Obstacles and Proposals of Artificial Intelligence News Writing

Xiaomin Wang[1, *], Zhuo Chen[2, a], Luwei Yan[3, b]

[1]School of Humanities, Tian Gong University, Tianjin, China

[2]Shi Liangcai School of Journalism and Communication, Zhejiang Sci-Tech University, Hangzhou, Zhejiang, China

[3]Capital Normal University High School, Beijing, China

[a]chenzhuo61@qq.com, [b]yanluwei2022@163.com

*Corresponding author: imwxm@qq.com

These authors contributed equally to this work

Abstract

In recent years, the continuous progress of artificial intelligence not only has had a significant impact on various industries, but also had been widely used in the field of journalism and communication industry. One of the typical applications is the field of news writing. While AI technology has made news writing more efficient and relevant, the limitations of its technical, algorithms, and policies have created a number of problems associated with it. This paper will discuss the negative impact of AI news writing in news content, user experience and traditional copyright, then offer corresponding suggestions for its development which could be helpful to journalists and the public.

Keywords

Artificial Intelligence; AI News Writing; Journalism; Robot Writing.

1. Introduction

People's lives are inseparable from the news, and the way news is written affects all aspects of life. In the current new situation of news writing, the way of writing news has changed dramatically, from the traditional single text to a new situation of collaborative way.

With the development of artificial intelligence, AI writing was used in the field of journalism increasingly. AI writing made structured data to be processed, that text automatically generated through software and algorithms. It has an extensive impact on journalism and communication. Not only as a challenge to traditional journalism, but also as an evolutionary power to the entire industry. At the same time, the dilemma of AI news writing has been gradually discovered.

This study focuses on the existing arguments of AI news writing，then presents the solutions. The problems brought by AI writing are mainly in the following three aspects: First, writing quality inferior to human journalists'; second, generating too much news to bother the audience; last but not least, unclear copyright ownership. For those three problems, this paper proposes different countermeasures so as to help AI news writing improve significantly. The given weaknesses and countermeasures can play a valuable role for the news industry and AI technology industry. Also, this study can offer some meaningful opinions to those who want to learn more knowledge from news content.

2. Related Works

In the academic world, scholars from a plenty of fields presented various views of AI. Most of them are noticing its strengths and weaknesses，such as communication content, communication models, and applications of artificial intelligence in the development of integrated media [1]，and the hidden ethical issues lurking in artificial intelligence applications[2].Also, AI writing has extensive impacts on the journalism and communication, not only as a challenge to traditional journalism, but also as an evolutionary power to the entire industry.[3].

In terms of news content, scholars such as Jing Ming and Lou Cui have discussed AI news writing in terms of journalistic ethics. Many researches focused on the depth, humanistic care, news value and news correctness of AI news writing.[4][5][6][7] XIONG Guo-rong et al. have proposed some feasible solutions, the most mentioned of which is to play a human-oriented positive value guidance and realize the importance of "human-computer collaboration"[8][9][10].

In terms of communication effects, the problems of "information overload" and "information cocoons" cannot be ignored. The algorithm of backstage influences news dissemination, people's lives and policies, and is influenced by mainstream values[11]. Some algorithm-centered APPs such as Jitterbug and other short video APPs have experienced serious problem because of user reasons, technical reasons and regulatory reasons[12]. To solve these two problems, the existing solution is to start from the government, media, technology and audience[13].

In terms of copyright, AI production has caused extensive legal debate. In the current legal regulations, AI creations are not legally liable as "works," some scholars like Annemarie Bridy[14] suggested that the current configuration of the law does not grant copyright ownership to the works generated by the actual author of the work because the actual author of the work (a software program that generates software) has no legal personality. Legal regulations should be enhanced to extend AI further to have legal effect and assume copyright liability.

In contrast, Chu Meng[15] believes that it is inappropriate to change the criteria of "contact + substantial similarity" and the principle of presumption of fault at this stage. However, it should be regulated and managed from the side of AI designers and controllers based on the autonomy of AI behavior, rather than improving it from the legal level. Moreover, Liu Qian has argued that AI creations should be originated to be called work and own their copyright, and therefore proposed that specific innovation requirements should be imposed on AI works[16].

3. Challenges of AI News Writing

Despite the significant success achieved in recent years, AI news writing is still a largely unsolved problem that is extensively researched by academia and journalism. The issues and ambiguities of this AI news writer are mainly based on the following factors.

3.1 Challenges to the content quality

AI news writing triumphs at collecting, classifying and delivering massive data accurately [17], which is instant, more efficient and precise in the way processing data [18]. However, along with the tremendous rising of news quantitatively, AI writing shows some shortcomings from the qualitative aspect. The essential work of AI writing is mainly about composing based on big data, which may lead to superficial report, unable to analyze and criticize the essence behind the scene and create a correct judgment that in line with the public values.

On the basis of informing the event itself objectively, AI and human journalists choose different perspectives in news writing. While AI is able to write more detailed statistics than human journalists, the depth of thought and interest in its content is not as good as the latter one. Among the 953 "robot NBA battle reports" completed by Dreamwriter robots on Tencent's sports from December 9, 2016 to June 13, 2017, the AI-written news tend to focus more on the events, simply showing the game's two sides' , with a monotonous words and mostly simple sentences that lack inter-sentence of logic

and emotion.[19] In contrast, human reporters tend to focus on the "human" side of the report, displaying the basic information of the game, but also portraying the highlights of the game and the rich reactions of the audience that the machines usually cannot recognize. In contrast, human works have a more rigorous logic and stronger visual impact.

AI writing relies on a big-data-based deep learning and produces manuscripts according to the programmed templates, whose data originated from the whole network, and self-media is an essential source of information [20] Due to the surge in the information currently, the threshold of self-media has significantly decreased. With the severe lack of regulation, it is difficult to argue the authenticity of information on the Internet. Therefore, the possibility of AI writing generating fake news is significantly increased. In addition, AI writing often stays on the surface when collecting information, it is not mature enough to detective deeper-level incidents, which leads to the incompleteness of manual intelligence collections to some extent. It is possible to produce some false news, which is undoubtedly deviated from the authenticity of the news.

The algorithm setting of artificial intelligence writing will also affect the authenticity of the news. Different degree educational engineers have designed the AI program, even if they have no subjective religion, gender, age, and other factors in writing procedures. In the process of screening the coding, they will not be accomplished into some unrecognizable subjective feelings [21]. Suppose the algorithm has intervention and correction of errors and ambiguous data. In that case, AI ignores this tendency due to established procedures so that the machine will continue to repeat the operation in a short time and generate tremendous amounts of false information in a short time. Reporting and rapidly pushing reports, data is generated in a large amount of processing, and the result of the final output could be misleading, which could negatively impact the public. When AI news comes with this untruthfulness and tendency, the audience often causes the AI screening mode to be an objective correct screening mode because of the lack of understanding of AI news writing [22]. Therefore, The public will be misled, which is often blinded by AI to ignore it is biased and unrealistic.

3.2 Challenges to the user experience

AI writing relies on algorithms to process a large amount of existing data for automatically generate text[3], it is capable of writing news based on hot spots and analyzing data and help write relevant news according to the needs of journalists, which can reduce data analysis time and writing time significantly. After the content is generated, artificial intelligence can push the article to the user based on extensive data analysis, making the production and dissemination of news more accessible and faster. In this procedure, the analysis, generation, and recommendation of algorithms influence the way of information dissemination and the audience's cognition[11].

An excellent experience of news reading comes from timeliness, authenticity, functional diversity, organic combination of form and content, and personalized customization. AI news writing plays a positive role in improving user experience in terms of timeliness, form, and content, and personalized customization. However, the efficiency of news publishing and dissemination are significantly improved, the number of information and the speed of growth increase rapidly, which lead to "information overload" and "information cocoons."

The situation of "information cocoons" generated in a number of information environments that mainly exists in short video APPs such as Tiktok and Kwai. In order to increase user registration and existing user stickiness, the algorithms of those APPs can automatically generate more hot-spot-related content and phrases, which might be recommended to content producers based on the news popularity under the background of big data. In addition, the collection and analysis of users' preference helps algorithms formulate accurate "user portrait," which enables the algorithms to generate and deliver the corresponding content[12]. In this way, the information received by users is enclosed in a cocoon woven by similar kinds of information. With this information cocoon in the form of "My Daily," the scope of information people receive is easily limited, like a closed-loop ---- algorithm ceaselessly gather hot news-related data, generate popular-related content, and constantly deliver to the user, who continues to receive similar content information. Such "information cocoons"

will lead to homogenization of the user-receiving content, making the "world of information" which should be bigger smaller, narrowing users' readings and visions, making them overly addicted or exhausted of the homogenized content.

3.3 Challenges to the traditional copyrights

AI news writer has the advantage in generating massive contents in a short period. There are some legal disputes between the AI-generated contents and traditional production when AI-generated contents are valued highly in the market: who bears the legal liability; whether the AI creations should be copyrighted; whether the developers or users should own the copyrights are undoubtedly a challenge to the existing copyright system.

To generate a specific style of articles in AI news writing, journalists need to input many articles to the machine[15], which could deconstruct the article according to the program set by the developer to form a set of algorithms automatically. To minimize the algorithm error, maximum input of training data is a necessary precondition[23]. When a large amount of training data is analyzed and processed by AI, which originates from copyright protection, it inevitably conflicts with the copyright owners. As a result, the generated contents of AI could be similar to existing productions. According to China's existing infringement standards, "contact + substantive similarity," the works generated by AI do constitute an infringement. However, as far as China's existing intellectual property system concerns, AI is not a "natural person" which cannot be the subject of infringement and bear the responsibility of infringement; since the machine could learn and generate independently, its creative activities are independent of human beings and completed by direct input[24]. Therefore, in the era of intelligent media, infringement of artificial intelligence creations occur, but no one bears the responsibility.

The subject of copyright in the traditional definition is the work, and works are often associated with natural persons. Therefore, in the general view, the results of non-human "creations" such as computers are not "works" in the sense of copyright and do not fall under the scope of copyright protection. In other countries, such as United States, United Kingdom, and Japan, considering that AI is progressing, AI-generated works are included in the scope of copyright law; for example, they prohibit the unauthorized use of AI creations; such as forbidden to use artificial intelligence to create things without permission[25]. On the contrary, there is still a gap in the relevant legal regulations concerning artificial intelligence creations in China. According to the "Dreamwriter" case and "Filin" case in 2018, the AI creation copyright dispute indicates that the Chinese copyright law currently judges whether artificially intelligent generations is a work, depends on the originality or whether it is created by a natural person. As far as the originality of work is concerned, the criteria for judging originality in copyright law should examine whether it is formally different from the expression of existing works and whether it can be interpreted as having a "minimum level of creativity[26]." In this way, it is not necessary to dwell on the proposition of whether the "creative act" originates from a natural person. It is unreasonable to use a natural person to determine the minimum level of creativity if there is no clear indication of the source of an AI creation and a natural person's work. Under the current framework of copyright law, AI written news is not qualified, those creations cannot be regarded as works[16]. However, if the status of AI creations is denied, a large number of AI creations will flow into the market for free, which is not conducive to stimulating the development of new AI and the generation of new creations. In the long run, it is also not conducive to progress and innovation in the cultural field.

4. Suggestions

4.1 Human computer collaboration

News communication activity is essentially a process of social knowledge construction and has "social heritage function"[27]. Despite AI news writing has greatly contributed to the transformation of journalism, it still cannot be a replacement for the independent thinking and critical thinking of traditional journalists. The collaboration between AI writer and media workers will become a trend

in the future. AI technology can be used to analyze events data, provide initial draft and deliver information to users in a planned manner while journalists can embellish and edit on more in-depth reporting. At the same time, data analysis will be conducted for the audience and journalists can improve based on the feedback. Thus the efficiency of news production could be maximized.

Lewis Mumford wrote in "Technology and Civilization": "To conquer the machine and make it meet human needs, we must understand the machine and know what it is."[28] Thus, when facing the trend of information explosion and the rapid development of AI, journalists need to play a dominant role. At the same time strengthen their ability of depth analysis investigation and become the supervisor of AI writer.

As a result, we can achieve the human computer collaboration and promote the future development of journalism in the direction of more efficient and intelligent.

4.2 User-centered adjustments

4.2.1 Improving willingness to access information and information literacy

Reading is still dominated by self-consciousness but driven by the algorithm. Some people call the person who passively accepts the recommendation information of the algorithm "information feeding people"[29] ，to avoid being that kind of people, requiring emotional changes of the users.

To counter the adverse effects of AI news writing, we should strengthen the audience's willingness to obtain information. First, people should take the initiative to find knowledge and seek information from multiple channels, rather than blindly waiting for or viewing the content generated or pushed automatically by fixed channels. In the process of digging their known or unknown fields vertically and horizontally, the audience can develop a broader perspective and explore more profound ideas. Second, people can counter algorithms by ignoring hot spots written by artificial intelligence or by back-searching or searching for more interests, making 'accurate portraits' less precise [30]. Under the guidance of the audience's willingness to obtain information, it is possible to break through the shackles of 'information cocoon' and 'information overload. ' At the same time, massive information and people's expansion can also play a complementary role.

As a receiver of a great deal of information, the audiences need to improve their knowledge and try to have the ability to identify the information to reduce the negative impact of AI news writing. Education is also worth awareness, significantly improving discernment ability towards plenty of information, understanding various fields of knowledge, and prudently judging whether the information is needed from their own needs. Furthermore, many mainstream media will also guide people to distinguish information, enhance anti-fraud [31], and audiences can also use these external resources to raise their information.

4.2.2 Algorithm Optimization

Existing algorithms can analyze preference of users and popular news to generate new hot topics. However, since data collection is based on existing platforms, it is difficult to predict interests of users, which make writing new and groundbreaking information to users became challenging. The algorithm should not only be able to empathize with users' deepest emotional needs and predict changes in their interests to write personalized content [29] but also be wary of the "information cocoons" and develop the complementary mechanisms to push an amount of information out of the users' sights as well.

4.3 Building new environments and regulations

4.3.1 Expand the scope of subject identification

AI is not a subject of intellectual property law, and even though it can simulate the human mind and complete the entire creative process independently, it cannot enjoy rights or assume responsibilities. The current configuration of the law cannot grant copyright ownership to the program-generated work in the actual author of the work because the actual author of the work (a generating software program) has no legal personality. However, the dilemma of AI-generated works under the current system could

be solved by expanding the subject of rights, which means proposing relevant law. It becomes the subject of its creations by making artificial intelligence a legal person and giving it a legal personality. In terms of the purpose of the legislation, granting AI intellectual property rights is not to provide incentives for its creative activities but to protect the rights of other human stakeholders. The advantage of this system is that it can avoid the allocation of benefits in advance. [32] The contribution to the design and use of AI will determine the sharing of benefits. When the fact of infringement exists, the legal person can be held accountable to given the corresponding punishment. The problem can be solved according to the existing system. Therefore, when AI is used in journalism, if it involves rights and other related legal issues, it can give legal benefits to the copyright of the creation at the legal level and provide a legal basis for the possible infringement of facts in the meantime.

4.3.2 Enhance the Standard of Originality

AI-generated content could be produced quickly and efficiently and can even generate works in batches，which may result in a sharp increase in copyrighted works and patents, which may eventually lead to copyright disputes between works. Based on this phenomenon, it is necessary to set a minimum standard of innovation for AI creations. Although it is challenging to distinguish AI works from human works, AI works are not as emotionally rich as human works and do not resonate strongly with humans. If the standard of originality is not adjusted, it is difficult for human works with depth and infectiousness to compete with the vast amount of works. Therefore, the standard of originality of AI works should be raised appropriately by emphasizing a minimum level of originality and requiring a certain level of creativity. Raising the standard of originality of AI works, highly creative AI works can be protected, which can help prevent the impact of massive and homogeneous AI works on copyright, maintain the order of competition between AI works and human works, as well as stimulate the production of more creative AI works. The standard of creativity should also be raised, for the news produced by AI, not simply by listing news information but by adding one's unique viewpoint on the truth of the matter.

5. Conclusion

In this study, the authenticity of news content, unfavorable user experience, and legal issues in the battle over copyright are argued. We also make several recommendations, focusing on the collaboration between AI and people, especially media workers, by optimizing algorithm, improving both willingness to access information and information literacy of users. Besides, it is better to pay more attention on the scope of subject identification, improving the originality identification criteria. We hope that this paper may provide more inspirations to AI news writing developers, content consumers and those who assisted by AI in the news industry.

References

[1] Sun, H. (2021) Exploration on the Application of Artificial Intelligence in the Integrated Development of Media under the Background of Intelligent Media. The Science Education Article Collects, 19, 173-174.

[2] Wang, Q., Cao, X. (2021) Five Implicit Ethical Ｒesponsibilities in the Application of Artificial Intelligence. Studies in Dialectics of Nature，7, 39-44.

[3] Yu, J.（2021） A Pilot Study on the impact of Artificial Intelligence Writing Technology on the news communication industry. Sonogram Culture, 12, 166-167.

[4] Li, R.(2021) The Impact of AI News Writing on Traditional Journalism. Journalism & Media Studies, 5, 94-95.

[5] Liu, Y. (2020) The Coexistence of Artificial Intelligence and Journalists from the Perspective of "Human-Machine Collaboration". Radio & TV Journal, 9, 203-205.

[6] Meng, D., Liu, J, Wang, Y. (2021) Disruption and Reinvention: News Production in the Era of Artificial Intelligence. Chinese Editors Journal, 4, 21-25.

[7] Jing, M., Luo, C. (2018) Reflections on the Ethical Failure of Artificial Intelligence Technology in News Communication. View on Publishing, 1, 9-13.

[8] Xiong, G, Li, X. (2016) The Challenges of "Robot Reporter" on the Employment of Journalists and Countermeasures. Editorial Friend, 11, 73-77.

[9] Liu, T. (2015) Where do journalists go when robots come. China Media Technology, 9, 20-22.

[10] Zhang, X(2020) Exploring the current situation and dilemma of the integration of traditional media and new media. Journal of News Research,17, 112-113.

[11] Yi., C(2021) The "algorithm" power to regulate the operation of the digital society. Digital World，Study Times. Study times, 003.

[12] Liang, Z. (2021) The Breakdown and Establishment of the "Information Cocoon" Effect in the Short Video Era--The example of Tiktok's "Net Generation" youth user group. Journalism Research Guide. Journal of News Research , 11, 8-10.

[13] Fan, M., Huang,Y., Qalati,S.A.., Shah, S.M.M., Ostic, D., Pu，Z.(2021) Effects of Information Overload,Communication Overload, and Inequality on Digital Distrust: A Cyber-Violence Behavior Mechanism Frontiers in Psychology, 12, 1-11.

[14] Bridy, A. (2012) Coding Creativity: Copyright and the Artificially Intelligent Author. Stanford Technology Law Review, 5, 21-22

[15] Chu, M. (2021) Challenges and Countermeasures of Artificial Intelligence to Copyright Infringement Liability System. Northern Legal Science,1, 145-146

[16] Liu, Q., Hu, S. (2019) The Dilemma under the Background of Artificial Intelligence on Intellectual Property Regime and Its Reforming Path. Journal of Chongqing Technology and Business University(Social Sciences Edition) , 4, 130

[17] Wang, Y. (2021) The Dilemma of Journalism Ethics in the Era of Artificial Intelligence and Countermeasures. Journalism Communication(12),16-17.

[18] Yan, X. (2020) Shortcomings of Artificial Intelligence News Writing and Development Strategies. Youth Journalist, 32, 8-9.

[19] Bai, G., Wang, T. (2018) The Realistic Dilemma and Improvement Path of Machine News Writing for Sports Events--Tencent's "Robot NBA Battle Report" as an Example. Journal of Shanghai University of Sport, 6, 23-29.

[20] Feng,H. (2018) A Study of Journalistic Values and Ethics in the Era of Artificial Intelligence. RADIO&TV JOURNAL, 3, 31-32.

[21] Yu, X. (2021) Failure and Reinvention: Exploring Journalism Ethics in the Age of Artificial Intelligence. New Media Research, 1, 16-18+23.

[22] Zhu, Y., He, G. (2021) Can Trust Reduce the Public's Perception of Risk in AI Technologies?. Studies in Science of Science.

[23] Zhou, Z (2016）Machine Learning. Tsinghua University Press. 2.

[24] Yu, R. (1994) The Machine Author: What Level of Copyright Protection is Appropriate for Fully Independent Computer Generated Works? University of Pennsylvania Law Review. 28, 400-446.

[25] Wu, Q. (2016) Should there be copyright for works created by artificial intelligence? Japan proposes legislation. http: //www.Chinanews.com/ gj /2016 /04－18 /7837942.shtml．

[26] Yi, J. (2017) Is an artificial intelligence creation a work? Science of Law(Journal of Northwest University of Political Science and Law) 5, 138-139.

[27] Li, Z. (2019) The Value Position of Journalists in the Era of Artificial Intelligence. View on Publishing (10), 61-63.

[28] Lewis M. (1963). Technics and Civilization.

[29] Ji, L., (2020) How to Crack Imformation CocoonRroom under the Background of Intelligent Media. International Journal of Social Science and Educational Research, 3,169-173.

[30] Lv, M., (2021) When people start fighting "algorithmic recommendations. Reporters'Notes, 19,,70-73.

[31] Xia, Y., (2021) Bottom-line awareness and social responsibility of media in the era of information overload. Youth journalist, 11, 43-44.

[32] Hua, J. (2019) The Dilemma and Solution concerning Application of Copyright Exceptions to Artificial Intelligence's Creation. Electronics Intellectual Property. 4, 31-33.