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Analysis of Intelligent Content Production in Mainstream Media at the Current Stage--Exploring the Limitations of Machine Writing in Mainstream Media

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Abstract: *Artificial intelligence has gradually entered the field of journalism. Robot news writing has reconstructed the traditional newsgathering model but has limitations. The reshaping of the model is reflected in breaking the time and space limitations of news writing, ensuring the accuracy of the information under big data technology, and simplifying the editing process; however, there are still certain limitations from the perspectives of developers, media practitioners, users, and technology, such as a single writing mode, lack of emotion and deep reading ability, and easy to cause privacy violations. It is predicted that in the future, robotic news writing will move toward human-robot collaboration amid opportunities and challenges, and realize the complementary advantages of journalists and robots.*

Keywords: *robot news writing; mainstream media; limitations of intelligent content production*

Digital Intelligence Era: Writing Robots Assist News Production

From traditional media to new media and then to intelligent media, the communication pattern has been changing. In the process of mainstream media as the core, to "decentralization", and then to the current stage of user-centered, the user's position has changed from a passive role of the recipient to an active role of creating data and dominating the media. Users' media habits are changing in time and space, and people are increasingly pursuing "fast" and "fragmented" behavior. Based on the development of big data technology in the era of digital intelligence, any data on the Internet can be captured and even the user loses the right to be forgotten, and the captured data can be self-analyzed and tracked according to a set program to meet the needs of the owner. In this media environment and technological change, writing robots are being used to assist in news production.

The emergence of writing robots replaces the mechanical and repetitive work of journalists, speeds up the production of news, ensures the timeliness required by users, significantly increases the number of news produced, reduces the mechanical errors caused by manual labor, and reduces the cost of producing and writing news. There are already a large number of writing robots around the world, such as "Quakebot" for financial news on the Los Angeles Times website, "Dreamwriter" for Tencent Finance, "Quickwriter" for Xinhua News Agency, and "Quakebot" for the Associated Press. Pen Xiaoxin", "Wordsmith" used by the Associated Press

and Yahoo, "Blossom" by the New York Times, "Zhang Xiaoming" of Today's Headline, and so on. "Zhang Xiaoming" and so on. The emergence of writing robots is undoubtedly a technological advancement that reduces the pressure on journalists, but at the same time, there are still many limitations of machine writing, especially for mainstream media at this stage, so this paper will explore the limitations of machine writing in mainstream media and explain the future expectations of machine writing by analyzing two aspects: machine writing and multi-level control of content and traditional media reform.

Machine Writing and Multi-level Control: Fixed and Single

At present, machine writing is not popular and is more often used in sports news and financial news, and the news content and framework are stereotyped, fixed, and single as well as weak in semantic analysis. This paper believes that the reason for this is the multi-level control of machine writing by developers, media practitioners, selective users, and technology.

Developers: Legal Ethics

For the program developers of writing robots, they are subject to legal and ethical control, so the content of machine writing is limited to the mass market. Machine writing is based on big data mining and integration, and the layers of mining and openness often involve users' privacy rights. Big data records any user's behavior, behavior trajectory, and behavior scene, "a person may be able to hide his trajectory in life, but as long as he goes online, then his trajectory either on the network or in reality will be recorded, and whether it is discovered depends on whether the controller of big data is open." During the outbreak of the epidemic in June 2020 in Beijing's Xixhongmen farming site, it was the government that called on big data to identify nearly 100,000 people at risk of coming into contact with the farming site and its people based on geographic trajectories, contacts, and other data. There is also a special problem for network user information mining - the user's "right to be forgotten", "mastering the past is mastering the future", so how should the extent of past information mining be considered? How should the extent of past information mining be considered? These are the legal and ethical issues that exist in the content mining of machine writing.

Media Practitioners: Solidifying the Framework

For journalists in the mainstream media, there are multiple levels of control over news reporting, resulting in a more entrenched framework for machine-written content. First of all, the media system of "one system and two operations" has a decisive influence on the mainstream media, secondly, the government, interest groups, and audiences will control the media, and then the media itself will pursue three major goals: political, economic and public. body, which eventually presents itself in the news content. The news framework of machine writing is edited by journalists, which itself indirectly exists for the multi-level control of journalists, but at the same time, due to the technical limitations of writing robots, the machine is not capable of learning enough to make the same news content as journalists. The journalist must then control the content of the machine again based on control, and to make it "error-free", it must be a simplified and solidified framework. According to the simple 5W1H news elements and fixed set of words for the template, the result is uniformity, lack of character, and depth. The headlines and newsletters use the same framework, and the words are almost the same, with serious traces of stenciling.

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Selecting Users: Objective Authority

The user here is generalized, referring to the object from which the writing robot selects content extracts. As the current news framework of writing robots is solidified, only the simple news elements 5W1H for objective things can be reported, so the current scope of robot writing is limited to financial news and sports news. To increase the watchability and richness of the news content, instead of only having objective data, the machine writing introduces commentary content in the news content, but to ensure its objectivity and the relative authenticity of the source, the content extracted by the machine writing is mostly from the authority, but this introduction leads to relatively delayed news integration, and the immediacy of this news is weakened. The following report, "August CPI rose 2% year-on-year, hitting a 12-month high", was integrated by Dreamwriter of Tencent Finance, which introduced authoritative commentary based on objective data, and the news was released on September 10 of the same year, weakening the immediacy.

Technology: Still Immature

Machine writing technology based on big data is not a new technology, as early as 2010, Wall Street began to carry out machine writing of financial news, and in 2015, machine writing began to be applied in China, and in September of the same year, Tencent Finance's "Dreamwriter" was officially launched, and in November of the same year, "Quicken Xiaoxin" was installed in Xinhua News Agency. From 2010 to the current stage, the robot's analytical capabilities have become stronger - a larger database, more data, more data processing capabilities, faster manuscripts, and even the ability to analyze images - but there are no breakthrough innovations in core technology. Machine learning capabilities are still at a preliminary stage, and semantic analysis capabilities are even more of a shortcoming for robots, still unable to do in-depth news reporting and the fundamental reason for their fixed single text content. The following are the semantic errors that occurred in the Olympic coverage by writing robots.

Due to the multi-level control that machine writing is subject to at this stage, resulting in its content being fixed single, stereotypical, and unable to conduct in-depth reporting, machine writing cannot completely replace human writing until there is a core breakthrough in technology. According to incomplete statistics, the frequency of machine writing application in domestic new media (today's headlines, Tencent, etc.) is much higher than that in mainstream media (Xinhua News Agency, etc.), and this paper will continue to explore the limitations of machine writing in mainstream media reform at the present stage.

Machine Writing and Media Reform: Tonal Differences

Content and Brand

In the era of new media, the traditional news production speed of mainstream media is no longer enough to satisfy users, who turn to the "post-truth" new media. Due to the interactivity and immediacy of online media, journalists cannot help but fall into the trap of time, sources, and emotions under the tremendous pressure of online changes, which has damaged the credibility of mainstream media. As in the case of the Xinjing News, which repeatedly engaged in misguided behavior of confusing the public without verification during the 2020

New Crown Pneumonia epidemic, leaving its credibility compromised and subject to naming and shaming by the Internet Information Office.

The fact that everyone has a microphone today, the network content grassroots, fragmentation, gradually towards the trend of entertainment, content pang, good and bad. As the user's media literacy cannot keep up with the growth rate of information and the absence of gatekeepers, it has caused a lot of information waste and even information disease. It is in this media environment of information overload with a lack of effective content that the mainstream media's quality content can show its advantages. But at this stage, the machine writing content is undoubtedly shallow and ponderous, and the produced content can be said to be quite "channel is king", more in line with the tone of the new media, and on the whole, is not suitable for mainstream media to enhance their brand value.

Caster once said, "the 21st century will not be the dark ages, it shows a characteristic of a confusion of the well-informed." In the flood of the times, mainstream media reform should adhere to their strengths, produce high-quality original content, strengthen the credibility of news, and reduce the confusion of users, rather than infinitely play their disadvantages to discredit the advantages.

Platform and Users

Creating its brand and content is king is the basis of mainstream media reform, and media platforming can lead to content co-creation and increase the sources of quality content. But the most important point is the need to do a good user survey, what are the expectations of users of mainstream media? What kind of content users are more likely to buy? According to the "Mobile People - Mobile Internet Panorama Survey" conducted by Professor Liu Dehuan of Peking University New Media Research Institute, it can be inferred that users who want to see entertaining news, instant hot news, and other fast food news will choose new media platforms (Today's headlines, microblogs, etc.), so in the positioning of mainstream media users, it is still content to the top. From the perspective of user orientation, the characteristics of machine writing, such as fixed single content framework and instant release, do not apply to mainstream media, and more releases are not necessary for mainstream media, but good content is necessary.

Near-future Expectations: Machine Writing in Mainstream Media and New Media Platforms

According to the above analysis, machine writing is more applicable to new media at this stage, and according to the incomplete statistics mentioned above, the frequency of machine writing application in domestic new media (today's headlines, Tencent, etc.) is much higher than that in mainstream media (Xinhua News Agency, etc.), this paper is suitable to reasonably speculate the different applications of machine writing in mainstream media and new media shortly (without core breakthroughs in machine learning technology).

Mainstream Media: Human-machine Collaboration and Co-creation of Integration Journalist's Assistant

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In the future, journalists and writing robots will work together to create content. Writing robots help news writers and news editors deal with more mechanical work, making journalists' attention to a greater extent to the content. As data becomes more open source, the more specialized domain knowledge a writing bot has, and its ability to process and integrate information is difficult for news writers to match. Therefore, the application of writing robots for information processing and first-level information search can reduce the workload for subsequent news writers and the possibility of technical errors and professional pitfalls in the primary material organization stage. For news editors, writing robots can also be used to perform primary technical gate-keeping and reduce the burden of subsequent work.

Co-creation of Media Integration

In the future, writing robots and journalists will work together to promote media convergence. At this stage, writing robots already have image recognition capabilities, and they can independently select images for machine writing content. In the future, their recognition and integration capabilities will be even more powerful, and they will organically and comprehensively integrate the content of the material library to help journalists deal with different types of news.

New Media: Comprehensive Application of Machine Writing

At present, the new media news open platform, such as Today's Headline, has become one of the main ways for people to get news. All kinds of official media, self-media or users are stationed on the platform to create content, and the platform is then personalized to meet the needs of users based on data mining, algorithm analysis, and "grouping" feature preferences, which has become a major entrance to the Internet. This type of platform can better meet the user's immediate, personalized reports, and the characteristics of machine writing coincide. With the future, open-source data and upgraded technology, the scope of the field of machine writing is expanding, no longer limited to financial news and sports news, and along with the advantages of low cost and comprehensive content, it will bring out its great potential with the support of new media platforms.

Conclusion

In this paper, we analyze the limitations of machine writing and the tonality of mainstream media and machine writing, and conclude that the content of machine writing is not suitable for mainstream media news writing, but more suitable for news writing on new media platforms.

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