

AI Ethics in Social Media Recommendation System

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Abstract: Artificial Intelligence (AI) is an important component of contemporary social media platforms as it enables recommendation systems that determine what users view. The primary objective of these recommendation systems is to improve user engagement by providing users with content according to their preferences and behavior. Nevertheless, these systems also pose significant ethical concerns with respect to privacy, bias, transparency, misinformation and autonomy. This research paper examines the ethical issues associated with AI-based recommendation systems in social media platforms, their impact on society and the existing ethical frameworks and approaches.

Keywords: Artificial Intelligence; Ethics; Social Media; Recommendation Systems; Algorithmic Bias; Privacy; Transparency

1. Introduction

Social media has become an essential component of everyday life, impacting communication, information dissemination, entertainment and even political beliefs. Social media platforms such as Facebook, Instagram, YouTube, Tik Tok and Twitter are heavily dependent on AI-powered recommendation systems to provide personalized experiences to users. These systems process massive amounts of data to recommend posts, videos, advertisements, and connections that are most likely to engage users. Although recommendation systems enhance user satisfaction and the profitability of social media platforms, they also have profound implications for society. Algorithmic choices can influence public opinion, spread negative content and impact.

One of the major issues is the spread of synthetic media, including deep fakes and fake images, which are becoming increasingly hard to distinguish from real images for humans.[3] It has been found that people are no longer able to distinguish whether the media is AI-generated or not.[3] The inability to distinguish One of the major issues is the spread of synthetic media, including deep fakes and fake images, which are becoming increasingly hard to distinguish from real images for humans. It has been found that people are no longer able to distinguish whether the media is AI-generated or not. The inability to distinguish between real and AI-generated media is a threat to the integrity of information and affects the trust of users on digital media.[4] If users are not able to trust the information they are getting on the internet, it makes them more vulnerable to being manipulated and deceived, thus affecting the basic tenets of informed public discourse and democratic systems. This is not just a technical issue but a serious cognitive vulnerability.

2. Literature Review

A. Foundational Concepts in AI Ethics

The ethical foundation of Artificial Intelligence is determined by a number of key ideas that assist in the proper development and use of AI. These ideas include Fairness, Transparency, Accountability, Privacy and the key idea of Preventing Harm.[4] Fairness for instance states that AI systems must not reinforce or worsen existing biases in society ensuring that all users are treated equally.[6] This is made possible through an extremely close examination of the data and algorithms used in AI to ensure that there is no chance of discrimination.[3] Transparency demands that there must be a proper understanding of how

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AI systems function, what data they use and how they make their decisions thus ensuring trust and accountability.[4] Accountability guarantees that there is a mechanism in place to assign blame and seek recourse when AI systems inadvertently cause harm or make mistakes.[5] Privacy deals with the protection of user data from the time of collection until the time of storage as well as seeking informed consent for its use.[6]

B. Evolution of AI in Social Media and its Societal Implications

The development of AI in social media has progressed significantly from simple algorithms to highly complex generative models. In the initial development of AI in social media, the technology was primarily employed for simple tasks such as content recommendation and targeted advertising, learning the behavior of users to customize their feeds.[5] However, with the advancements in machine learning, particularly in deep learning, it has become possible to design AI systems that can independently plan and execute actions to accomplish their objectives with minimal human interaction, commonly referred to as general-purpose AI agents.[3]

This has had a profound effect on the information environment transforming the manner in which content is created, disseminated and consumed.[2] The social implications of this development are far-reaching. General-purpose AI agents and highly personalized content delivery systems on social media platforms have amplified the potential for subtle yet pervasive manipulation of user behavior and public discourse.[3] The capacity of AI to generate persuasive content has made it easier for malicious actors to manipulate public opinion which can have implications for political outcomes and further exacerbate societal divisions.[3]

3. Methodology

A. Research Design and Approach

This research applies a mixed-methods design to investigate the ethical issues of AI on social media. A survey was carried out using a quantitative method to gather general data on user perceptions and experiences regarding AI-related features and ethical issues. This was followed by a qualitative investigation of case studies to acquire in-depth knowledge of the severe consequences of damage inflicted by AI. A literature review was performed to achieve a comprehensive understanding of the ethical issues in the current state of knowledge.[3]

B. Survey Instrument: "AI Ethics in Social Media Questionnaire"

The primary tool used for the collection of primary data was the "AI Ethics in Social Media Questionnaire" which was designed and distributed using Google Forms.[1] The questionnaire was designed to systematically cover a wide range of issues related to AI ethics in social media. It began with demographic parts to identify the population being surveyed, followed by questions related to the frequency of usage of social media and awareness of AI functionality on these platforms. Then came parts that inquired about familiarity with AI ethics, the level of concern about various issues related to AI ethics and direct experience with AI-generated content used for harassment or bullying. Other parts explored opinions on the need for disclosure about AI-generated content confidence in the detection abilities of platforms and personal or known experiences with such content. Finally, it assessed user preferences for what to do with offensive content, the importance of user control over AI functionality and opinions on the assignment of responsibility for the prevention of AI misuse[4]

C. Data Analysis Techniques

The quantitative data collected from the questionnaire in the form of multiple-choice questions and Likert scale questions was analyzed using descriptive statistics. Frequency and percentage were calculated to identify the major trends, patterns and distributions of the data collected from the responses to each question.[3] This approach helped to identify the prevalence of a particular opinion, awareness and experience among the respondents. The qualitative data particularly the responses to the open-ended questions (Q15 on measures and Q18 on additional concerns) was analyzed using thematic analysis. This involved the careful examination of the text to identify the themes, concerns and new learnings from the responses. This qualitative approach helped to identify the in-depth views that could not be extracted from the quantitative data. The real-world case studies were analyzed thematically to identify the specific contributions of AI and social media algorithms to the tragic events.[10]

4. Ethical Issues in AI-Based Recommendation Systems

Recommendation systems using AI are widely used in digital platforms such as social media, e-commerce websites, video streaming websites and online news portals. These recommendation systems are used to recommend videos, posts, products or advertisements based on the behavior and preferences of users. Although recommendation systems improve user

experience and engagement, they also create serious ethical issues.[9] These issues are experienced by individuals, communities and society as a whole. It is essential to understand these ethical issues to ensure fair use of AI technology [2].

4.1 Privacy Violation

Privacy violation is one of the most important issues that affect the ethicality of recommendation systems. This is because recommendation systems have access to a lot of personal information of users, including browsing history, likes, shares, location and even personal interests.[1]

Problems

- Users are not aware of the amount of data being collected
- Data can be shared with third parties without the consent of users
- There is a risk of data misuse or breaches

Ethical Concern

Users' personal information should be protected and data collection should be transparent and limited to necessary purposes only.

4.2 Lack of Transparency

Most recommendation systems in AI are black boxes and users are not aware of the reasoning behind the recommendation of certain content.[3]

Problems

- Users cannot understand the decision-making logic
- There is no transparency in the ranking or prioritization of content
- It is difficult to detect errors or unfair practices

Ethical Concern

Lack of transparency makes it difficult to hold organizations accountable for their negative practices.

4.3 Algorithmic Bias and Discrimination

The data used to train AI models can be biased in terms of social, cultural or gender factors. This leads to a situation where recommendation algorithms may favor some groups over others.[2]

Examples

- Minority content creators being less visible
- Content recommendations based on gender or racial stereotypes
- Biased political recommendations

Ethical Concern

Such recommendations can lead to the perpetuation of inequality, discrimination and unfair treatment.

4.4 Filter Bubbles and Echo Chambers

Recommendation algorithms tend to show users content that is similar to what they have liked before. This leads to the creation of filter bubbles where users are shown limited perspectives.

Problems

- Limited access to diverse views
- Increased polarization in politics and society
- Deterioration of critical thinking

Ethical Concern

Such systems can be detrimental to democracy and social cohesion by confining users to a narrow belief system.[1]

4.5 Manipulation and Loss of User Autonomy

AI recommendation systems are programmed to maximize user engagement which can be achieved by leveraging psychological patterns of human behavior.[5]

Problems

- Addictive behavior patterns
- Emotional manipulation
- Users lose control over their consumption choices

Ethical Concern

Users must be free to exercise their autonomy and make their own choices, rather than being manipulated by algorithms for the sake of profit.

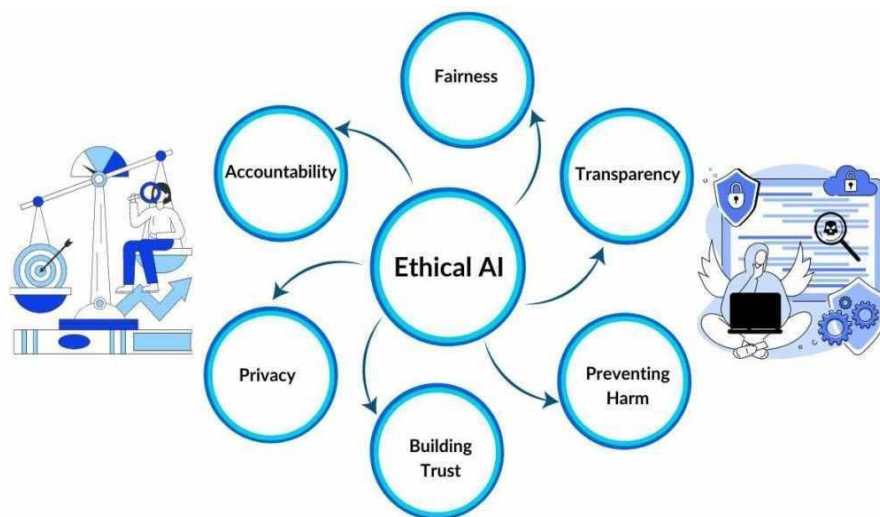


Figure 1. Core Principles of Ethical AI [8]

5. Conclusion

The adoption of AI-driven recommendation systems has greatly influenced social media platforms as it has enabled users to have a personalized experience. However, these benefits have been accompanied by severe ethical problems related to privacy, bias, misinformation and autonomy. To mitigate these problems, there is a need to concentrate on designing and ethics. In this way social media platforms can create an ethical online environment that considers human values and technological progress.

The results of the survey study reveal a highly engaged community of users with a strong awareness of the presence of AI on social media platforms.[1] However, this awareness is coupled with a strong sense of concern regarding ethics and a lack of faith in the platforms ability to detect problematic AI-generated content.[1] The large number of reported instances of AI-generated harassment experiences[1] therefore also reveal the fact that this is no longer a theoretical concern but a reality that exists. The need for transparency, particularly regarding the disclosure of AI-generated content,[1] also reveals a trust deficit.

6. Appendix

Survey Data Access - In order to ensure transparency and reproducibility, the raw data collected from the questionnaire that was distributed using Google Forms as mentioned in the methodology section is available.[4] The dataset includes responses from 200 participants regarding their awareness and experiences with AI ethics-related issues on social media platforms. The dataset is provided in the form of a.csv file and can be downloaded from the following link: [3]

Dataset URL: <https://drive.google.com/file/d/1s3RDCL20PcAA0XTaJ4oeYW1TUG6oFMn/view?usp=sharing> = sharing The .csv file holds anonymized data to maintain the privacy of the respondents with variables such as demographic data, awareness of AI-powered harassment, views on the accountability of platforms and preferences for ethical guidelines such as fairness and harm prevention. Researchers, policymakers and other stakeholders are encouraged to analyze.[3]

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