



Machine news writing in the age of artificial Intelligence: Current situation and future prospects

Ying Li

Zhengzhou University, Zhengzhou, China

1791681495@qq.com

Abstract. Since Tencent Finance launched the first machine news article in 2015, machine news writing began to enter the domestic public's vision. Machine news writing is a typical application of artificial intelligence technology in the field of news communication, which has greatly changed the existing business pattern and provided a new opportunity for the process upgrade and overall transformation of news production. With the emergence of chatGPT and other artificial intelligence, its ability in aggregating and releasing information, collating article data, collecting topic selection materials and other aspects is inestimable at the level of news writing. However, pending news ethics issues behind intelligent news cannot be ignored. This paper will focus on the development status of machine news writing, and finally put forward some suggestions for avoiding its negative effects. In order to realize the cross-field collaborative development of machine news writing and news communication.

Keywords: machine news writing; Artificial intelligence; ChatGPT.

1 Introduction

Machine news writing, as a content production mode innovated by artificial intelligence technology in journalism, automatically analyzes, processes and processes the collected and input data information, and then generates a relatively complete news report according to specific scenarios. The author takes the application of machine news writing in China in the past 7 years as the research object, tries to analyze the development status of machine news writing, and explores the new direction of artificial intelligence reshaping journalism. [1]

Machine news writing, also known as "automated news", "news robot" and "algorithm news", can be traced back to the American press. In 2001, Google successfully wrote an algorithm program that could select and recommend news, which opened the prelude of machine news writing. [2]China's machine news writing originated from the 2015 Tencent finance launched "Dreamwriter" program, and quickly set off a wave of development, has emerged "Kuaibi Xiaoxin", "DT draft king", "Zhang Xiaoming", "Xiaonan", "Microsoft Xiaoice" and other specialized for news production "robots". In 2022, the birth of chatGPT is to make machine news writing attention

© The Author(s) 2024

Z. Zhan et al. (eds.), *Proceedings of the 2024 10th International Conference on Humanities and Social Science Research (ICHSSR 2024)*, Advances in Social Science, Education and Humanities Research 858,
https://doi.org/10.2991/978-2-38476-277-4_126

again.[3] At present, the topics of machine news writing are mainly sports competition and economic hot topics. The efficient output of intelligent collection, analysis and writing has freed journalists from tedious and heavy work. However, due to its initial development stage, machine news writing inevitably brings the dilemma of the collapse of news professionalism, privacy violation and the aggravation of echo chamber effect. [4]However, as Kevin Kelly said, "We have to get on the same track as technology and give it grace and beauty." We need to stop technology from running like a wild horse, and instead build a good online ecosystem based on reality and its development and application, so as to ensure the sustainable development of machine news writing. [5]

2 The Writing Process and Characteristics of Machine News Writing

2.1 The Writing Process of Machine News Writing

2.1.1 Information Collection, the Establishment of a Database

Like human journalists, news writing robots also need to collect information before writing, but they cannot conduct interviews like human journalists.[6] The process of collecting information relies on big data technology. According to the different fields of their own work, various news writing robots collect the information they need from the massive information of the Internet to prepare the material before writing. The news writing robot only needs to connect to the Internet and use technologies such as web crawlers to automatically collect information from publicly published information on the Internet without interruption. [7].

2.1.2 Analysis of Data, Select the Appropriate Data

At present, the financial news and sports news fields mainly used by news writing robots produce a large amount of data every day.[8] How to accurately and quickly find the required information in the massive data, the robot has its own unique logic. The process of analyzing data is actually the process of selecting data that conforms to the news value. In this process, the robot first excludes illegal data, such as sensitive words and obviously wrong data, and then selects data that coincides with the news value according to the preset news points.

2.1.3 Matching Template, Automatically Generate the Main Body of the Manuscript

After the first two steps, the news writing robot has now reached the most creative step. The robot should match the most appropriate language template model based on the best news angle selected by the algorithm and the selected data, and then fill the selected key data into the language template model to automatically generate the main body of the manuscript.

2.1.4 To Polish the Manuscript and form the Final Draft

Some news writing robots can automatically polish the manuscript, so as to eliminate the template traces as much as possible, make the stiff language generated by the algorithm more vivid, and increase the readability of the manuscript. Some news writing robots can also add language with human feelings to make the manuscript look more humane.

2.2 Characteristics of Robot News Production

2.2.1 Fully automated News Generation Model

The biggest feature of robot news is the full automation of news production. In the process of specific news writing, manual participation is not the key and decisive link of news product output, and the main body of news production has realized the transformation from human to machine. For example, there are several steps for narrative science companies to write news: First, a large amount of data is collected based on existing data or databases, especially highly volatile data in the financial industry and the sports industry, and algorithms are used to extract key information from the collected data. And structured processing. Secondly, on the basis of the analysis results, news points are selected, and fixed article templates are applied according to different reporting themes to generate news releases. Finally, manually edit, polish, review and publish as needed. From the existing application situation, the algorithm can not only complete the real-time capture of information and data, but also simulate the writing style of well-known journalists or writers, and realize the customization of the style of writing. The robot composes sentences according to the words provided by senior journalists, thus completing a narrative work.

2.2.2 News Production System Based on Big Data

The generation of robot news is based on an increasingly large database, which is an extension and application of data news, including information push of specific third parties in the Internet, sensor news based on social media, statistical analysis of information search intensity and frequency. The increasingly large database provided by the Internet and the Internet of Things is the basis for the development of the entire data news, and specific programming software and algorithms are the direct technical support for robot news. The implementation of the algorithm in a specific software environment integrates the process of editing, editing and evaluation of traditional news production, simplifies the complexity, and forms a two-step news production mode from ' data capture ' to ' document generation ', which greatly reduces the traditional news production process and optimizes the entire news production system.

2.2.3 One-touch News Production Speed

'Speed ' is a key element in the process of news gathering and writing. The robot of automatic writing is on standby 24 hours a day. When an emergency comes, it can automatically generate manuscripts at the first time according to the algorithm, in-

stantaneously output analysis and judgment, and send important information and interpretation to users.

3 The Survival Status of Machine News Writing

Machine news writing has the incomparable advantages of manual writing, which can efficiently conduct news gathering and editing and greatly shorten the news production process. However, there are also difficult problems such as template solidification and privacy infringement.

3.1 The Advantages of Machine News Writing

3.1.1 Simplify the Production Process, Expand the Production Time and Space

In modern society, the flow of information is characterized by high-speed, massive and network divergence. Machine news writing supports non-stop work day and night, and is far more efficient than manual news gathering and writing. For example, the Associated Press used AI to generate reports on demand data, which increased the number of subjects reported from 300 to 4,000. Xiaomingbot, China's first news writing robot to report sports news, combines many of the latest data processing technologies at the time and writes articles at an astonishing speed, from content generation to text polishing and then publishing via a client in just two seconds. During the Rio Olympics, Xiaomingbot made its debut. In more than 10 days, XiaomingBot wrote 457 articles on events such as soccer, badminton and tennis, with an average daily output of more than 35 articles. The release of articles was so fast that it almost kept pace with live broadcasts.

3.1.2 Make News More Authentic and Lower Production Costs

Machine news writing has a strict program setting, through the pre-set news gathering and analysis framework, into the standard and modal framework, so as to achieve efficient text output. In the traditional news writing process, the probability of error can not be avoided in every link. The mechanized procedure of machine news writing minimizes the error probability of each link, and ensures the authenticity and objectivity of news production to a certain extent. On the other hand, for the content of high data density, high information transparency and low context, such as finance, sports and public opinion surveys, artificial intelligence can almost effortlessly dig out the hidden rules in the data, which will quickly reduce the marginal cost of the manuscript. In November 2022, chatGPT shocked journalists with its flexibility in copy acquisition and content generation, expanding production time and space while reducing the time, effort and cost of journalists going out to collect and write.

3.1.3 Form the "Shadowless Lamp Effect" and Construct a Global Perspective

Machine news writing can realize intelligent labeling, clustering and matching for mass content production, so as to integrate the personal production information dis-

semination which is currently disorderly and mixed into a communication framework and platform with certain ecological significance. The dissemination of news information forms a "mutual check, complement each other, extend each other, correct each other", "shadowless lamp effect". At the same time, it can form a structural analysis conclusion through the overall processing of big data and fragmented texts, and dig out the social value of the data and texts that are of little significance individually, giving people a new perspective of the overall. In early November 2015, Xinhua News Agency began to use the news writing robot Kuaibi Xiaoxin, currently working for the Sports Department of Xinhua News Agency, the Economic Information Department and the China Securities Journal. It can output both Chinese and English sports news reports and financial news, and there are several writing programs that can be switched according to different functions.

3.2 The Dilemma of Machine News Writing

3.2.1 Frame Solidification: The Paranoia of Textual Logical Selection

The existing machine news writing topic is relatively simple, focusing on the economy and disaster, sports and other solidized reports, but in terms of discourse generation and text analysis, the fixed and standard procedures of machine news writing lack the all-round and multi-level analysis of events, and it is difficult to reach the depth of content. On the contrary, from the perspective of the author's main body, the audience immersed in the news text set by the agenda will gradually lose their own value orientation, and take the click-through rate or exposure rate as the only standard to choose news. In the framework of text logic, it is not conducive to the benign development of the overall news ecology.

3.2.2 Information Cocoon: the Shackle of Information Interest Selection

The balance of good and bad in robot news writing often needs to be determined by a set of data, and relying solely on click-through rates and leaderboards to determine the choice of news seems inadequate. Apart from the vision of the theory of news value, the analysis of importance and interest in robot news writing is too superficial, and in the long run, readers will easily fall into the standardized news circle and fall into the shackles like a cocoon. From a macro point of view, long-term acceptance of homogenized information makes readers gradually lose the ability of rational analysis and criticism, and then become "one-way people" as Marcuse said.

3.2.3 Isolation of Emotion: the Coldness of Intelligence-driven Text

The current development of artificial intelligence does not have a complete human emotional logic, the retarded can not think independently at present, and it is difficult to make breakthroughs in depth and individuation. Traditional journalists cannot avoid their judgment, values and humanistic care between the lines of news and information collection and writing, which is incomparable to artificial intelligence writing. As Lu Xinning, deputy editor-in-chief of the People's Daily, said at the 2017 Forum on Media Integration and development, "As a journalist, I tremble for earthquakes, but robots do

not." Machine news writing does not have a strong influence and communication power in shaping the temperature of news, and the transmission of cold words has become a major shortcoming of machine news writing at present.

4 The Future Prospect of Machine News Writing

4.1 Man-machine Collaboration to Break Information Silos

The technological intermediation of news facts believes that in order to carry out a complete report, the original news facts obtained by journalists through body organs must be organically unified with the facts obtained by technological tools. Machine news writing has the advantages of high efficiency of news gathering and writing and can reduce the cost of news production, while manual writing has the characteristics of special human emotion logic, thought and depth. The two complement each other's advantages. In the era of artificial collaboration, man and machine are not in a relationship of decline and decline, but should achieve human-machine symbiosis in deep cooperation.

4.2 Push News on Demand to Create Personalized News

In the future, machine news writing can conduct comprehensive and standardized data collection and processing for data, which can quickly "filter information bubbles", improve the degree of segmentation of the user market, and build a "free market" with the characteristics of balance and rebalancing of information flow. In the future, machine news may be based on the content aggregation process of Internet production logic to provide users with customized content synthesis and recommendation, so as to realize the accurate matching of data news and user needs.

4.3 Expand Reporting and Cover New Areas

At present, the application field of machine news writing focuses on standardized news information such as sports and finance, but it has not been developed in other fields, and the existing problems such as template rigidity and logic confusion need to be further improved. Machine news writing needs to focus on learning the general expressions closest to human brain cognition and acquiring the multi-mode perception ability similar to human brain, so as to create warm news with emotional commonality and humanistic care. Secondly, it is necessary to innovate news reporting methods for specific groups, learn to recognize and generate different kinds of languages, and produce news with more dimensions and languages.

5 Summary

For the media field, the application of artificial intelligence represented by ChatGPT as an auxiliary tool to art creation is a way to expand the creative dimension, and it is also

a continuous exploration of technology and art behind human-machine collaboration. In the future, it is necessary to constantly improve the use of artificial intelligence norms, so as to establish a production model combining intelligence and industrialization, and guide the media industry to develop in the direction of higher quality.

The application of artificial intelligence technology has brought unprecedented changes to news communication, greatly improving the efficiency of information production and dissemination, but at the same time, there are inevitably some problems - fake news created by bad media is widely spread under the support of artificial intelligence technology, users are trapped in the information cocoon, and legitimate rights and interests such as privacy and right to know are violated... All these need to be constantly improved by media people in their exploration.

Based on the integrated development of artificial intelligence in the field of media creation, this paper puts forward how media practitioners should change their thinking, transform the survival worries brought by artificial intelligence into a driving force for their own capacity building, and give full play to the cultural and emotional value of people in artistic creation. It is believed that with the joint efforts of news organizations, journalists and users, artificial intelligence technology will surely continue to develop in the direction of benefiting mankind.

Marx put it in *Capital*: "The productive forces of social labor are, above all, the forces of science. By incorporating the tremendous forces of nature and natural science into the process of production, large-scale industry is bound to greatly increase the productivity of labor." Machine news writing driven by artificial intelligence has brought a brand new paradigm revolution as a way of news communication and news communication concept. After clearly recognizing the advantages and disadvantages of machine news writing, perhaps what we can do now is to understand, believe and promote the development and change of machine news writing in a reasonable way while constantly alerting ourselves. Instead of locking ourselves in the dark "cage" of machine ethical thinking, unable to look up and see the dawn of human transcendence.

References

1. Yu Guoming. "The development of Artificial Intelligence and the Logic of the Change of Media Pattern", *News and Writing*, 2 (2016).
2. Xu Zhiqiang, Xu Jinyu. "User Portrait Construction and User Experience Optimization Strategy Based on Big Data", *China Publishing*, No.6, 2019.
3. Zhang Hengjun, Zhang Zhiting. Ethical risk management in machine news writing dilemmas and regulations. *New Media and Society*, 2021, (01):32-46.
4. Xu Zhiqiang, Wang Yang, Zhang Sen. The Principle, Present situation and future of Machine News Writing in the era of Artificial Intelligence [J]. *Television Research*, 2021, (01):66-68.
5. Ren Ding. Machine News Writing: Exploration, Research and Practice of Media Industry [J]. *Media*, 2020, (21):25-27.
6. Ji S, Minwoo L, V.G. G, et al. Embracing the ChatGPT revolution: unlocking new horizons for tourism[J]. *Journal of Hospitality and Tourism Technology*, 2024, 15(3):433-448.

7. Barboza C A, Marroquín B E, Martínez C C F, et al. An evaluation of 'ChatGPT' Compared to Dermatological Surgeons' Choice of Reconstruction of Mohs Surgical Defects. [J]. Clinical and experimental dermatology,2024.
8. Daungsupawong H, Wiwanitkit V. Using ChatGPT's data analyst feature for cardiovascular imaging research: correspondence.[J].The international journal of cardiovascular imaging,2024.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

