

Does Artificial Intelligence help Journalists: A Boon or Bane?

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Abstract

Artificial Intelligence (AI) is used in our day-to-day life. AI for journalism is a reality. Just like other vital aspects of our life, AI has also entered the world of journalism. Many reputed news organizations have adopted AI in journalism to perform various newsroom tasks. In today's digital world, several technologies are powering journalism. One such technology that is transforming the journalism field is artificial intelligence. Accuracy is a core value of journalism. With AI and machine learning systems, there's a statistical element of uncertainty which means it's impossible to guarantee 100 percent accuracy. AI tools such as OpenAI's ChatGPT, Microsoft's Bing chatbot, and Google's Bard have been subject to debate now. AI tools have the potential to assist in a variety of tasks, such as scraping PDF files, writing code, and translating languages. AI can be a helpful tool for journalism students and media researchers. A main concern among computational journalists is that AI sometimes hallucinates data. This review paper highlights how artificial intelligence can help journalists.

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Keywords: Artificial Intelligence, OpenAI's ChatGPT, Robot Journalism, Hallucinate data

Introduction:

Artificial intelligence (AI) is a branch of computer science that aims to create intelligent machines that can perform tasks that normally require human intelligence [1]. AI systems can learn from experience and improve performance over time without being explicitly programmed.

AI has become a prominent technology in recent years, with advancements in machine learning, natural language processing, computer vision, and robotics [1, 2]. These technologies have

applications in various industries, including journalism, healthcare, finance, transportation, and entertainment.

Machine learning is a key component of AI and involves using algorithms that enable machines to learn from data without being explicitly programmed. Natural language processing allows machines to understand and interpret human language, while computer vision allows machines to interpret and analyze visual information [1, 2, 3].

AI has the potential to revolutionize the way we live and work, with the ability to automate tasks and processes, improve decision-making, and enhance the overall user experience. However, there are also concerns surrounding the impact of AI on jobs, privacy, and ethics [4]. As AI advances and becomes more prevalent, individuals and organizations need to understand the technology and its potential implications.

Historical Perspective

Artificial Intelligence (AI) has a long and fascinating history spanning several decades. The origins of AI can be traced back to the 1940s when computer scientists began exploring the concept of using machines to simulate human intelligence.

In the early days of AI research, the focus was on developing algorithms and programs that could perform simple tasks, such as playing chess or solving mathematical problems [1, 2, 4]. This was known as "rule-based" AI, which relied on humans to program the rules the machines would follow.

In the 1950s and 1960s, researchers began to explore more complex forms of AI, such as "machine learning" and "neural networks." These approaches allowed machines to learn from data rather than relying on pre-programmed rules.

The 1970s and 1980s saw a surge of interest in AI as researchers began to develop more sophisticated algorithms and techniques [5]. However, progress could have been faster, and the field struggled to live up to the hype surrounding it.

In the 1990s and 2000s, advances in computing power and the availability of vast amounts of data led to a resurgence of interest in AI. This led to the development of "deep learning" techniques,

which have been used to create powerful AI systems that can recognize speech and images, play games, and even drive cars [6].

Today, AI is everywhere, from voice assistants like Siri and Alexa to self-driving cars and personalized advertising. The field is still evolving rapidly, and researchers are exploring new techniques and applications for AI every day.

Literature Review

There have been several research studies on the use of artificial intelligence (AI) in journalism. Some of the key findings are:

Automated News Writing: AI systems that automatically generate news stories based on data sets and templates have been developed. These systems can save time and resources for news organizations, but they also raise questions about the quality and ethics of automated news writing.

Fact-Checking: AI can be used to fact-check news stories and detect fake news. One study found that AI can detect fake news with an accuracy rate of up to 90%.

Personalized News: AI can be used to personalize news content based on the user's interests and preferences. This can enhance user engagement and loyalty.

Content Recommendation: AI can be used to recommend news content to users based on their reading history and behavior [1, 2]. This can improve the user experience and increase the time spent on a news website or app.

Audience Analysis: AI can be used to analyze audience behavior and preferences, which can help news organizations to target their content more effectively and improve their marketing strategies. Overall, using AI in journalism has potential benefits and challenges. While it can increase efficiency and enhance the user experience, it also raises ethical concerns about the quality and accuracy of automated news writing and the potential for biased content and loss of human jobs. Research points out that the use of AI in journalism can help automate an editor's job by 9%, and a reporter's job by 15% [1, 2, 3].

Impact of AI in Journalism

1. Automated writing through AI programs

Automated writing through AI programs is a growing trend in journalism. These programs use natural language processing (NLP) algorithms and machine learning techniques to generate news articles, reports, and other types of content.

One of the advantages of using AI for writing is speed. Automated writing programs can generate articles in seconds or minutes, which can be helpful for news organizations that need to publish content quickly [7]. AI can also help with the production of large volumes of content, which can be challenging for human writers to keep up with.

Another advantage of automated writing is accuracy. AI algorithms can analyze large amounts of data and provide insights that might be difficult for a human writer to uncover. AI can also help with fact-checking and ensure that articles are error-free.

However, there are also some potential drawbacks to automated writing. One concern is that AI-generated content might need more creativity and human touch often present in articles written by human writers [8]. Additionally, there is a risk that AI-generated articles might be biased or lack the context and nuance that human writers can provide.

Overall, automated writing through AI programs can potentially revolutionize the journalism industry. While there are some concerns and limitations to consider, the benefits of using AI for writing are significant and can help news organizations produce high-quality content more efficiently.

2. Identify and Reduce Biases

Artificial Intelligence (AI) systems can perpetuate and amplify biases present in the data used to train them or the algorithms used to design them. Here are some ways to identify and reduce biases in AI:

Data Selection Bias: One common source of bias in AI is data selection. Data that is not representative of the population contains inaccuracies, or under-represented groups can lead to

biased outcomes. To address this, it is essential to collect diverse, representative data sets and ensure that they are adequately balanced [10].

Algorithmic Bias: Another source of bias is algorithmic. Biased algorithms can perpetuate stereotypes, discrimination, and other forms of bias in decision-making processes. One way to address this is by auditing algorithms for bias regularly.

Diversity and Inclusion: Another way to reduce bias in AI is to increase diversity and inclusion in the development and deployment process. By involving a diverse group of people in designing and developing AI systems, we can ensure that biases are detected and addressed before they become embedded in the technology.

Ethical Frameworks: The use of ethical frameworks and guidelines can also help reduce bias in AI. These frameworks should address issues related to fairness, accountability, transparency, and ethical considerations in designing and deploying AI systems [11, 12].

Human-in-the-loop: One approach to reduce AI bias is involving humans in the decision-making process. This approach involves using AI systems as decision-support tools and not as the sole decision-makers.

Continuous Monitoring: Finally, it is essential to monitor AI systems for bias and other errors continuously. Regularly testing AI systems for fairness, accuracy, and transparency can help reduce biases over time.

Reducing biases in AI requires a multi-faceted approach that includes data selection, algorithmic auditing, diversity and inclusion, ethical frameworks, human-in-the-loop, and continuous monitoring.

3. Transcribing Interviews through Artificial Intelligence (AI)

It is becoming increasingly common and has several advantages, including saving time and reducing errors. However, there are also some limitations and challenges to be aware of. Here are some things to consider when using AI to transcribe interviews:

Accuracy: While AI-based transcription can be very accurate, it could be better. The accuracy of the transcription will depend on several factors, including the quality of the audio recording, the language, and the dialect being spoken [13]. It is essential to carefully review the transcripts for errors.

Cost: AI-based transcription services can be less expensive than hiring a human transcriptionist. However, the cost can vary depending on the quality and complexity of the transcription task. It is essential to consider the cost-benefit of AI-based transcription compared to hiring a human transcriptionist.

Confidentiality: When using AI-based transcription, the interviewee's responses must be kept confidential. Some AI-based transcription services may store or share audio files or transcripts, which can compromise the privacy of the interviewee [14]. Choosing a transcription service with robust data privacy policies and practices is essential.

Technical knowledge: Using AI-based transcription requires some technical knowledge to ensure that the audio files are uploaded correctly and that the transcripts are accurate. It is essential to have someone on the team with the necessary technical skills to troubleshoot any issues that arise.

4. Spotting Trends in Journalism

Artificial Intelligence (AI) is rapidly transforming the field of journalism, and its impact can be seen in several areas. Here are some of the trends that are emerging in the intersection of AI and journalism:

Automated content creation: With the help of AI-powered algorithms, news organizations can now generate articles, summaries, and even video reports on breaking news events in real time. Automated content creation tools can analyze data sets, identify patterns, and generate reports that are indistinguishable from those written by human journalists [1, 2, 14].

Personalized content delivery: AI is helping news organizations to deliver personalized news content to their readers. By analyzing user data, AI-powered news apps can recommend stories that are tailored to a reader's interests and preferences.

Fact-checking and verification: AI is also helping to combat fake news and misinformation by providing journalists with tools to verify the authenticity of news stories and images. AI-powered fact-checking tools can analyze text and images and identify inconsistencies and errors.

Data-driven journalism: AI is making it easier for journalists to analyze and make sense of large data sets. By using AI-powered data analysis tools, journalists can identify trends, patterns, and insights that may have been missed using traditional methods.

Automated translation: AI-powered translation tools are helping journalists to overcome language barriers and reach new audiences. By using AI-powered translation tools, journalists can quickly and accurately translate news stories into multiple languages.

Audience Engagement: AI-powered chatbots and voice assistants are helping news organizations to engage with their audience in new and innovative ways. Using chatbots and voice assistants, news organizations can answer questions, provide updates, and create interactive news experiences [17].

5. Flagging Misinformation using Artificial Intelligence

It involves using algorithms and machine learning models to identify false or misleading information in various forms, such as text, images, or videos. These models are trained using large datasets of verified and non-verified information, which helps the model learn to differentiate between the two.

There are several approaches to flagging misinformation using AI. One approach involves analyzing the text of an article or social media post and looking for patterns or language that are commonly associated with false or misleading information [18]. Another approach involves using

image recognition algorithms to detect manipulated or doctored images, while a third approach uses video analysis to identify deep fakes and other forms of manipulated videos.

Once the misinformation has been identified, AI can also be used to help prioritize and contextualize the flagged content for human moderators or fact-checkers to review. This can help improve the efficiency and accuracy of the fact-checking process.

While AI can be a powerful tool for flagging misinformation, it could be better, and human oversight and review are still necessary to ensure accurate and fair content moderation. AI can also be vulnerable to bias, so it is important to continually evaluate and adjust the algorithms and models to ensure they are not perpetuating biases.

6. Augmented Reporting

Augmented reporting refers to using technology, such as artificial intelligence, machine learning, and data analytics, to assist journalists in gathering, analyzing, and presenting information in their reporting [19]. The goal of augmented reporting is to enhance the speed, accuracy, and depth of reporting while also improving the ability to uncover hidden patterns and trends in data.

One example of augmented reporting is using data analytics tools to analyze large datasets and identify patterns or trends that may be relevant to a story. This can help journalists to identify new angles or sources for a story and to provide more comprehensive coverage.

Another example is the use of natural language processing (NLP) technology to analyze text and provide insights into the sentiment, tone, and context of the language used in a news story or social media post [20]. This can help journalists better understand their audience's attitudes and opinions and tailor their reporting to be more engaging and relevant.

Augmented reporting can also involve the use of virtual or augmented reality technology to create immersive, interactive experiences for readers or viewers. This can help bring complex or abstract concepts to life and provide audiences a more engaging and interactive experience.

Augmented reporting has the potential to significantly enhance the capabilities of journalists, enabling them to produce more accurate, insightful, and engaging reporting while also helping to ensure that the public has access to high-quality information.

7. Robot as News Reporters:

Robots are increasingly being used as news reporters in specific applications, particularly for simple or data-driven stories. With advances in natural language processing (NLP) and machine learning, robots can now generate basic news stories from data sets or pre-written templates.

In this context, robots are used to automate reporting straightforward news stories, such as sports scores, weather reports, or financial news. The data is fed into the robot, which analyzes and summarizes the information into a news article.

While robots can be effective at generating basic news stories, but they cannot replace human reporters in complex or investigative reporting [20]. Human journalists can ask critical questions, conduct interviews, and provide context and analysis that robots cannot do.

Additionally, robots cannot empathize with sources, understand the nuances of language and culture, and recognize ethical and legal considerations inherent to journalism. These skills are crucial to producing high-quality journalism that is informative, balanced, and accountable.

While robots may be useful in automating certain aspects of news reporting, they are likely to replace human journalists sometime soon. Rather, robots and AI are more likely to complement and assist human journalists in their work, enabling them to focus on more complex and nuanced reporting aspects, while the robots handle the more routine tasks.

8. Lower Variable Cost

Artificial intelligence (AI) can be used to automate many aspects of journalism, including data analysis, fact-checking, and even generating news stories [20, 21]. By leveraging AI, news organizations can potentially reduce their variable costs associated with human labor.

Here are some ways that AI can be used to lower variable costs in journalism:

Automated data analysis: Journalists spend significant time collecting and analyzing data to support their stories. AI can be used to automate the process of data analysis, enabling journalists to focus on other tasks.

Fact-checking: Fact-checking is a time-consuming task that requires journalists to cross-reference multiple sources. AI-powered fact-checking tools can help automate this process, enabling journalists to verify information more quickly and accurately.

Generating news stories: AI-powered natural language generation (NLG) tools can be used to generate news stories from data sets or other sources [23]. While these stories may not have the same level of nuance or context as stories written by human journalists, they can be useful for generating basic news updates quickly and efficiently.

Personalization: AI can be used to personalize news content for individual readers, enabling news organizations to provide more targeted content and improve engagement with their audiences.

It's important to note that while AI can help reduce variable costs, it may also require significant investment in technology and infrastructure [28, 29]. Additionally, there are ethical considerations to take into account when using AI in journalism, such as the potential for bias in data analysis or NLG algorithms. As such, it's important for news organizations to carefully consider the costs and benefits of using AI in their operations.

9. ChatGPT and Journalism

ChatGPT can assist with various journalism-related tasks, such as fact-checking, writing news articles, generating headlines, and analyzing data for investigative reporting. When it comes to writing news articles or generating headlines, ChatGPT provides well-written and grammatically correct content [28, 29, 30].

ChatGPT can certainly assist with certain journalism-related tasks; it's essential always to use the best judgment and verify the information you receive from any source, including an AI language model like ChatGPT.

Conclusion

The use of AI in journalism is increasing significantly. AI for journalism is a great tool offering many benefits. However, it is also true that AI in journalism is yet to realize its true potential. Artificial intelligence and the future of journalism go hand-in-hand. The extent to which AI for journalism can be used still remains to be unexplored.

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