

A.I. as a medium: the production and consumption of documentaries programming against the background of media convergence

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Abstract: In recent years, the documentary film industry has grown considerably, including the diversification of creative means, the enrichment of broadcasting platforms and the further improvement of the industrial chain. At the same time, with the continuous development of the global economy and culture, the influence of industrial civilization and technological freedom has penetrated into every aspect of social life. Nowadays, Web 3.0 is driving and enhancing the way viewers think, and the means of communication are changing. At the same time, while global trends are at a critical point in the evolution of the industrial economy to a digital and smart economy, new media echoing the times are emerging, among which artificial intelligence is gradually becoming a mainstream intermediary in communication as an extension of the human brain. From this perspective, this paper explores how artificial intelligence as an intermediary is changing the way information is presented, the way media content is produced, and the relationship between communicator and recipient, thereby affecting the development of documentary film.

Keywords: AI, Web 3.0, Documentaries Filmmaking, media convergence, production and consumption.

1. Introduction

Looking back, as early as 1973, American sociologist Daniel Bell outlined the development process of human society as comprising the "pre-industrial society", "industrial society" and "post-industrial society". (Bell, 1976) [1] Today, as Bell predicted, the current technological environment is being impacted by the "third wave", represented by the information revolution, with the Internet moving from the digital Web 2.0 stage to Web 3.0 (Szeredi, 2014) [2], characterized by media intelligence (Alva, 2020) [3].

This research will incorporate the above historical background on the technology wave, Initiating investigations of a study of the production and consumption of documentary films from the perspective of AI as an intermediary medium. It can be divided into three main parts: a study of the concept of the creation of a new media ecology of HCI (MacKenzie, 2012) [4] of "human-computer interaction" or even "human-computer integration"; a study of the technology and production methods; and, a study of the consumption models. As mentioned in the background introduction, the current stage of information consumption is based on the technological revolution of Web 3.0, a collection of concepts and behavior of people in economic activities and changes in their way of thinking and practice in response to the external environment. In the case of documentary creation, it involves the influence of the creator, the audience and the market, and operates in a social environment and cultural climate. This means that the consumer culture of each era permeates the entire process of documentary creation. At the stage of Web 3.0, the impact of documentary creation with the involvement of AI lies, firstly, in the changing and controversial concept of creation, with constant discussions about the boundaries of ethics and morality, and, secondly, in the different aesthetic needs, as the cultural characteristics and consumption habits of current documentaries are changing due to the changing

creative consciousness and production framework of the AI era.

2. Research on the new media ecology of "human-computer linkage" and "human-computer integration" in the documentary market

Artificial intelligence will become a new tool and an irreplaceable intermediary in documentary production. According to the communication scientist Schramm, "a medium is a tool for expanding and extending the transmission of information in the process of communication" (Schramm, 1963) [5]. In reality, AI is not only becoming a mediator of people's access to everyday media messages but also a tool for documentary production. In the article 'Borden Documentary uses AI to mimic voices to elicit questions' (2021) [6], Morgan Neville's documentary 'Roadrunner' uses 45 seconds of AI-generated voices that sound like Borden. The use of AI technology for simulation in the making of the documentary generated a lot of thought and discussion. Some viewers discussed the ethics of using AI simulation in this documentary; in this case, is it ethical to use AI technology as a medium to deliver a message to the audience? Is this use in line with the original intent of documentary production? There are concerns that this precedent for the use of AI technology in the documentary market might generate social 'hype' and public opinion that contradicts the nature and purpose of documentary filmmaking (Denis, 2010) [7]. Nowadays, We can still use this principle from Kant's moral philosophy (Johnson, 2023) [8], Kant clearly states that "the law is the lowest standard of morality". When there is no specific legislation in international jurisdictions regarding the boundaries of the use of AI technology in documentaries, does the academic definition of 'boundaries' become more important for documentary consumers? The question of the

relationship between humans and AI is a concept worth thinking about and studying in the age of AI. While AI cannot currently surpass human creativity, it can take on part of the information gathering process, data collation and content creation, freeing media people from some repetitive and tedious tasks, thus saving time for creative work, but AI also imitates human creativity. The convenience that AI brings on the one hand, the social debate about the ethical definition of morality on the other, and where the boundaries of AI creativity lie, are a series of creative ideas that will be investigated in this proposal.

3. A study of AI-mediated approaches to the technical production of documentary films.

The relationship between technology and human beings has changed significantly in the course of technological development. Ever since humans started using tools and adapting them, humans have been evolving in vitro, which is the “theories of technology as extension of human faculties” (Kapp, 1877) [9]. In essence, artificial intelligence (AI) is simply a form of technology that is an extension and expansion of human faculties. The question of the relationship between humans and AI is a question worth pondering and an important variable in the transformation of Web 3.0. Now with the advent of Web 3.0, while AI cannot currently surpass human creativity, it can replace some of the occupations that people do to earn a living, such as in the information gathering process, data collation and content creation. Objectively speaking, the use of AI technology is widespread within the context of integrated media, freeing media professionals from some of the repetitive and tedious tasks and thus freeing up time for more creative work.

This is a critical time, as the wider media environment is being influenced by the changing technological landscape and, as a result, documentaries (once known as the “barometers of social development”) are increasingly reflecting a new trend toward artificial intelligence. The arrival of new technologies such as cloud data, 5G, VR, AR, AI/ AICG, etc (Global economic forecasts, 2023) [11], have to some extent changed the audiovisual techniques, genres, and overall ecological landscape of traditional documentaries. The arrival of AI technology has enabled documentaries to be produced across disciplines, with robots and humans working together, or even with AI programming used to automatically edit and produce documentaries. One example is ‘Coding reality: implications of AI for documentary media’ (Kapur, 2022) [12], a project that presents the framework of co-creation between artists and AI in the context of documentary production making. After researching and studying the examples and background news above, I considered this topic deeply. From my previous experience working for CCTV, I understand that the media industry is an industry that interacts closely with people, especially journalists and documentary film teams. If technology is again going to change the rules of the industry, how will the environment I used to work in, and the audience, change?

In fact, one of the major research directions of both AIGC (TheFreeDictionary, 2019)[13], and ChatGPT (OpenAI, 2022) [14], is the Natural Language Processing (NLP) task (DeepLearningAI, 2023)[15]. In other words, it's about machines that read as well as work with human language.

In terms of AI-edited language, ChatGPT's substantive

algorithm is the mathematician Bayes' theorem (DeepAI, 2019) [16]: $P(A|B) = P(B|A) * P(A) / P(B)$, where:

- o $P(A|B)$ denotes the probability of A if B is known to occur.
- o $P(B|A)$ is the probability of B if A is known to occur.
- o $P(A)$ denotes the probability of A occurring.
- o $P(B)$ denotes the probability of B occurring.

If the generated sentence is considered to be A and the known language pattern is considered to be B, then ChatGPT can calculate $P(A|B)$ using Bayes' theorem to determine whether the generated sentence makes sense and, if the probability holds, the AI will deliver this information to the human.

This evolutionary principle leads me back to the future possibilities of the industry, where most positions in the media industry could be replaced because ChatGPT, as an AI language model (Forbes, 2023) [17], can do many things. For example, AIGC/ChatGPT can replace journalists' interviews and have real-time conversations directly with people (Kiguru, 2023) [18]: asking questions instantly because the program allows the machine to understand the context and achieve continuous dialogue, enabling rapid news story generation. ChatGPT can even write documentary scripts, storyboards, lighting plans and daily call sheets with one click in what once would have required a lengthy documentary production session.

From the technological perspective, this proposal will analyze and investigate how the emergence of new types of documentaries, such as VR documentaries, AR documentaries, AI/AIGC documentaries and interactive documentaries, has injected new momentum and new ideas into the AI technology transformation of traditional documentaries in the new media era and the improvement of the media industry chain. It will consider the current situation of these new categories of documentaries and the issues that need to be explored.

4. Research on the consumption patterns of documentary films in the era of AI

This paper examines the production and consumption of documentary films from the perspective of artificial intelligence (AI) as a mediating medium. It includes a study of production methods and consumption patterns. As mentioned in the introduction, the current stage of information consumption is a technological revolution based on Web 3.0 (Gary, 2022) [19], a collection of people's perceptions and behaviour in economic activities, and a change in the way people think and practice within their external environment. In the case of documentary creation, it involves the influence of creators, audiences and markets, and operates within a social environment and cultural climate. This means that the consumer culture of each era permeates the entire process of documentary creation. In the Web 3.0 phase, the impact of documentary creation involving artificial intelligence lies firstly in the changing and controversial concept of creation, with constant discussions on the boundaries of ethics and morality, and secondly in the different aesthetic needs, with the cultural identity and consumption habits of current documentaries changing as a result of the changing creative consciousness and production framework.

The use of AI technology to simulate sound in the Bourdain documentary (released in 2021) [20] provoked much thought

and discussion. From the point of view of the output of documentary production, the nature of which is inherently constrained by real life and difficult to produce at high rates, the arrival of AI technology has changed the cost of documentary production, inputting codes that allow the production of documentaries to be standardised and reproduced according to a template, facilitating mass production while at the same time also facilitating identification and consumption. This is a necessary condition for the development of the industry. If producers need to save costs to increase production, then there will be an increasing number of 'documentary factories' (Rosner, 2021) [21] based on AI technology that resemble assembly line production. In other words, documentaries will become more commercialised due to the arrival of AI technology, as production costs will rapidly decrease, production volumes will increase, and the works can be reproducibly standardised on the basis of defined cycles, funding and personnel. However, as "artworks step away from the artist and start to pounce on the hands of the consumer." it will also become an inevitable trend that the increase in the size of the art-consuming public will lead to a decline in the quality of works.

5. Conclusion

This proposal aims to summarise the research on documentary creation in the AI era and to examine the characteristics of humanities documentary creation in terms of the technological and technical aspects of documentary production, the ethical and moral boundaries in the context of AI, and the new economic consumption model.

1). The first of AI-mediated documentaries is the study of interactive technological models, including the creation of "human-machine" AI and the interaction between AI and the audience. The second is on the technology of AI creation for documentary films, where traditional documentary teams need journalists, scriptwriters, cinematographers, sound recorders and directors to produce documentaries on location. This proposal aims to analyse how AI technology can create documentaries in four areas: storytelling, video recording, visual directing and sound recording. Objectively speaking, storytelling in documentaries is crucial, and ChatGPT and Open AI language editing is a hot research topic at the moment. However, realistic reproduction is an important creative technique for the documentary genre, as an ideographic fictional language that serves as an effective link to documentary breakpoints, and is the real purpose and underlying principle for documentaries. In the production of documentaries mediated by AI technology, the interactive documentary with the addition of AI technology is particularly outstanding in terms of the richness and aesthetics of the audiovisual language compared to the traditional documentary and the production techniques are worth exploring.

2). The ethical and moral boundaries of humanistic documentary creation within the scope of AI deserve to be discussed. Cultural output is a reflection of the documentary's account of people and society, present and historical; however, the ability of AI technology in the documentary creation process to recognise human consciousness through programmed psychology will improve its ability to understand and learn from the human mind and promote the development of mind-level AI (McCarthy, 2007) [22]. The relationship between AI and the human mind has been

controversial in terms of moral and ethical boundaries. In terms of creation in the film and television industry, the integration of AI and psychology can promote mass production but it also restricts the cultural output of humanistic sentiments to a certain extent. Therefore, this proposal aims to define the ethical rules for the creation of AI in film and television.

3. This proposal also aims to explore the changes in the consumption patterns and laws of humanities documentaries mediated by AI, thus making the creation of AI-driven documentaries more in line with the laws of the consumer market and the aesthetic expectations of television viewers, as well as to be more conducive to the transmission of historical and cultural values. The consumption of documentaries reflects the characteristics of consumer society, such as consumer manipulation, and the consumer field is a social field rich in structure. From the perspective of documentary commercialisation, the efficient completion of documentary services is characterised by data customisation and precise placement for the market. The more noticeable turn of documentaries in recent years is the cross-border action, bringing in advertising and commercial promotion for profit-making purposes. This is followed by the commercial packaging of documentaries tending towards entertainment and the blurring of the boundaries between documentaries and dramas, as the market becomes the sole authority within the scope of documentary consumption, where profit is the highest indication of production. The number of documentaries distributed on the market depends on the real demand of consumers.

5.1. Figures

The AI-driven documentary is still a very innovative product in this age; therefore, this project will collect data in various ways, verifying and analysing it from many aspects.

(a.) Literature/journalism approach: The project will include an extensive review of relevant literature, summarising existing research findings on documentary films, finding suitable entry points, providing ideas for solving real-life problems, and investigating information and data from authoritative media reports, books and literature.

(b.) Case Study Method: This will involve collating documentaries that have been broadcast with AI as a mediator to present the current cultural characteristics of documentaries, moving from the individual to the general, and striving to achieve a comprehensive and objective analysis. Using Lasswell's model (Mulder, 2018) as a starting point, the five main areas of study of interactive documentaries in communication studies are examined: communicator, message, medium, recipient and effect.

(c.) Empirical research method: The subject will also be studied theoretically, via continuous learning and an investigation of interactive documentaries in documentary production and journalistic practice. It will be based on the results of empirical testing, adjusting research ideas, and revising and improving research methods to achieve the research objectives.

(d.) Comparative research method: Using the creative practices and classic cases from different historical periods and regions, the project will analyze the trends of the creation of documentaries in the technology genre in the era of consumer culture by comparing them vertically and horizontally, respectively.

(e.) Intertextual research method: This will combine the

technological development law of AI and the creation and consumption of humanities documentaries to find the necessary connection and causal relationship between the two, and explore the development direction of AI documentary creation in the era of consumer culture.

5.2. Equations

For this research, there is a need for data collection and technical equipment such as AR/ VR glasses/equipment, programming software, editing software, green-screen shooting facilities, etc. In addition, compared to the basic media crew, I also need to work with technicians/scientists/academics who specialise in AI or data programming to research and produce media production together. Finally, regarding data collection, it would be ideal if this could be supported by schools or public databases from the community or government departments that could facilitate the progress of this project.

References

- [1] Bell, D. (1976). *The coming of Post-Industrial Society* (pp. 36–41). Basic Books.
- [2] Szeredi, P., Lukácsy, G., & Benkő, T. (2014). *The semantic web explained: The technology and mathematics behind web 3.0*. Cambridge University Press.
- [3] Alva (2020, March 5). What is media intelligence and how has it evolved? (<https://www.alva-group.com/blog/what-is-media-intelligence-and-how-has-it-evolved/>)
- [4] MacKenzie, I. S. (2012). *Human-Computer interaction: An empirical research perspective*. Newness.
- [5] Schramm, W. (1963). *The Science of Human Communication: New directions and new findings in communication research*.
- [6] Jacobs, J. (2021, July 16). Bourdain documentary's use of A.I. to mimic voice draws questions. *The New York Times*. <https://www.nytimes.com/2021/07/16/movies/anthony-bourdain-ai-voice.html>
- [7] Denis, L. (2010). *Kant's metaphysics of morals: A critical guide*. Cambridge University Press.
- [8] Johnson. (n.d.). Kant's moral philosophy. Retrieved August 7, 2023, from <https://plato.stanford.edu/entries/kant-moral/>
- [9] Kapp, E. (1877). *Grundlinien einer Philosophie der Technik: Zur Entstehungsgeschichte der Cultur aus Neuen Gesichtspunkten*. Braunschweig: Westermann
- [10] Ai Group. (2023) Global economic forecasts - January 2023. <https://www.aigroup.com.au/resourcecentre/research-economics/economics-intelligence/2023/global-economic-forecasts-january-2023/>
- [11] Kapur, A., & Ansari, N. S. (2022). Coding reality: Implications of AI for documentary media. *Studies in Documentary Film*, 16 (2), 174–185. <https://doi.org/10.1080/17503280.2022.2048235>
- [12] AIGC. (n.d.). In *TheFreeDictionary.com*. from <https://acronyms.thefreedictionary.com/AIGC> DeepAI. <https://deepai.org/machine-learning-glossary-and-terms/bayes-theorem>
- [13] OpenAI. (2022, November 30). ChatGPT: Optimizing language models for dialogue. OpenAI. <https://openai.com/blog/chatgpt/>
- [14] DeepLearning.AI. (2020, June 17). NLP Special Issue! Powerful techniques from Amazon, Apple, NLP Special Issue! Powerful Techniques from Amazon, Apple, <https://www.deeplearning.ai/the-batch/issue-44/>
- [15] Bayes theorem. (2019, May 17). DeepAI. <https://deepai.org/machine-learning-glossary-and-terms/bayes-theorem>
- [16] Drenik, G. (2023, January 11). Large language models will define artificial intelligence. *Forbes*. <https://www.forbes.com/sites/garydrenik/2023/01/11/large-language-models-will-define-artificial-intelligence/?sh=662ba32fb60f>
- [17] Kiguru, J. (2023, January 23). ChatGPT can affect on crypto market? *Crypto News Flash*. <https://www.crypto-news-flash.com/chatgpt-can-affect-on-crypto-market/>
- [18] Garg, A. (2022, October 25). Web 3.0 Revolution: A new era. *Analytics Vidhya*. <https://www.analyticsvidhya.com/blog/2022/10/web-3-0-revolution-a-new-era/>
- [19] *The Guardian*, (2021, June 4). Anthony Bourdain: Trailer released for Oscar-tipped documentary Roadrunner. *The Guardian*. <https://www.theguardian.com/film/2021/jun/04/anthony-bourdain-trailer-roadrunner-morgan-neville>
- [20] Rosner, H. (2021, July 17). The ethics of a deepfake anthony bourdain voice in "roadrunner." *The New Yorker*. <https://www.newyorker.com/culture/annals-of-gastronomy/the-ethics-of-a-deepfake-anthony-bourdain-voice>
- [21] McCarthy, human-level AI. (n.d.). *Artificial Intelligence*, 171 (18), 1174-1182. <https://doi.org/10.1016/j.artint.2007.10.009>