with 80.9% (38), 19.1% (9) were MAYBE answers. No one answered with NO answer.

IV. DISCUSSION

The results of the questionnaire showed that despite the strong capabilities of artificial intelligence, but so far it has not been fully proven that it is able to simulate human intelligence, the results of the questionnaire showed this through different answers as those who answered "yes" were 36.2% but the majority, who represent 42.6% of the sample surveyed, chose to answer "maybe" despite the multiplicity of artificial intelligence capabilities that include learning and solving problems, so we decided to focus our research about the question about artificial intelligence and its association with social media platforms to reach more accurate results specifically for the capabilities of artificial intelligence.

We initially asked if they had heard of the use of artificial intelligence on social media platforms and the majority, which represents 70.2% of them, have heard of this, so we then asked several questions about what artificial intelligence used on social media platforms could be able to do, including if it was able to analyze the mental health of users of these platforms, and the results showed that the majority of 44.7% believe that artificial intelligence used on social media platforms may be able to do so, which brings us to what was put forward at the beginning of the research that artificial intelligence is actually capable of analyzing the mental health of users in addition to analyzing their actions based on different inputs, whether text, video or other available inputs.

They were asked if they had received content suggestions on social media platforms that corresponded to their preferences and there was great approval on this point, with 89.4% saying Yes, which shows the ability of artificial intelligence to analyze user preferences on social media platforms and therefore they were asked if they had received ads from social media platforms about something they had thought of buying and 91.5% answered, which is a large percentage yes, which is directly related to the results of the previous question, the more artificial intelligence is able to analyze user preferences, the more ads are more relevant to what the user needs and prefers for social media platforms.

We asked if they had encountered content that was classified as sensitive content while using social media platforms, and a large 80.09% answered yes, and the purpose of this question was to clarify the ability of Artificial Intelligence to analyze and classify content, despite the advantages and facilities provided by artificial intelligence, it also has a number of things that some users may not prefer for social media platforms, so several questions have been

asked regarding what may be the disadvantages of artificial intelligence.

A question has been asked whether the use of artificial intelligence on social media platforms may violate users' privacy and the majority answered 48.9% with "maybe", collecting the personal data of users of social media platforms that is used to analyze users' behaviors and is used for content suggestions on social media platforms is one of the ethical issues that we talked about in this research, which may be a violation of users' privacy.

We asked if artificial intelligence could be used in social media as intellectual weapons to manage users' thinking, and 61.7% answered "yes" and this shows how much artificial intelligence used on social media platforms can influence our thinking and decisions, for example, what happened in 2016 in the U.S. mentioned in ethical issues in this research, we also asked if social media platforms might promote harmful content, and 80.09% said yes, and that's really what's happening because the algorithms used in artificial intelligence can't distinguish between right and wrong.

At the end of the questionnaire we asked the last question whether the ability of artificial intelligence to analyze users' preferences for social media platforms may lead them to addiction and 80.09% answered "yes", and this is actually one of the uses of artificial intelligence used to promote multiple social networking platforms. This also represents a parcel relationship with the analysis of user preferences, the more users find content they prefer the more time they spend using social media platforms, which makes some of them become addicted to these platforms.

V. CONTRIBUTION

Our study makes one useful contribution to the literature on the use of artificial intelligence in social media content analysis, it provides an extra content of the possible users of social media platforms experiences and expectations, and how they perceive its potential impacts on society, which may be used in future works to improve this field.

VI. CONCLUSION

In this paper, we conclude that artificial intelligence is present in our lives although we are unaware of it. Almost all social media applications use artificial Intelligence. Furthermore, we mentioned that the more you impart about your social media audience the better you market your products. Which answered our first question "How the possible users of social media platforms perceive the effect of artificial intelligence in their life?". From the survey method we used, the answers on the fifth question shown in Figure 5 conclude that most social media users are aware about marketing techniques and their ways to gain from them. Additionally, the second and fourth questions contributed to getting an answer. The responses on these inquiries conclude that the majority of people have a background in artificial intelligence, which means that the awareness about IT is increasing.

As a result of the growth in social media, new ethical issues have been raised alongside many possibilities, which brings us to an important question "Are the possible users of social media platforms aware about the different possibilities and the ethical concerns?". As we pointed out before, the survey method gave us a hint on that. The "maybe" answer in

the seventh question as shown in Figure 7 assured us that the users have a background about the collection of their data. In addition, the 8th inquiry answered this question as shown in Figure 8 the majority of users are conscious about how social media may affect their decisions. Added to that, the third inquiry as shown in Figure 3 most answers were maybe which means that the users are well informed of the different possibilities that artificial intelligence accords them, such as analyzing their mental health based on diverse input.

In conclusion, artificial Intelligence use in social media has its consequences and benefits, which means that awareness becomes more valuable, and each user must be more vigilant. Notwithstanding, the advantages of artificial Intelligence use in social media is increasing daily.

REFERENCES

- [1] D. T. K. Ng, J. K. L. Leung, K. W. S. Chu, and M. S. Qiao, "AI Literacy: Definition, Teaching, Evaluation and Ethical Issues," *Proceedings of the Association for Information Science and Technology*, vol. 58, no. 1, pp. 504–509, Oct. 2021.
- [2] O. Zawacki-Richter, V. I. Marin, M. Bond, and F. Gouverneur, "Systematic review of research on artificial intelligence applications in higher education – where are the educators?," *International Journal of Educational Technology in Higher Education*, vol. 16, no. 1, pp. 1–27, Oct. 2019.
- [3] D. Lewis and J. Moorkens, "A Rights-Based Approach to Trustworthy AI in Social Media," *Social Media Society*, vol. 6, no. 3, pp. 1–13, Jul. 2020.
- [4] M. Kaput, "What Exactly Is Artificial Intelligence for Social Media?," *Marketing Artificial Intelligence Institute*, Jul. 2021. Accessed on: Dec. 6, 2021. [Online]. Available: <https://www.marketingaiinstitute.com/blog/what-is-artificial-intelligence-for-social-media>.
- [5] E. Perakakis, G. Mastorakis, and I. Kopanakis, "Social Media Monitoring: An Innovative Intelligent Approach," *Designs*, vol. 3, no. 2, p. 24, May 2019.
- [6] A. I. Team, "AI Basics: How AI & Machine Learning Supercharge Your Social Media Marketing," *linkfluence.png*, Nov. 2018, Accessed on: Dec. 6, 2021. [Online]. Available: <https://www.linkfluence.com/blog/ai-basics-how-ai-machine-learning-supercharge-social-media-marketingA>.
- [7] V. Conitzer, W. Sinnott-Armstrong, J. S. Borg, Y. Deng, and M. F. Kramer, "Moral Decision Making Frameworks for Artificial Intelligence," *ISAIM*, Feb. 2017, pp. 4831–4835.
- [8] J. Zhang, X. Zhu, H. Wang, and Y. Guan, "Modeling Social Media User Content Generation Using Interpretable Point Process Models," *arXiv.org*, Apr. 2019, pp. 1–25.
- [9] R. Benabdelouahed, and C. Dakouan, "The Use of Artificial Intelligence in Social Media: Opportunities and Perspectives," *Expert journal of marketing*, vol. 8, no. 1, pp. 82–87, Jul. 2020.
- [10] A. Capatina, M. Kachour, J. Lichy, A. Micu, A.-E. Micu, and F. Codignola, "Matching the future capabilities of an artificial intelligence-based software for social media marketing with potential users' expectations," *Technological Forecasting and Social Change*, vol. 151, pp. 1–11, Feb. 2020.
- [11] R. Belk, "Ethical issues in service robotics and artificial intelligence," *The Service Industries Journal*, vol. 41, no. 13–14, pp. 860–876, Mar. 2020.
- [12] A. Kaplan, "Artificial Intelligence, Social Media, and Fake News: Is this the end of democracy?," *Digital Transformation in Media & Society*, pp. 149–161, 2020.
- [13] K. Walch, "Ethical Concerns of AI," *Forbes*, Dec. 2019, Accessed on: Nov. 12, 2021. [online]. Available: <https://www.forbes.com/sites/cognitiveworld/2020/12/29/ethical-concerns-of-ai/>