The Role of Artificial Intelligence in Digital Content Creation and Distribution

Yanmu Yang[a]
Faculty of Arts, Monash University, 900 Dandenong Rd, Caufield East, Australia

Keywords: Artificial Intelligence, Digital Content Creation, Automated Journalism, Recommender Systems, Ethical Media.

Abstract: This paper analyzes the profound influence of Artificial Intelligence (AI) on the creation and distribution of digital content by examining key areas such as automated journalism, recommendation systems, and AI-assisted video creation and editing. It explores how AI technologies are revolutionizing content production by significantly enhancing productivity, improving user interaction, and enabling personalized content customization at an unprecedented scale. Through a systematic review of existing literature and empirical data, the paper showcases the transformative potential of AI in various aspects of digital media. However, the paper also addresses critical concerns related to the implementation of AI, such as algorithmic bias, the spread of disinformation, and the erosion of editorial standards, which can undermine the integrity of digital content. In conclusion, the paper emphasizes the need for responsible AI adoption, urging collaboration between users, industry stakeholders, and policymakers. By doing so, it highlights the importance of ensuring that innovation in AI is aligned with ethical principles and societal values, ensuring that advancements contribute positively to the evolving media landscape while maintaining accountability and transparency.

1 INTRODUCTION

Digital networks keep growing and Artificial Intelligence(AI) transforms content production and delivery methods. With AI technology content creators produce and adapt materials faster while helping users get customized results. Human workers previously handled all media production tasks but AI systems now help generate news reports and visual designs alongside audio and video content. The move to AI production happens because computers process large datasets better than humans while saving money and responding fast to audience wants. As digital media evolves it moves beyond serving user needs to use data and algorithms with AI leadership.

The effects of AI-controlled content generation and sharing need to be understood by various groups in our society. Media companies can save money on labor costs while making more content and reaching specific audience groups through automated media production systems. The way AI impacts how people behave and what they consume affects the way our society treats news sources and their trustworthiness. To create ethical innovations, it is important to understand how AI interacts with users and media systems. A systematic review of how AI makes content helps us guide digital media toward both business goals and better public welfare.

People need to know how AI creates content to build better digital fluency. People need to learn how to assess content sources better as AI gets smarter and they must spot between things made by people and machines plus find the hidden algorithmic problems. Educational systems and media companies help train people to use digital technology successfully. Teaching people about AI strengths and weaknesses helps them use automated content better which builds a smarter digital community that uses technology properly.

The study regarding the influence of AI on the generation, dissemination, and consumption of digital content is gaining ground. Carlson examined what is being called automated journalism, including how desktop publishing systems are transforming workflow in newsrooms and the discussions surrounding the power of journalism (Carlson, 2015).

[a] https://orcid.org/0009-0000-1600-5816

Yang, Y.
The Role of Artificial Intelligence in Digital Content Creation and Distribution.
DOI: 10.5220/0013680100004670

In *Proceedings of the 2nd International Conference on Data Science and Engineering (ICDSE 2025)*, pages 142-147
ISBN: 978-989-758-765-8

Clerwall found that users were often unaware of the origins of the content and who authored it, especially when it was produced by automated machines (Clerwall, 2014). Montal and Reich raised the concern over content attribution with AI authoring tools noting that there are some new regulative problems that arise out of it (Montal and Reich, 2017). Diakopoulos stated that algorithms are now central to key functions of a media house, such as news selection and content curation, and so, there's a need for policies to mitigate algorithmic prejudice (Diakopoulos, 2019). Floridi and Chiriatti analyzed how new information technologies, particularly recently developed large language models, can nourish creative thinking while also being a mechanism for venting out misinformation (Floridi and Chiriatti, 2020). All these shifts point to one conclusion: the work and business processes within organizations are adopting neoteric and more efficient methods with the use of AI, however, it raises more multifaceted questions related to moral issues, ethics, control over the audience, and editorial policies.

Through a focused review, this article analyzes how AI supports digital content production and delivery across three main areas. This section reviews how AI tools benefit creative tasks like automated writing and smart video editing while showing if they enhance or replace human artists. The part explains how AI systems change user interaction with content and how they recommend material to their users plus explains echo chambers. This section explains the ethical consequences of AI technology and the laws that control its use. Through a balanced overview of the opportunities and challenges, this discussion aims to promote a more nuanced understanding of how AI can be used responsibly to drive innovation and enrich the digital media ecosystem.

2 LITERATURE REVIEW

The creation and distribution of content using AI has resulted in revolutionary transformations in media. This subsection discusses AI technologies and models that impact the industry of the current and future, by focusing their efforts on challenges and gaps. Some of the strategic aspects of AI in media, such as the role of AI in automated journalism, content synopsis systems, and AI-based video editing will be covered.

2.1 AI in Automated Journalism

The use of AI in Journalism has significantly changed in the past years. Automated journalism is characterized by the capability of using AI to compose news reports without human writers. This typically involves the deployment of natural language generation (NLG) tools to transform structured information automatically into intelligible spoken or written formats. Carlson discusses how new technologies are changing the newsrooms by lessening the amount of time spent creating basic, data-centric narratives (Carlson, 2015). The financial and sports industries, where information-centric journalism is prevalent, have seen an increase in article output through AI solutions such as Automated Insights' Wordsmith, which allows for thousands of articles to be written per day.

Even with all this improvement, the issue of AI-produced content still remaining is unanswered. In Carlson's automated tools, he describes the ability to write articles without any grammatical errors, however, they completely miss the different angles and investigative aspects complex stories require. It highlights another problem of how AI and machine learning technologies fail to cover editorial judgment, ethics, and artistry in more subjective areas of journalism work.

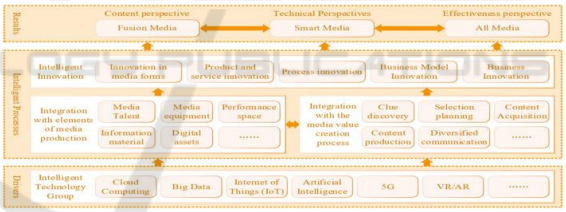

Figure 1: The Overall logic of intelligent transformation of digital media (Picture credit: Orignal).

The use of AI in journalism blends journalism with technology, giving rise to what is referred to as "fusion media". The combination of these two spheres raises the expectation for higher productivity of content production. As in the above caption, this change is placed under "Content perspective" of fusion media, as AI does help in content creation, but does not supplant humans in meeting the editorial judgement (Figure. 1).

2.2 AI in Content Recommendation Systems

AI technology has transformed how media companies interact with their audiences. Recommender systems use algorithms that employ machine learning to

predict and suggest content according to users' behavior, choices, and activity. In their essay, Gomez-Uribe and Hunt study the recommendation engine used by Netflix, which relies on a combination of collaborative filtering and deep learning models to customize content for users. These algorithms have revolutionized user engagement by recommending content that caters to users' specific tastes and viewing habits.

Yet, AI-based recommendations can have their shortcomings as Ferrer Conill and Tandoc Jr. point out. One example is the formation of "filter bubbles" or "echo chambers," which broadly refers to the setting wherein users are surrounded solely with content that exerts a particular influence on them. This leads to a suppression of the variety of information and points of view available to users and may lead to so-called public opinion polarization. The concern that needs to be solved has to do with the fact that videos AI recommendations, which narrow users' exposure to diversity, permit recluse from deeper structures of society that rely on digital media platforms.

Specific context or termoligies are in smart media (Figure. 1), content recommendation systems works well in fulfilling the need for personalized content delivery. This process can be located within "Technical perspectives" of smart media where AI facilitates content curation and distribution. The issue here is how to satisfy the need for personalization and at the same time, maximize diversity, since engagement driven AI models cap content variety.

2.3 AI In Smart Video Editing And Creation

There have been strides in the application of AI in video editing and content creation as non-manual powered AI tools are already doing work that was needed by the creators. Video systems like Adobe Sensei, Magisto and others work to automate the video production process. These tools actively scan raw video footages with the intent of capturing key moments for edits and even produce custom clips. Diakopoulos refers to the changing landscape of AI in the context of video and states that although these tools usefully streamline workflows, they come with the challenge of losing creative control over the production (Diakopoulos, 2019).

The automating nature of AI touches upon several parts of video content creation, from scene editing to color correction and audio balance. As it has been analyzed, AI in video creation falls under both the "Intelligent Innovation" category referred to as "Innovation in media forms" and "Performance space." As Diakopoulos contends, the more relevant consideration here is whether AI is capable of performing the same degree of artistry, intuition, improvisation, and decision-making that human editors do (Diakopoulos, 2019). Balancing the efficiency brought by automation in addition to the creative detail needed to tell real captivating stories is the real challenge.

3 LITERATURE ANALYSIS: APPLICATIONS, EXPERIMENTAL RESULTS, AND COMPARISONS

3.1 AI Applications In Digital Media: A Comparative Overview

The usage of AI in digital media includes many activities such as content generation and personalization algorithms. As Carlson claim, one of the most evident changes AI-enabled journalism has undergone revolves around the unparalleled speed at which data-centric stories – financial or sport ones, for instance – are created (Carlson, 2015). They harvest data from large databases and in a matter of seconds build a coherent story. This improvement presents clear benefits, but also invites worrying concerns regarding the lack of human supervision and input regarding the narratives produced (Montal & Reich, 2017).

At the same time, experiments conducted on recommendation systems, including the widely described Netflix one, have proven that user engagement can be increased through collaborative filtering and other machine learning techniques (Gomez-Uribe & Hunt, 2015). Algorithms scan the actions and moves of users in order to provide personalized suggestions. It not only increases retention, but also poses ethical challenges regarding filter bubbles that may alienate users from opposing perspectives and ideas (Ferrer Conill & Tandoc Jr, 2018).

AI contributes significantly to the creation and sharing of short videos using platforms like TikTok and YouTube, where recommendation systems learn user behavioral patterns in real time. To some extent, however, the effectiveness of these recommendation engines is reliant on knowing what captivates an audience. For example, the analytics need to make sense of the likes and comments, and even shares (Graefe, 2016). Media professionals can take this fact

into account, as content monetized under concerning algorithmic filters is frequently given excessive focus, despite its underlying quality (Diakopoulos, 2019). This, in turn, affects editorial choices and, in doing so, causes the blurring of completely organic and fully automated distribution and production cycles.

3.2 Empirical Data on Digital Media Dissemination

Advanced tools can research and analyze how an AI-generated piece of content and its details are disseminated throughout digital platforms. Table 1 provides details on the metrics commenting, retweeting, perception status, and likes including comments, retweets, likes, and viral sensation index prop. The provided data shows that 87.42%. of the sample receive 0 – 2,000 comments, while 92.05% of retweeting stands at below 10,000. Furthermore, it can also be observed that 75.50% of the short video sample tend to have a propogation heat value lower than 20k indicating that most of the sample achieve a non-viral status.

Table 1: Data on the impact of digital media.

Class \ Digital media		Project	
		Quantity	Proportion
Comment quantity	0-2000	528	87.42%
	2000-4000	27	4.47%
	4000-1w	15	2.48%
	1w-2w	18	2.98%
	More than 2w	16	2.65%
Forwarding capacity	0-1W	556	92.05%
	1W-2W	18	2.98%
	2W-10W	22	3.64%
	10W-20W	8	1.32%
	0-2W	456	75.50%
	2W-10W	106	17.55%
Propagation heat	10W-20W	18	2.98%
	More than 20	24	3.97%
Thumb up	0-10W	474	78.48%
	10-20W	58	9.60%
	20-40W	42	6.95%
	More than 40W	30	4.97%

This specific descriptive statistics defines the high level of difficulty that comes with achieving high level engagement. A lot of short videos stay below the interaction threshold, which suggests that algorithms almost never broaden the reach. Wang state that user engagement can be further influenced by motivational media, literacy, and the culture of the specific platform used to disseminate content (Wang et al., 2019). In other words, AI powered tools are necessary, but not enough in ensuring exposure to a large audience.

3.3 Engagement Measures by Content Themes: Regression Analysis

As seen in table 2, regression analysis was conducted to find if there is a relationship between particular content themes and user's engagement measures such as likes, comments, retweets, and overall dissemination. The data shows that, unlike any other content themes, Beta for likes for political news was 0.2026 ($p<.01$), indicating that it has the most positive influence. Content themes with the lowest Beta values include military technology (Beta = 0.1637, $p < 0.01$) and social news (Beta = 0.1225, $p < 0.05$). This is consistent with what Thurman, Dörr and Kunert discovered that political content tends to garner high engagement impressions, perhaps due to people strong opinions and discussions (Thurman, Dörr and Kunert, 2017).

Table 2: The analysis of the results of digital media content and propagation effect.

Independent variable	Thumb up			Comment quantity			Forwarding capacity			Broadcast heat		
	Beta	P-Value	VIF	Beta	P-Value	VIF	Beta	P-Value	VIF	Beta	P-Value	VIF
Sudden difficulty	0.0353	0.543	1.049	0.181	0.912	1.0816	0.1874	0.726	1.0816	0.0977	0.543	1.0651
Social news	0.1225	0.009	1.0535	0.1648	0.977	1.0213	0.1708	0.174	1.0213	0.1163	0.946	1.1654
Knowledge science	0.044	0.137	1.139	0.0204	0.366	1.1928	0.0305	0.647	1.1928	0.0746	0.084	1.0841
Hot spot	0.0228	0.423	1.0595	0.1049	0.009	1.1426	0.1756	0.005	1.1426	0.0492	0.003	1.1836
Political news	0.2026	0.004	1.1236	0.0352	0.001	1.0911	0.0253	0.251	1.0911	0.0919	0.136	1.0897
Film entertainment	0.0897	0.456	1.1006	0.1065	0.187	1.1045	0.063	0.004	1.1045	0.21	0.007	1.131
Military technology	0.1637	0.005	1.0165	0.1705	0.064	1.0786	0.1737	0.912	1.0786	0.1567	0.016	1.0037

Other	0.0731	0.058	1.0828	0.0085	0.411	1.185	0.0705	0.188	1.185	0.0814	0.066	1.1111

On the other hand, film entertainment, which seems to have a low impact on commenting engagement measure (Beta = 0.1065, p = 0.187), had a much larger impact on broadcast heat (Beta = 0.21, p = 0.007). The data supports the view that different types of content generate different forms of engagement; entertainment may encourage passive viewing or wider dissemination, while political or social news usually requires active attention and interaction to engage.

These findings highlight the significance of theme-based recommendation algorithms, which, from an AI point of view, are critical. In case an algorithm is able to classify the content that has a higher likelihood of receiving likes, comments, or shares, then that content can be pushed effectively in order to increase engagement on the platform. However, as Floridi and Chiriatti warn, optimization can exacerbate matters by creating echo chambers or overly sensationalized contexts, which are equally as damaging to the public. It is therefore important to consider the different ethical implications ambitions pose on the users and develop algorithms that strive to achieve a balance between platform goals in addition to those ethical implications (Floridi and Chiriatti, 2020).

Furthermore, these results are in line with Montal and Reich's case concerning the challenges raised by AI-assisted editorial work (Montal and Reich's, 2017). AI can focus on certain content types to increase audience engagement, but in the process, it could completely ignore the more nuanced, important stories that require thorough investigative journalism (Carlson, 2015). In effect, media houses have to juggle between short-term engagement statistics and the effect the discourse has on the society in the long run.

4 CHALLENGES AND OUTLOOK

Although AI-based tools can simplify the process of producing digital content and provide better engagement with it, they also pose significant risks. The first challenge is one of algorithmic bias, where specific perspectives are ignored, or certain demographics are not catered for, further perpetuating social inequalities. The second concern has to do with ethics – issues related to the level of transparency and responsibility expected when automated systems substitute or profoundly change human editorial judgement. Third, the risk of spreading false information is worsened by AI-enhanced content production, where so much information is produced and shared, that it is almost impossible to vet the accuracy of the information presented.

In order to formulate a plan that can solve these problems, more needs to be done. First, media institutions should be equipped with proper processes that blend human judgement with automated systems. Second, industry stakeholders and government authorities need to work together to establish regulations that guarantee transparency and the prevention of malicious content. Last, interdisciplinary approaches to AI bias reduction should be funded in order to provide better support for content delivery. Giving users more access to training and digital evaluation tools will help them question automated systems and outputs increasing the quality of information provided. The combined efforts have the potential to foster an innovation-driven and ethical AI utilization responsible evolution of digital content ecosytems.

5 CONCLUSION

This paper provides an in-depth exploration of the transformative role of AI in the digital content creation and distribution landscape. By focusing on key areas such as automated journalism, AI-driven recommendation systems, and AI-assisted video editing, it demonstrates how AI is reshaping the way media is produced and consumed.

The past few years have seen a rapid advancement of AI as a groundbreaking force for change in creation, editing and distribution of articles, videos, and other content around the globe. The AI-enabled tools highlighted in this paper can make organizations more efficient by automating certain functions, personalizing user interactions, and increasing production volume, which would allow media firms to create and share more engaging and focused content. However, the explosion of AI in media is equally important to discuss for the context of the editorial processes, audience engagement, and social culture as a whole. For example, automated text generation systems can perform various data-heavy tasks quickly, but they tend to lack creativity and journalistic finesse. Similar to this, sophisticated recommendation systems by ne media corporations can improve user satisfaction by catering to their specific needs, but such systems also reduce exposure

to alternative viewpoints and ideas by fostering echo chambers.

These results point to the necessity of being extra careful with the usage of AI in the digital world of today. While some media companies are adopting proactive automated systems at an unprecedented rate, they should still consider the ethical aspects alongside bias issues that may exist with algorithms. Guidelines that incorporate innovation and responsibility will be shaped with the cooperation of all stakeholders such as researchers, policymakers, industry experts, and even users. Achieving the benefits of AI whilst minimizing the risks will be possible when transparent governance structures are developed, and algorithms are fine-tuned taking into consideration an array of cultural and social aspects.

Moreover, it can be said that the combination of powerful machine learning technology with human critical thinking is where the future of AI in digital media and information lies. If effectively monitored, AI can optimize and revolutionize the entire media ecosystem, boost overall productivity, and create a more robust and inclusive digital society.

REFERENCES

Carlson, M., 2015. The robotic reporter: Automated journalism and the redefinition of labor, compositional forms, and journalistic authority. *Digital Journalism*, 3(3), 416-431. https://doi.org/10.1080/21670811.2014.976412

Clerwall, C., 2014. Enter the robot journalist: Users' perceptions of automated content. *Journalism Practice*, 8(5), 519-531. https://doi.org/10.1080/17512786.2014.883116

Diakopoulos, N., 2019. Automating the news: How algorithms are rewriting the media. *Harvard University Press*.

Floridi, L., & Chiriatti, M., 2020. GPT-3: Its nature, scope, limits, and consequences. *Minds and Machines*, 30(4), 681-694. https://doi.org/10.1007/s11023-020-09548-1

Ferrer Conill, R., & Tandoc Jr, E. C., 2018. The audience-oriented editor: Making sense of the audience in the newsroom. *Digital Journalism*, 6(4), 436-453. https://doi.org/10.1080/21670811.2018.1424054

Gomez-Uribe, C. A., & Hunt, N., 2015. The Netflix recommender system: Algorithms, business value, and innovation. *ACM Transactions on Management Information Systems (TMIS)*, 6(4), 13:1-13:19. https://doi.org/10.1145/2843948

Graefe, A., 2016. Guide to automated journalism. *Tow Center for Digital Journalism, Columbia Journalism School*.

Montal, T., & Reich, Z., 2017. I, Robot. You, Journalist. Who is the author? *Digital Journalism*, 5(7), 829-849. https://doi.org/10.1080/21670811.2016.1209083

Thurman, N., Dörr, K. N., & Kunert, J., 2017. When reporters get hands-on with robo-writing: Professionals consider automated journalism's capabilities and consequences. *Digital Journalism*, 5(10), 1240-1259. https://doi.org/10.1080/21670811.2017.1289819

Wang, C., Hsu, H.-C. K., Bonem, E. M., Moss, J. D., Yu, S., Nelson, D. B., & Levesque-Bristol, C., 2019. Need satisfaction and need dissatisfaction: A comparative study of online and face-to-face learning contexts. *Computers in Human Behavior*, 95, 114-125. https://doi. org/10.1016/j.chb.2019.01.034