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CRITICAL ANALYSIS OF AI-PRODUCED MEDIA: A STUDY OF THE IMPLICATIONS OF DEEPFAKE TECHNOLOGY

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ABSTRACT

This study examines the implications of AI-generated media, particularly regarding deepfakes, on how we consume and perceive information. With the increasing presence of AI-generated media, it is crucial to question how they influence media literacy and the potential for misinformation. The research finds that AI-generated media has the potential to manipulate and deceive audiences, blurring the lines between reality and fiction. Its impacts are highly significant to examine its effects on our ability to critically evaluate information and make informed decisions.

INTRODUCTION

The rapid advancement of artificial intelligence (AI) has led to the emergence of AI-generated media, which has changed the way we consume and interact with information. AI-generated media, including deep fakes, have become increasingly common, raising concerns about their impact on society (Batista, 2024). Imron Zuhri, the CTO of Dattabot, in the CNN YouTube channel video titled "Teknologi deepfake" at the 0:56-minute mark, states that AI-generated media has the potential to manipulate and deceive audiences, blurring the lines between reality and fiction. The proliferation of AI-generated media has significant implications for how we perceive and understand information, thus it is crucial to examine its effects on media literacy and the potential for misinformation (De Tender, 2023).

What are the implications of AI-generated media, especially deepfakes, on how we consume and perceive information? This study aims to investigate the impact of AI-generated media on media literacy and the potential for misinformation, focusing on the role of deepfakes in shaping our understanding of reality.

Understanding the influence of AI-generated media on media literacy and the potential for misinformation is crucial in the current digital era. As AI-generated media becomes more sophisticated and widely distributed, it is essential to examine its effects on our ability to critically evaluate information and make informed decisions (Peña-Fernández et al., 2024).

Previous research on deepfake technology indicates that it can alter the pixels in images, making the modified images different from the originals. Several studies view deepfakes as a new challenge for netizens because they can be used to spread inaccurate and manipulative information and serve as tools for propaganda and politics.

An analysis of the broader implications of AI-generated media for society shows that AI technology can significantly influence how society acquires and uses information. Sources like Rahmadina (2024) and VOA Indonesia (2023) discuss how AI-generated media can spread inaccurate and manipulative information and the importance of regulation and transparency in the use of AI-generated media.

The ethical considerations involved in the creation and dissemination of AI-generated media indicate that AI technology requires broader ethical considerations in its development and application. Sources such as Sanjaya (2023), Engage AI (2024), Prahitaningtyas (2023), and Verihubs (2023) discuss how AI-generated media can spread inaccurate and manipulative

information and the importance of transparency and accountability in the use of AI-generated media.

This study examines the implications of AI-generated media, particularly regarding deepfakes, on how we consume and perceive information. This research contributes to the growing body of research on AI-generated media, shedding light on its implications for media literacy and the potential for misinformation.

RESEARCH METHOD

This research employs a qualitative method to examine various aspects of AI-generated media, particularly its impact on media literacy, misinformation, and ethical considerations. The literature review approach involves analyzing various sources to understand how deepfake technology, through the use of machine learning algorithms such as Generative Adversarial Networks (GANs) and Convolutional Neural Networks (CNNs), creates highly realistic but potentially deceptive content. This study investigates different types of deepfakes, including face swaps, lip-syncing, and deepfake audio, and their applications ranging from entertainment to harmful uses such as spreading false information or damaging reputations. Additionally, this research explores the broader social impacts of AI-generated media, highlighting the need for critical thinking, media literacy, and regulatory measures to address the ethical challenges posed by such technology. Through thematic analysis of data collected from various academic and industry sources, this research aims to provide a comprehensive understanding of the capabilities and risks associated with deepfakes, emphasizing the importance of transparency, accountability, and education in mitigating their potential negative effects.

RESULTS AND DISCUSSION

Deepfake is a technology of video and audio manipulation that uses Artificial Intelligence (AI) to create content that makes people appear to do things they didn't do. In this context, deepfakes can be video or audio recordings that replace someone's face or voice with another, making it appear realistic and capable of deceiving the audience (Merriam-Webster, 2024).

This technology utilizes machine learning algorithms to merge elements from different images or videos, thus creating content that appears genuine. Deepfakes can be used for various purposes, including entertainment, but they can also be abused to spread false information or significantly damage someone's reputation (Helmus, 2022).

In some cases, deepfakes can involve videos featuring famous figures in situations that never occurred, such as politicians saying words they never uttered or celebrities appearing in damaging videos. This technology is not limited to videos but can also create convincing fake photos and audio (Helmus, 2022).

The creation of deepfakes involves Artificial Intelligence (AI) technology that utilizes machine learning algorithms to merge elements from different images or videos, resulting in content that appears authentic. Known types of deep fakes include creating a face swap deepfake is a process that involves Artificial Intelligence (AI) technology which uses machine learning algorithms to replace a person's face with another face in a video or image (Salim, 2024). The steps for creating a face swap deep fake begin with collecting facial data to be used, either in the form of images or videos showing a person's face. Next, facial recognition is carried out using a machine learning algorithm to identify unique facial features that enable face replacement. The next process is replacing the face itself using a machine learning algorithm, which is then followed by synchronizing lip and eye movements to create an effect that resembles the person speaking, even though they are not. After that, the video or image is edited to create an effect that resembles the original (Sari, 2024).

The technology used in creating face swap deepfakes involves machine learning algorithms such as Generative Adversarial Networks (GANs) and Convolutional Neural

Networks (CNNs). GANs are used to combine elements from different images or videos, while CNNs are used to recognize unique facial features. The advantages of face swap deepfakes include their ability to create content that looks like the real thing and can be used for various purposes such as entertainment or education. However, disadvantages include the potential for misuse to spread false information or significantly damage one's reputation (Ryusui Kagaku Ch., 2023).

Lip-sync deepfake is a technique that focuses on synchronizing lip movements with the audio in the video. The main goal is to make the lip movements in the video recording match the resulting audio exactly. In the process of creating lip-sync, deep learning models such as LSTM (Long Short-Term Memory) or transformer-based models are used to create very accurate synchronization (AD, 2023).

The lip-sync technique in deepfakes involves the use of deep learning algorithms to detect, understand, and replicate lip and facial movements from one video to another. By using deep learning models, lip-sync can create content that looks like a real video, but with different information than it is. It allows video manipulation to show people who are not related to the information desired by criminals (Helmus, 2022).

Audio deepfake, or what is known as deepfake audio, is a technology that uses deep learning algorithms to manipulate sound to create a sound that looks like the original, but with different information than the truth. In the process of creating deepfake audio, deep learning models such as neural networks are used to model intonation, vocals, and sound nuances so that they look like real voices. Deepfake audio has various applications, such as singing songs in someone else's voice, attaching our voice to someone else's body, or creating videos of people speaking in inappropriate voices. Although it can be used for entertainment purposes such as in sound synthesis for animation or video games, this technology also has complex and dangerous potential, such as manipulating public opinion or spreading false information (Salim, 2024).

Creating deep fake audio involves several steps, starting from collecting the original voice of the individual you want to record or manipulate, then continuing with modeling using a deep learning algorithm to create a voice that looks genuine, and continuing with manipulating the voice to create a voice that is different from the real one. The final step is testing the results of the manipulation to ensure that the sound looks like the original sound. Therefore, considering the complex potential threat of deepfakes, it is important for society to raise awareness of manipulatively produced content and to understand how to detect it (Mohammed, 2020).

Discussion of the impact of AI-generated media on media literacy, including the potential for misinformation and the need for critical thinking, has been the subject of concern in several sources. AI-generated media, such as AI-generated text and video, has increased the ability to produce highly realistic content but has also increased the potential for misinformation and manipulation. In several sources, such as Fatimah et al. (2024) and Bickert (2024), it is discussed how AI-generated media can be used to disseminate inaccurate or manipulative information, as well as how important media filtering is to differentiate between valid and invalid information.

Regarding AI-generated misinformation, Fatimah et al. (2024) write that AI-generated misinformation has become an increasingly significant problem in the digital era, with AI being used to produce highly realistic but inaccurate content. In this context, media literacy becomes very important to differentiate between valid and invalid information, as well as to understand how AI-generated media can be used to disseminate inaccurate information.

Later in Bickert (2024), Meta announced that it would begin marking content created with AI as “Made with AI” to provide greater transparency and context. They also plan to add more prominent labels for content that has a high risk of deceiving the public, as well as to

increase cooperation with independent organizations to monitor and remove inaccurate content.

Alcalde (2023) discusses how generative AI can change the way we understand and use data, as well as how important data literacy is to understand how AI-generated data visualizations can be used to disseminate inaccurate information. In this context, data literacy becomes very important to understand how AI-generated data can be used to disseminate inaccurate information and to differentiate between valid and invalid information.

In an article about the evolution of data literacy into AI literacy, Hanegan (2023) discusses how AI literacy is important for understanding how AI-generated media can be used to disseminate inaccurate information. In this context, AI literacy becomes very important to understand how AI-generated media can be used to disseminate inaccurate information and to differentiate between valid and invalid information.

Discussion of the impact of AI-generated media on media literacy, including the potential for misinformation and the need for critical thinking, suggests that AI-generated media can be used to disseminate inaccurate and manipulative information. In this context, media literacy and AI literacy become very important to understand how AI-generated media can be used to disseminate inaccurate information and to differentiate between valid and invalid information.

A summary of research on Deepfake contained in several sources shows that Deepfake is a human image synthesis technique based on artificial intelligence (AI). This technique is used to combine and superimpose existing images and videos into an image or video source using a machine learning technique known as a generative adversarial network (GAN). In several studies, Deepfakes are seen as a new challenge for netizens because they can be used to disseminate inaccurate and manipulative information, and can be used as a propaganda and political tool. Research also shows that Deepfakes can be used to change pixels in images so that the modified image will be different from the original image. In an ethical context, this research shows that Deepfake can be used to change the appearance of a face, so it requires attention and ethical consideration in its use.

Analysis of the broader implications of AI-generated media for society shows that AI technology could have great potential to influence the way society obtains and uses information. In several sources, such as Rahmadina (2024) and VOA Indonesia (2023), it is discussed how AI-generated media can be used to disseminate inaccurate and manipulative information, as well as how important regulation and transparency are. in the use of AI-generated media.

In Rahmadina (2024), lecturer at the Faculty of Advanced and Multidisciplinary Technology (FTMM) Universitas Airlangga (UNAIR), Aziz Fajar, S.Kom., M.Kom., explained that AI-generated media can be used to change pixels in images so that the modified image will be different from the original image. It can be used to disseminate inaccurate and manipulative information and can be used as a propaganda and political tool.

Then in VOA Indonesia (2023), a study conducted by the London School of Economics's JournalismAI initiative showed that AI-generated media could be both a threat and an opportunity for journalism. More than half of those surveyed said they were concerned about the ethical implications for their profession as journalists, including accuracy, fairness, and transparency as well as other aspects of journalism. However, AI can also be an opportunity to make journalism more efficient, effective, and trustworthy.

In synthesis, analysis of the broader implications of AI-generated media for society shows that AI technology could have great potential to influence the way society obtains and uses information. In this context, regulation and transparency in the use of AI-generated media are very important to ensure that AI-generated information is accurate and not manipulative.

The discussion about the ethical considerations involved in the creation and dissemination of AI-generated media indicates that AI technology requires broader ethical

considerations in its development and application. Several sources, such as Sanjaya (2023), Engage AI (2024), Prahitaningtyas (2023), and Verihubs (2023), it is discuss how AI-generated media can be used to spread inaccurate and manipulative information, and the importance of transparency and accountability in the use of AI-generated media.

In Sanjaya (2023), Aziz Fajar, S.Kom., M.Kom., a lecturer at the Faculty of Advanced and Multidisciplinary Technology (FTMM) Universitas Airlangga (UNAIR), explains that AI-generated media can be used to alter pixels in images, making the modified images different from the original ones. This can be used to spread inaccurate and manipulative information, as well as a tool for propaganda and politics. Therefore, transparency and accountability in the use of AI-generated media are crucial to ensure that the information produced by AI is accurate and not manipulative.

In the article "AI Ethics: Is Engaging with AI Ethical?", Engage AI (2024) is committed to ethical AI practices. By encouraging responsible use, avoiding over-dependence, and maintaining a humane approach, Engage AI upholds ethical values while harnessing the potential of AI. Ethical use of Engage AI ensures that the technology serves as an aid, not a substitute, encouraging the building of genuine, meaningful, and responsible relationships.

Also in Astra Digital (2023), REFO raises the theme of artificial intelligence, both in the form of blog articles, uploads on social media, and webinars. Make sure to keep up with developments on the REFO Blog, Instagram, and YouTube.

The use of Artificial Intelligence (AI) is no longer possible to avoid. However, what are the ethics of using it? In the previous article, REFO explained Artificial Intelligence (AI), its limitations, and how people respond to this sophisticated tool so that it is not eroded by its existence. Now the researcher will discuss how to utilize AI responsibly, to make our lives easier, and make this world a better place.

The rapid development of AI has created many opportunities, from enabling humans to connect with each other through social media, and workforce efficiency through automation, to facilitating healthcare diagnosis. However, this rapid change also raises ethical concerns. Gabriela Ramos, Assistant Director-General for Social and Human Sciences of UNESCO, stated that the general goal of AI is to reshape the way we work, interact and live, and for the better. AI does bring great benefits in many areas, but without ethical consideration, AI risks giving rise to bias and discrimination in the real world, fueling division, and threatening human rights and fundamental freedoms. Based on this, at the General Conference of UNESCO meeting in Paris, 9-24 November 2021, UNESCO issued a Recommendation on the Ethics of Artificial Intelligence (Recommendation) as a global standard.

The key facts from the Recommendation consist of some points. Start with education and awareness about AI. Communicate clearly and continuously with various parties about what AI can do and its challenges. We must know the proper purpose for using each AI-based tool, and how to stay within the specified ethical boundaries. Openness. Use AI transparently, without hiding anything. For example, we use AI to collect data from student parents, make sure they know about it, and make sure they agree and understand what the data will be used for. Looking back at the scandal between Cambridge Analytica and Facebook, we know that a big part of the problem was Facebook's lack of transparency about how they used AI to collect user data, and what they did with that data. A clear communication policy on the use of AI will be able to avoid things like this. Control for bias.

In synthesis, the discussion of the ethical considerations involved in the creation and dissemination of AI-generated media suggests that AI technologies require broader ethical considerations in their development and implementation. In this context, transparency and accountability in the use of AI-generated media are very important to ensure that AI-generated information is accurate and not manipulative.

CONCLUSION

AI-generated media, particularly deepfake technology, can spread misleading and inaccurate information. This highlights the importance of media literacy and AI literacy in preventing misinformation and distinguishing between valid and invalid information. The analysis suggests that AI technology requires broader ethical considerations, requiring transparency and accountability to ensure accurate and non-misleading information. Therefore, a comprehensive understanding of AI-generated media is crucial for media literacy and AI literacy.

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