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Reconstructing Reality: The Application and Examination of AI in Documentary Filmmaking

Siyuan Liu [1, *]

[1] Flower Flower (Shenzhen) Culture Media, Shenzhen 518116, China

*** Correspondence**:

Siyuan Liu

sapphire.law@qq.com

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Abstract

The increasing use of Artificial Intelligence (AI) in documentary filmmaking is reshaping the creative and production processes. AI offers innovative possibilities for content generation and enhances efficiency, but it also raises critical questions about authenticity and manipulation. The purpose of this study is to explore how AI technologies are integrated into documentary filmmaking and to assess their impact on the industry. This paper employs a case analysis and literature review to examine the various applications of AI in documentary production, focusing on content analysis, automated editing, and virtual content creation. The study also addresses the ethical concerns related to the use of AI in the genre. The findings show that AI technologies significantly improve creativity and production efficiency by automating routine tasks. However, the use of AI also poses risks related to the potential manipulation of content and the authenticity of the documentary genre. The paper concludes that filmmakers must carefully navigate the ethical challenges posed by AI, ensuring that the technology enhances the narrative without compromising the truthfulness and integrity of documentary storytelling.

Keywords: Artificial Intelligence; Documentary Filmmaking; Ethics; Automation; Content Generation; Deepfake Technology; Authenticity; Virtual Content

1. Introduction

Documentary filmmaking has long been revered for its ability to present the "truth" about real events, people, and cultures. Documentaries capture the complexities of the world and are often perceived as an essential vehicle for truth-telling. As AI technologies evolve, they are becoming

increasingly integrated into the documentary filmmaking process. This evolution has transformed the industry by automating tedious tasks, enhancing creative possibilities, and improving production efficiency. AI-driven tools, such as machine learning, natural language processing, and computer vision, are now playing an integral role in content analysis, editing, and even content creation.

The integration of AI into documentary filmmaking raises important ethical questions about the authenticity and manipulation of reality. While AI can generate highly realistic simulations of real-world events, its application in this genre raises concerns regarding the potential distortion of truth. Deepfake technology, for example, allows for the manipulation of visual and audio content to create fabricated scenarios, challenging the traditional idea of a documentary as an accurate representation of reality.

The significance of this study lies in its exploration of AI's impact on documentary filmmaking. While there has been research on AI's role in other media sectors, limited attention has been paid to its specific influence on documentary filmmaking. This paper addresses this gap by analyzing the practical applications of AI in documentary production, exploring its creative possibilities, and assessing its ethical implications.

The primary objective of this research is to examine how AI technologies are applied in documentary filmmaking to improve production processes, enhance storytelling, and offer personalized viewing experiences. Additionally, the study investigates the ethical challenges posed by AI, including the preservation of authenticity and the potential for manipulation. By exploring these issues, the paper aims to provide insights that will guide filmmakers in incorporating AI into their work without compromising the truthfulness that documentaries are known for.

This study adopts Bill Nichols' documentary modes theory as the analytical framework to explore how AI reshapes documentary epistemology and narrative strategies. Nichols (2017) classifies documentaries into expository, observational, participatory, reflexive, and performative modes, each reflecting different approaches toward representing reality. AI integration is examined within these theoretical lenses, assessing how technological interventions may shift documentary forms across these modes.

Methodologically, this paper employs qualitative case analysis. Case selection criteria include recent documentaries (2019–2023) prominently utilizing AI technologies, notably deepfake and automated editing. Each selected case undergoes a three-stage analysis: (1) descriptive overview of AI application, (2) critical assessment of epistemological implications, and (3) ethical evaluation grounded in documented industry controversies and scholarly debates.

2. The Main Content of the Manuscript

2.1. The Role of AI in Documentary Production

The increasing use of Artificial Intelligence (AI) in documentary filmmaking is changing the way content is produced, edited, and presented to audiences. Traditionally, the process of creating a documentary involves a combination of time-consuming tasks, from capturing footage to editing and structuring the final product. AI has enabled significant improvements in these areas, automating tasks that were once labor-intensive, allowing filmmakers to focus more on the creative aspects of storytelling.

AI's applications in documentary filmmaking span several key areas, including content analysis, automated editing, content generation, and personalized viewer engagement. Each of these areas contributes to a more efficient and creative production process, with the potential to enhance both the documentary's narrative and its production quality.

2.1.1. AI in Content Analysis

AI plays a pivotal role in automating content analysis, which involves analyzing raw footage and identifying important segments. Traditionally, the editing process in documentary filmmaking involved manually reviewing hours of footage to identify the most emotionally impactful or visually compelling moments. With AI, this process can be automated, significantly reducing the time and effort required for content analysis.

AI-powered tools, such as machine learning algorithms and deep learning models, are now capable of detecting specific features within video footage, including emotions, gestures, facial expressions, and other important cues. For instance, AI-powered sentiment analysis algorithms, such as those described in Singgalen (2024), can detect emotional tone and facial expressions within documentary footage, allowing editors to select the most impactful moments based on emotional intensity. Additionally, AI can automatically tag specific visual elements, such as animals, objects, or locations, making it easier to categorize and locate footage based on certain themes.

Furthermore, AI's ability to process and categorize large amounts of content is particularly valuable in documentaries that rely on archival footage. For example, AI technologies, as described by Rodríguez-Ibánez et al. (2023), can automate the transcription of audio interviews and categorize footage based on key terms, enhancing the efficiency of documentary editing workflows. This increases efficiency and allows filmmakers to make creative decisions faster without compromising the authenticity of the documentary.

While AI-driven content analysis streamlines documentary workflows, automating emotional and thematic tagging inherently introduces algorithmic bias into editorial choices. Traditional manual analysis allowed editors to apply nuanced judgment, influenced by contextual

understanding. Conversely, AI may prioritize emotionally heightened scenes algorithmically, potentially skewing narratives toward dramatic or sensationalized portrayals, thereby subtly redefining documentary epistemology (Nichols, 2017).

2.1.2. AI in Automated Editing

One of the most significant applications of AI in documentary filmmaking is in the area of automated editing. Traditional documentary editing requires human editors to sift through vast amounts of footage and make subjective decisions about which scenes to include and how to arrange them. AI, however, can automate this process by analyzing the raw footage and automatically creating rough cuts based on predefined criteria, such as emotional tone, pacing, and visual composition.

For example, AI algorithms can analyze the rhythm and pace of footage, automatically identifying key moments that align with the emotional arc of the documentary. Additionally, AI can optimize the documentary's flow by adjusting pacing and sequencing, ensuring that the narrative remains engaging and coherent. One of the most advanced AI editing tools, Adobe Sensei, uses AI to automatically tag and sort video content based on various visual and audio characteristics, streamlining the editing process and enabling editors to work more efficiently (Erdem, 2025).

AI's potential to automate the editing process offers a significant advantage for documentary filmmakers, allowing them to produce content faster and more efficiently. It can also help overcome the challenge of working with large datasets or complex storylines, ensuring that important moments are highlighted while maintaining the integrity of the original footage.

Automated editing profoundly transforms documentary epistemology by shifting narrative decision-making from human intuition toward algorithmic determinism. Nichols (2017) emphasizes the subjective and interpretative nature inherent in documentary editing. Thus, reliance on AI may diminish editorial nuance, standardizing narrative structures based on computational criteria rather than thematic depth or ethical sensitivity. Filmmakers must critically manage AI's editorial role to ensure it complements rather than controls narrative intent.

2.1.3. AI in Content Generation

Another significant application of AI in documentary filmmaking is content generation. AI-powered tools can generate virtual environments, computer-generated imagery (CGI), and even synthetic characters that help bring a documentary to life. This is especially valuable when depicting real-world subjects or locations that are difficult or impossible to access.

A vivid example of AI-driven content generation is Morgan Neville's documentary *Roadrunner: A Film About Anthony Bourdain* (2021). To narrate a private email written by

Bourdain, who had passed away, filmmakers employed AI voice synthesis to convincingly mimic Bourdain's voice, generating significant controversy due to lack of transparent disclosure (Jacobs, 2021). Audience backlash highlighted ethical concerns regarding transparency and authenticity, underscoring the necessity of clear viewer communication when utilizing AI-generated elements in documentary storytelling.

Furthermore, AI technologies can be used to generate digitally recreated environments of historical events, allowing filmmakers to simulate past scenarios that are otherwise lost to time. AI is also used to simulate animal behavior, enabling wildlife documentaries to present accurate representations of animal activities that are often too challenging to film in real life. A notable example of this is in *Our Planet*, where Chandrasekaran et al. (2023) highlight how AI-driven simulations, such as those applied in *Our Planet*, can replicate animal behaviors that are difficult to film in real life, offering viewers a deeper, more immersive experience.

In addition to simulating human, animals, and environments, AI is also capable of generating entirely new content. Filmmakers can use AI to create synthetic characters or voices, enhancing storytelling and visual appeal. For example, AI-generated avatars can be used to portray historical figures in a documentary or provide visualizations of scientific concepts that are difficult to represent on screen. These advancements in AI content generation provide filmmakers with powerful tools to push the boundaries of creative expression.

AI-generated content, while innovative, raises critical epistemological questions about authenticity in documentaries. Nichols' (2017) notion of performative documentary mode—where reality is openly mediated—becomes increasingly relevant. Films must transparently signal synthetic elements to maintain viewer trust. Without clear demarcation, AI-generated recreations risk blending seamlessly with actual footage, challenging the documentary's core value as a credible historical or factual record.

2.1.4. AI in Personalized Viewer Experience

AI has the potential to enhance the viewer's experience by offering personalized and interactive content. Streaming platforms like Netflix have pioneered the use of AI to recommend content based on a user's viewing history, preferences, and demographic information. AI algorithms analyze the viewer's behavior and provide recommendations for documentaries that align with their interests, ensuring that they engage with content they are most likely to enjoy.

Furthermore, AI is being used to create interactive documentaries that allow viewers to influence the direction of the narrative. In these types of documentaries, the viewer's emotional reactions, choices, or interactions can shape the story's progression. By using AI to track these inputs, filmmakers can craft a more immersive experience that adapts to the viewer's preferences in real time.

In the context of virtual reality (VR) and augmented reality (AR), AI can create dynamic and interactive environments that allow viewers to explore different aspects of the documentary from multiple perspectives. These technologies enable a deeper level of engagement, offering a more immersive and personalized experience for the audience.

AI-enhanced personalization potentially fragments documentary viewership into isolated interpretative communities, shaped by algorithmically determined preferences. This could result in echo chambers, limiting exposure to diverse narratives and perspectives. Hence, filmmakers should balance personalized engagement with maintaining the integrity and universality of documentary storytelling, mindful of Nichols' emphasis on documentaries as socially cohesive media forms (Nichols, 2017).

2.2. Ethical Considerations

2.2.1. Authenticity and Virtualization

As AI technology becomes more integrated into documentary filmmaking, questions about the authenticity of the content arise. While AI offers powerful tools for creating virtual environments and synthetic characters, it also challenges the core value of documentary filmmaking: its ability to present reality. Filmmakers using AI must balance the need for creative innovation with the ethical responsibility to accurately represent the real world.

The use of AI-generated content, such as digitally recreated historical events or simulated interviews, raises concerns about misrepresentation. Filmmakers must be transparent about when AI is used to create synthetic content and ensure that viewers understand the distinction between real and artificial elements of the documentary. This is especially important when depicting sensitive historical or social issues where authenticity is crucial.

2.2.2. Deepfake Technology and Misinformation

Deepfake technology presents one of the most significant ethical challenges in the documentary genre. By using AI to manipulate video footage, deepfake technology can create convincing but fabricated content. In the context of documentary filmmaking, this technology poses risks related to misinformation and the manipulation of reality. The ability to alter historical footage or modify interviews without the viewer's knowledge compromises the authenticity of the documentary and could mislead the audience.

Filmmakers must take care when using deepfake technology to ensure that it is used for creative purposes, such as historical reenactments, rather than to distort facts or mislead viewers. As noted by Wankhade et al. (2022), transparency regarding AI's role in documentary filmmaking

is critical to preserve the authenticity of content, especially when deepfake technology is used for historical reenactments.

The ethical challenge of deepfake technology is exemplified in *Welcome to Chechnya* (2020), where AI deepfake face-swapping technology was employed to protect activists' identities by replacing their faces with computer-generated ones. While this innovative use effectively safeguarded vulnerable subjects, it simultaneously raised ethical debates about viewer transparency. Notably, filmmakers introduced subtle visual indicators (such as a slight digital shimmer around faces) to alert attentive viewers (France, 2020). Such cases illustrate the delicate balance between protecting documentary subjects and maintaining documentary integrity through transparency and disclosure.

2.2.3. Viewer Trust and Transparency

AI's role in documentary filmmaking introduces new challenges related to viewer trust. As AI technologies become more sophisticated, it becomes increasingly difficult for audiences to distinguish between real and artificially generated content. Filmmakers must be transparent about their use of AI and clearly communicate to the audience when AI-generated content is used. This transparency is essential for maintaining the credibility of documentaries and ensuring that viewers can trust the content they are watching.

Empirical studies further demonstrate the critical need for transparency regarding AI-generated documentary content. According to recent audience research by Vaccari and Chadwick (2022), viewers struggle to reliably distinguish AI-synthesized content from authentic footage, but exhibit significant trust erosion upon discovering the use of undisclosed AI technologies. Hence, transparent communication is vital, not merely an ethical imperative but also essential to maintaining documentary legitimacy and audience trust.

3. Discussion

The application of Artificial Intelligence (AI) in documentary filmmaking presents both promising opportunities and significant challenges. As AI technologies continue to evolve, they are reshaping how content is created, edited, and distributed. However, alongside the excitement for these technological advancements, there are complex ethical and creative considerations that must be addressed. In this section, we will explore the implications of AI's growing presence in documentary filmmaking, focusing on its impact on creativity, authenticity, and the future of the genre. Furthermore, we will address the responsibility of filmmakers to ensure that these technologies are used ethically.

3.1. AI's Impact on Creativity and Innovation

AI has had a profound impact on the creative potential of documentary filmmakers. The ability of AI to automate routine tasks such as content analysis, editing, and transcription has allowed filmmakers to focus more on the creative aspects of storytelling. One of the most notable innovations is AI's ability to generate new content—such as virtual environments or synthetic characters—that was previously impossible or prohibitively expensive to create. For instance, AI has made it easier for filmmakers to digitally recreate historical events or simulate animal behaviors, which enhances the depth and realism of the documentary (Hutson & Smith, 2024).

In addition to content generation, AI's ability to analyze and process vast amounts of data enables filmmakers to uncover new patterns or narratives that may have been overlooked. By processing hours of raw footage, AI can identify key emotional moments or visual themes that human editors might not have noticed, offering fresh insights and angles for storytelling. This can lead to more dynamic and multifaceted documentaries that explore topics in more innovative ways (Yang et al., 2023).

The introduction of AI into documentary filmmaking has also enhanced the ability to produce personalized content. Interactive documentaries that allow viewers to influence the storyline based on their decisions or emotional reactions are now possible. This personalization offers a new level of engagement and immersion, giving viewers more agency and making the documentary experience more relatable and emotionally resonant.

However, despite these creative opportunities, AI's impact on creativity must be carefully managed. While AI can generate content and offer new storytelling tools, there is a risk that the overreliance on AI-generated content might overshadow the human element of storytelling. Filmmakers must ensure that AI is used to enhance, rather than replace, human creativity, as the emotional depth and authenticity that human filmmakers bring to the project cannot be replicated by machines.

3.2. Authenticity and the Blur Between Reality and Fiction

AI has raised important questions about the authenticity of documentary filmmaking. Traditionally, documentaries are viewed as a truthful representation of reality, where filmmakers present events as they unfold, offering viewers an honest look at the world. However, AI technologies, particularly those used for content generation, have introduced the possibility of blurring the line between reality and fiction. The ability to create AI-generated characters, virtual environments, and even manipulate existing footage introduces the potential for the documentary genre to become more fictionalized or manipulated.

For example, AI-generated content can be used to digitally recreate historical events, as seen in documentaries that use AI to simulate past moments that are difficult to film. While this can enhance storytelling by providing greater visual depth, it also raises concerns about the accuracy of historical representation. Audiences may begin to question whether what they are seeing is "real," especially when AI-generated visuals are presented alongside real-world footage. This creates a dilemma for filmmakers who must balance creative expression with the documentary's responsibility to represent truth and reality.

The ethical challenge here is that AI-generated content could be perceived as presenting a "truth" that may not be entirely accurate, as virtual recreations may omit important historical or contextual information. Filmmakers must address these challenges by being transparent about the use of AI, especially when the content is not directly representing real-world events or people. Transparency about AI's role in content creation is crucial for maintaining the documentary's credibility and preserving its authenticity.

Moreover, the increasing use of AI-generated characters and deepfake technology poses another layer of complexity. Deepfakes, which use AI to manipulate video and audio, allow filmmakers to create convincing yet entirely fictionalized versions of reality. This can lead to the manipulation of real events or historical figures, potentially distorting facts or misleading viewers. The ethical responsibility to prevent such manipulations is one of the most pressing challenges filmmakers face when incorporating AI into their documentaries (Braimoh & Esezoobo, 2023).

3.3. Deepfake Technology and Its Implications

Deepfake technology is a particularly controversial development in the AI landscape. Initially used to create entertainment content, deepfakes have quickly found their way into the realm of documentary filmmaking, raising serious ethical concerns. Deepfakes are created by using AI algorithms to synthesize realistic images or videos, making it appear as though someone is saying or doing something they never did. This technology has raised alarms in both the media and political spheres, as it can be used to spread misinformation, impersonate individuals, and manipulate public opinion.

In documentary filmmaking, the use of deepfake technology could have devastating consequences for the genre's integrity. If deepfake technology is used to alter interviews or historical footage, it can fundamentally alter the perception of reality and mislead viewers. For instance, Amato et al. (2019) discuss the potential of deepfake technology in documentary filmmaking, highlighting the ethical challenges associated with manipulating real events or historical figures.

Filmmakers must be vigilant in their use of deepfake technology, ensuring that it is employed only for creative purposes, such as recreating past events or enhancing the narrative in a responsible manner. Clear disclaimers must be provided to the audience, explaining the use of AI and deepfake technology. By being transparent, filmmakers can mitigate the risk of distorting the truth while still exploring the creative potential of these technologies.

3.4. Viewer Trust and the Future of Documentary Filmmaking

As AI technologies become increasingly embedded in documentary filmmaking, one of the greatest challenges will be maintaining the trust of viewers. Traditional documentaries are valued for their ability to convey truth, and this credibility is often built on the authenticity of the footage. With the growing use of AI-generated content, deepfakes, and virtual recreations, viewers may become skeptical of the information presented to them, leading to questions about the reliability of documentaries as a whole.

To preserve viewer trust, filmmakers must prioritize transparency. This includes clearly informing audiences when AI-generated content has been used, providing context about how AI technologies were employed, and ensuring that AI applications do not compromise the authenticity of the documentary. Additionally, as the technology evolves, filmmakers must adapt their practices to ensure that AI does not overshadow the core values of documentary filmmaking, such as truth and transparency.

The future of documentary filmmaking will likely involve a balance between creative innovation and ethical responsibility. Filmmakers will need to carefully navigate the ethical dilemmas presented by AI while continuing to embrace its creative possibilities. Moreover, the use of AI will not eliminate the need for human oversight and judgment. Filmmakers will continue to play a critical role in guiding the narrative and ensuring that the final product remains authentic and truthful, even in an era where AI-generated content is becoming more prevalent.

4. Conclusion and Recommendation

This study critically examines the multifaceted integration of AI in documentary filmmaking, highlighting its benefits in efficiency, creativity, and viewer engagement, alongside significant ethical challenges around authenticity, manipulation, and trust.

Key findings reveal that while AI enhances documentary production and narrative possibilities, it simultaneously disrupts traditional epistemological assumptions about authenticity and subjective editorial processes. Case analyses underscore the necessity of transparency in AI use, particularly in ethically contentious scenarios such as deepfakes and synthesized content.

Concrete recommendations for filmmakers and industry include:

1. Establishing explicit industry standards requiring transparent disclosure of AI-generated content to preserve viewer trust.
2. Implementing clear visual or narrative signals within documentaries when using synthetic media, mitigating ethical risks.
3. Encouraging ongoing dialogue and audience education to foster media literacy concerning AI-enhanced documentaries.

Future research should explore longitudinal audience responses to AI content, developing frameworks for ethical AI integration in documentaries, and investigating effective methods for AI-generated content detection. Such efforts will guide documentary filmmakers in ethically leveraging AI, preserving documentary integrity amidst technological innovation.

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References

Amato, G., Behrmann, M., Bimbot, F., Caramiaux, B., Falchi, F., Garcia, A., ... & Vincent, E. (2019). AI in the media and creative industries. arXiv preprint arXiv:1905.04175.

Chandrasekaran, G., Nguyen, T. N., & Hemanth D, J. (2021). Multimodal sentimental analysis for social media applications: A comprehensive review. Wiley Interdisciplinary Reviews: Data Mining and Knowledge Discovery, 11(5), e1415.

Erdem, S. (2025). The synthesis between artificial intelligence and editing stories of the future. In Transforming cinema with artificial intelligence (pp. 221-240). IGI Global Scientific Publishing.

Esezoobo, S. O., & Braimoh, J. J. (2023). Integrating Legal, Ethical, and Technological Strategies to Mitigate AI Deepfake Risks through Strategic Communication. International Journal of Scientific Research and Management (IJSRM), 11(8), 914-924.

France, D. (2020). Welcome to Chechnya [Documentary film]. HBO Documentary Films.

Hutson, J., & Smith, A. (2025). Cinematic Algorithms: The Rise of Generative AI in Video Art and Visual Culture.

Rodríguez-Ibánez, M., Casánez-Ventura, A., Castejón-Mateos, F., & Cuenca-Jiménez, P. M. (2023). A review on sentiment analysis from social media platforms. Expert Systems with Applications, 223, 119862.

Jacobs, J. (2021). Bourdain Documentary's Use of AI to Mimic Voice Draws Questions. The New York Times.

Nichols, B. (2017). Introduction to Documentary (3rd ed.). Indiana University Press.

Singgalen, Y. A. (2024). Comprehensive Analysis of Sentiment Classification and Toxicity Assessment in Cultural Documentary Videos. Journal of Computer System and Informatics (JoSYC), 5(3).

Vaccari, C., & Chadwick, A. (2020). Deepfakes and disinformation: Exploring the impact of synthetic political video on deception, uncertainty, and trust in news. Social media+ society, 6(1), 2056305120903408.

Wankhade, M., Rao, A. C. S., & Kulkarni, C. (2022). A survey on sentiment analysis methods, applications, and challenges. Artificial Intelligence Review, 55(7), 5731-5780.

Yang, W., Lee, H., Wu, R., Zhang, R., & Pan, Y. (2023). Using an artificial-intelligence-generated program for positive efficiency in filmmaking education: insights from experts and students. Electronics, 12(23), 4813.