Dean&Francis

ISSN 2959-6149

Exploring the Impact of Artificial Intelligence on Journalism in the Future Digital Era

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Abstract:

In the face of the pervasive influence of Artificial Intelligence technology on the journalism industry for the past few years, journalists have called the adoption of AI technology into question. AI technology in journalism has shaped the industry's landscape in news topic selection, news production, news distribution, news consumption, etc. Entering a new era of AI-associated journalism and a world where robots can write like people, the industry faces the question of what would be the role of journalists. This research will examine the impacts of AI technology with a focus on both opportunities and challenges. AI-driven tools are found to be helpful to journalists by providing them with vast datasets, fact-checking information, and content creation, etc. However, there are also criticism doubting the ethical use of AI and concerns about job replacement. Through a comprehensive analysis of the applications of AI in journalism, this paper highlights AI's future implementations, such as its use in news writing, data analysis, and fact-checking, potential challenges of inaccurate information, loss of human oversight, and job displacement as well as future suggestions to take advantage of technological advancement within the scope of journalistic integrity and ethics.

Keywords: Journalism; Artificial Intelligence; newsroom; news ethics

1. Introduction

The media industry has transformed massively in the last century with the advent of advanced technologies that have completely changed the ways people consume media. Artificial Intelligence has been adopted into the journalism industry as news companies are trying not only to survive but also to thrive in the new digital era. The Associated Press signed a licensing agreement with Open AI and used AI to turn data into an NBA game story without human intervention [1]. WIRED, a monthly American magazine, says that they are using AI to generate story ideas, suggest content for social media posts, and use AI for

analytical research [2]. More surprisingly, China's Xinhua News Agency even created the world's first AI news anchor, a digital replica that resembles a human journalist [1]. While AI offers several benefits to the news industry, there are also ethical and professional challenges about its use. The paper will examine the previous applications and future roles of different AI tools, such as ChatGPT, Natural Language Processing (NLP), and machine learning, in the journalism industry through case studies.

The discussions will involve around three usages of the technology: AI use in news content creation, AI use in data-searching, AI use in information fact-checking, and AI use in news delivery. A part of AI's roles in journalism can be understood in the basic level as a way to help with automated content creation. For instance, tools like Wordsmith and Chat models are already being used by media outlets to produce quick, data-driven news articles without human journalists' intervention. Also, AI facilitates data analysis through vast datasets to enable reporters to gain access to the most relevant information, which has shown to be particularly helpful for investigative reporters whose interest is in the time-consuming investigation of hard news like serious crime and political corruption. Besides, in a world of flooded misinformation and fake news, AI-powered fact-checking tools such as Full Fact play a crucial role in ensuring the accuracy of news stories. These AI tools utilize the information on cross-reference platforms to help journalists verify facts efficiently and accurately. AI algorithms are also widely used for content personalization. It can tailor news delivery to each reader through the analysis of users' news search and news consumption, thus enhancing user experience and increasing user engagement with the newsagent.

At the end, there will be touching on the potential challenges or risks posed by AI, such as AI algorithmic biases, misinformation in news, and erosion of reporter editorial capability. The article aims to provide a comprehensive overview of how AI can impact the future of journalism and how journalists and news corporations can take advantage of it at large. The findings hopefully improve journalists' understanding of the appropriate use of AI as AI holds great promise for enhancing the efficiency and accuracy of news stories as far as the values of truth, accountability, and public trust are carefully considered during the process.

2. AI Use in News

2.1 AI in News-Content Generation

The production of news has always been an essential function in society and has undergone a series of collaborative step-by-step efforts from idea pitching, information-gathering, interviewing, fact-checking, writing, editing, and producing. The essential steps of a typical journalism workflow have not changed much and news is still largely produced by individual journalists and editors. However, the development of automated journalism over the last decade has directly challenged the traditional and artisan nature of news production [3]. Automated journalism uses template-based natural language generation(NLG) to write news articles automatically from datasets. Big news agencies, such as BBC, have successfully adopted the use of large language models (LLMS) and other Gen AI tools in their news generation. BBC has invested in automated journalism since 2018. Salco (Semi-Automated Local Content) is a project at BBC and BBC's first attempt to bring machine-written journalism to audiences with a focus on reporting stories that are derived from public data about election results, crime figures, and NHS performance statistics [4]. For instance, under the project nearly 700 news stories were generated for the 2019 UK general election using an automated production tool [3]. The Associated Press also adopted automated journalism and NLG technology to generate text stores since 2014[3]. The Associated Press began with writing stories about publicly traded companies in the U.S. and their earnings as well as sports previews and sports game recaps, which dramatically increases the liquidity of stories being covered [5].

2.2 The Role of AI in Data Analysis

Journalists may also take advantage of AI methods through the use of AI for establishing datasets to provide convenience for research and information gathering. For instance, investigative reporting is a unique type of journalism that specializes in uncovering wrongdoing, corruption, or any justice issues across society and it's also time-consuming since journalists need to spend time and effort investigating the stories behind the scenes. The International Consortium of Investigative Journalists has acknowledged that AI will reduce the cost of investigative journalism by replacing tedious and expansive human labor with cheap computational methods [6]. Through the use of AI document classification and information processing, reporters at the Atlanta Journal-Constitution were able to narrow down to 600,000 medical records nationwide to look for victims who had been sexually abused by doctors; Los Angeles Times investigative reporters used AI to find crime cases in the database that were under-reported and misclassified as less severe cases [6]. Both examples illustrate how AI's large-scale data analysis skill can be used in investigative journalism to uncover

ISSN 2959-6149

patterns of negligence or misconduct. By using Artificial Intelligence, investigative reporters can make the investigation process faster when dealing with a vast amount of documents.

2.3 AI‘s Use in Fact-Checking

Fact-checking, the fundamentals of journalism, is to verify information sources to ensure their reliability and the accuracy of reporting. The development of media technologies creates a bigger scale of freedom for people to publish their ideas online, leading to increasing disinformation. In the face of discredited news, AI tools are helpful to effectively fact-check articles to achieve the goal of restoring the credibility of journalism and educating citizens [7]. The technology has been used for various tasks: the most popular uses are those related to content analysis and implementing earlier claim detection. Solutions center on techniques like natural language processing, machine learning, knowledge representation, and claim matching [7]. Some research focuses on textual analysis while others use image analysis to obtain information from photos and avoid visual misinformation [7]. Thus, AI tools have accelerated fact-checking, helping fact-checkers respond quickly to political lies and online rumors though human intervention remains crucial. AI algorithms' ability to analyze and check vast amounts of information in the least time possible makes it easier for fact-checking journalists to verify information from an increasing volume of shared content online. Besides, AI helps perform tasks that are common and "taken for granted" in the fact-checking process: for instance, AI provides fast transcription which saves time and money for fact-checkers, and also translation on significant topics like global warfare [8].

2.4 AI Algorithms in News Push

AI algorithms can make impact and important decisions for social media and news platforms about audience engagement in news distribution. In the past decade, the traditional print media has diminished at a faster pace than expected with more people turning to the internet as a primary way of obtaining information. Tons of local newspapers have shut down. In 2023 there were more than 130 confirmed newspaper closings or mergers, leaving the rest to compete for the market namely online news. Both Google and Facebook have adopted and modified their algorithms to arbitrarily change the way news is distributed across their services, which influences people's access to news. In 2012 Chinese news agents "Jinri Toutiao" and "Yidian Zixun" started implementing algorithms in their services by using machine learning techniques and algorithm models to generate a customized news feed tailored to the interests and preferences of each user [9]. The tailored feed list of content is becoming a trend in the internet news industry for several Chinese news outlets, such as Sina, Tencent, and Sohu. Newsrooms across Canada are also adopting AI metrics and analytics into their daily operations. The Spectator shifted its subscription model in 2018 with more importance and focus on the use of metrics and analytics to keep loyal readers engaged instead of prioritizing content that had a chance of going viral [9]. The Spectator relies on two factors to generate customized news feeds for its readers, one is the local news content according to a reader's geographical region and the other is the algorithmic selections based on previous consumption [9].

3. Potential Challenges

3.1 Ethical Concerns: AI‘s Ability to Solve Ethical Issues in Reporting

As AI technology continues to advance, there are also concerns about ethical issues and potential dilemmas associated with AI's use in the journalism industry. There will be heavy impacts that the adoption of AI may have on journalistic core values such as privacy, transparency, accuracy, and accountability. According to the USC Annenberg Relevance Report AI databases often ask for access to large amounts of data that may contain personal private information. Thus there will be an ethical challenge and decision to be made when AI attempts to collect, use, and publish the data that may incur privacy violations [10]. Transparency is another main issue. In other words, there's often an opacity of how AI works, which makes it difficult for readers to understand why they see certain content but not others [11]. It's because AI algorithms, such as deep learning models that teach computers to possess data, are sometimes considered "black boxes" based on their difficulty in understanding and interpreting [10]. The input of user data and how algorithms shape the selection process remains opaque so it is difficult to gain control of what information is collected by algorithms. Similarly, it may again harm the privacy of users without letting them know or being aware beforehand of what information about them is collected daily. Besides, the accuracy of AI tools is not guaranteed either. While AI methods are capable of processing a significant amount of data in a short amount of time, many scholars have complained about AI in the dissemination of fake news content and accused social media like Facebook of spreading misinformation including fake news and hate speech [10]. Comparatively, some argue that journalists can be more accurate since humans can better spot inconsistencies and incorrect information

using their instincts and experiences. There's also potential for accountability issues. Human journalists bear the full responsibility for the stories if the story is solely human labor. However, no clear responsibility for incorrect information if the story is AI algorithm news since it's unlikely to attribute mistakes to the editor, media outlet, or the person who programmed the algorithm [10].

3.2 Quality of Content

When approaching a story journalists are often excellent at interviewing people, editing their pieces, using distinct writing styles, and adjusting the tone to specific requirements of different topics. Some doubt the quality of AI-generated news and throw the question to the public: can AI write a piece with the same depth, emotions, and nuance as one written by a human being? One might acknowledge that AI excels in its research and writing ability on certain topics like financial reports in a cheaper and faster way. But whether or not the creative tasks previously entrusted to journalists can be taken over by AI remains questionable.

3.3 Job Losses for Journalists

The displacement of journalists due to AI and automation is a growing concern in the media industry given how AI's developed to help with fact-checking, researching, distributing, and even writing. Journalists who primarily handle basic reporting or repetitive tasks are most vulnerable. Newsrooms are increasingly automating coverage of financial markets, sports results, and election data, which traditionally provided jobs for reporters. Also, since AI makes some work more cost-effective, small news organizations might reduce staff, leading to downsizing, particularly in small or local outlets with limited budgets. In January, the Los Angeles Times announced a layoff of 115 employees; last year, the New York Times let go 74 employees and National Geographic let go 17 writers [12]. To keep up with the industry development, journalists now are turning to data analysis, coding, and computational skills to equip news skills to work alongside AI rather than being replaced by it. It's only becoming more and more relevant to adapt to the technological shift and understand how to interpret and deal with AI tools and data for work. On the other hand, while traditional journalism positions may be shrinking, there are emerging roles such as AI programmers, supervision, and data reporting in the industry. AI's impact on job replacement and displacement in journalism is a complex issue with entry-level positions most at risk but at the same time, it's encouraging the industry to evolve, creating opportunities for those who can adapt to the new era.

4. Future Suggestions

With the vastly different media systems in different continents, Europe, China, and the United States, the underlying framework of AI application and AI algorithms is applied under different cultural contexts and government regulations. But one has to admit that science and technology can be accountable to brighten the future of journalism when they are in good use. There are several suggestions for journalists to meet the need for journalism ethics while adopting valuable and practical use of AI. First, they need to better understand the risks behind the use of AI. Even if algorithms may built upon a large number of datasets, they are still subject to misinformation or partial information as a result of incomplete information. For instance, AI may produce news with inaccurate information about elections and elected officials when essential statistics such as geography, ethnicity, and policy stances are not accurately updated and reflected in the database, which may mislead voters to make less accurate voting decisions. Therefore, relying the AI tools as the primary source of existing information for fact-checking makes it possible for journalists to fall into the trap of spreading less reliable and scrutinized news. Another part of the AI application that requires caution is its use of content generation to replace human reporters and editors. Humans are intellectual animals who can bring their humanity, creativity, deep thinking, and wisdom into their creation of words. Journalists may argue how irreplaceable they are in the process of news pitching, news writing, and news editing to produce stories that readers feel connected with. Thus, only by maintaining editorial oversight and creative writings of human journalists can news corporations be accountable for their promises to keep readers engaged with news stories with human-eccentric, creative, thoughtful, and stylistic pieces of writing. On the other hand, journalists in the digital era are advised to grasp AI skills to leverage AI for data-driven reporting and personalized news content. AI can process large datasets more quickly and efficiently than human reporters. Journalists can use AI to uncover patterns, trends, and anomalies in data for investigative reporting to save efforts. AI tools also help generate data visualizations via maps and charts to make complicated stories easier to read and understand for readers. Newspapers can also use AI to deliver tailored content so journalists can create personalized content to reach users within a specific niche and allow for greater audience engagement.

5. Conclusion

The use of AI in newsrooms presents tremendous op-

ISSN 2959-6149

portunities for journalists. AI advances the journalism industry by helping journalists in news content creation, fact-checking, data analysis, and personalized news feeds. The algorithms enhance productivity through automated routine tasks in information-researching and data analysis as well as assist journalists to draft data-driven news reports. They also enable the delivery of personalized content tailored to each reader's interest. However, the ethical implications of AI use, such as bias, transparency, and accountability, require careful attention. AI should complement rather than replace human judgment, creativity, and editorial oversight. As AI continues to evolve, journalists and news organizations must stay vigilant in maintaining journalistic integrity. Training in AI literacy, developing clear ethical guidelines, and ensuring AI tools are used responsibly will be key to fostering a productive relationship between technology and journalism. Ultimately, AI can be a powerful tool to strengthen the industry, but its use must prioritize trust, fairness, and the core values of journalistic inquiry. By incorporating AI thoughtfully, journalists can enhance their reporting, stay competitive in the evolving media landscape, and continue to uphold the ethical standards of their profession.

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