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Reconstruction and Integration: The Impact of Artificial Intelligence Generated Content on News Production

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Abstract: The burgeoning field of Artificial Intelligence Generated Content (AIGC) is garnering widespread attention and discussion across various industries. AIGC, an emerging form of content creation utilizing artificial intelligence, complements traditional content generation paradigms such as Professional Generated Content (PGC) and User Generated Content (UGC). On February 16, 2024, OpenAI officially announced its first text-to-video model - Sora. Sora's capabilities and attributes are sufficient to astonish the world: through text instructions, it can directly output videos up to 60 seconds long. These videos are not simple; they contain highly detailed backgrounds, complex multi-angle shots, and emotionally rich characters, bringing about a revolutionary impact on the news production process. This paper aims to explore the impact of AIGC on the news production process, encompassing aspects of news gathering, writing, and distribution. It also examines the opportunities and risks associated with AIGC's multimodal and large model characteristics. Furthermore, the paper proposes strategies to mitigate risks in AIGC news production from user, technological, and management perspectives, providing insights and contemplations for news producers and practitioners.

Keywords: AIGC, News Production, Advantages and Challenges, Application

1. Introduction

Although the term "artificial intelligence" has gained popularity in recent years, AI is not new. It dates back to 1955 when Stanford University's Professor John McCarthy used the term to describe the science and engineering of making intelligent machines.[1] The pervasive nature of information and communications technology (ICT) and the datafication of society have expanded their applicability in a variety of fields, such as journalism.[2] On May 16, 2019, the convening of the Third World Intelligence Congress underscored China's high emphasis on the development of artificial intelligence technology.[1] The new generation of AI represents a driving force in

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technological advancement, industrial upgrading, and leaps in productivity. AIGC technology is increasingly permeating various fields. Traditional news production processes have primarily relied on the professional skills of technicians, involving extensive manual labor and editorial processes. However, this conventional approach may be constrained by limitations in time, space, and human resources, and it may not be sufficiently efficient when facing large-scale content demands and timeliness requirements. Therefore, with the development of AI technology, the application of AIGC in the field of news production is garnering increasing attention, bringing new possibilities and transformations to news production. Ai can take different forms in the news industry, with three major subareas more common in the news ecosystem: machine learning, computer vision, and planning, scheduling, and optimization. Machine learning is used in different parts of the news production workflow.[3]

In the era of traditional news production, the process of creating news reports covered editorial planning, information gathering, writing, proofreading, and layout.[4] However, with the continuous evolution of AIGC (Artificial Intelligence Generated Content) technology, the news industry is gradually advancing to an intelligent level of content collection and generation. This evolution is evident in its technological foundation, theoretical drive, and practical application, showcasing significant changes.

1.1. News Collection: Intelligent Content Planning And Editing

The application of AIGC technology has a profound impact on content collection and generation. This process tightly integrates cutting-edge technologies such as Natural Language Processing (NLP), data mining, and deep learning to enhance the efficiency and quality of news content creation. In terms of news content collection, AIGC technology is data-driven. It involves the integration, preprocessing, and feature extraction of massive news data, providing a key foundation for subsequent data mining and analysis.[4]AIGC can extract information from vast data sources, automatically create news content that meets grammatical and semantic standards, and optimize the text to some extent, achieving automation, diversification, and customization in news content generation. This process not only speeds up news generation but also enriches the ways and forms of content expression.

The introduction of AIGC technology signifies an intelligent leap in the methods of news content collection and generation, reflecting a significant evolution in the content production process. This trend brings dual advantages of efficiency and personalization to content creation.

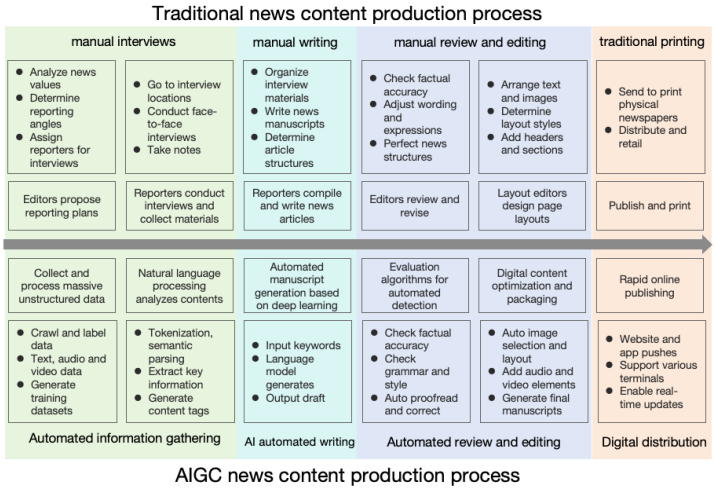

Figure 1: the traditional and AIGC-driven news production processes

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1.2. News Writing: Automated Content Editing and Review

AIGC employs powerful language models for automated content generation, followed by NLP techniques to analyze the generated text for grammar and semantics, ensuring accuracy and coherence. Subsequently, AIGC uses automatic evaluation algorithms to assess text quality, including grammatical correctness, informational accuracy, and style consistency, for automated editing and proofreading. This approach endows AIGC with higher efficiency and scalability in automatic editing and proofreading, accelerating the news production process and enabling the provision of more reliable and high-quality news content.

In audio processing, AIGC can convert interview recordings into editable, searchable, and archivable text forms. This transcription process not only improves the efficiency and accuracy of handling interview content but also makes the dialogue easier to analyze, organize, and retrieve. Real-time transcription assists interviewers in keeping up with the conversation, while text mining technology enables quick extraction of key information and themes. Additionally, AIGC supports text search and indexing, allowing users to quickly find specific dialogue segments. In the short video domain, AIGC can transform text content into videos, including explanatory animations, infographics, and virtual anchors. This helps simplify the video production process, reduce costs, and offer a broader range of video content. Overall, the application of AIGC in interview audio recognition provides powerful tools and support for various industries, driving the modernization of information processing and data management.

1.3. News Distribution: Virtualized Content Broadcasting and Display

With the continuous development of metaverse technology, the application of digital humans is gradually expanding into the news broadcasting field. By training a large number of real anchor news broadcasting materials, technicians have comprehensively trained AI characters in voice, lip shape, expression, motion, and emotion. This process combines AI deep learning technology with human-guided optimization to ensure that the generated textual content and broadcasting maintain maximum natural consistency, aiming to achieve an audio-visual effect comparable to real anchors. Digital humans can achieve visual and auditory effects similar to the real world, bringing a more realistic and vivid experience to news broadcasting. In the metaverse, digital humans can travel through time and space, participate in various virtual activities and communications, and digital human anchors can broadcast at any time without the need for rest, achieving 24-hour continuous broadcasting.

2. Opportunities of AIGC in News Production

2.1. Application of Multimodal Large Models to Enhance News Production Efficiency

Large Visual Models (LVMs) and Large Language Models (LLMs) are key components of AIGC. Their vast number of parameters allow them to handle complex content generation tasks. [4]AIGC, leveraging artificial intelligence techniques like natural language processing and generation algorithms, can quickly process a large volume of news data and generate content automatically. This significantly reduces the time and effort required for manual editing and writing. Traditional news reporting might require on-site interviews, editing, and article writing. In contrast, AIGC can analyze and process massive data sets, automatically extract relevant information from multiple sources, and generate news content according to grammatical norms, thus completing numerous reports in a short time. This automated production process not only improves efficiency but also allows for real-time news updates and more frequent content publication, meeting users' demands for timely news information.

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The world's first AI-generated news reporting platform, NewsGPT.ai, operates independently of human journalists. NewsGPT scans and analyzes news sources from around the world, including social media and news websites, to automatically generate news reports and stories.[6]

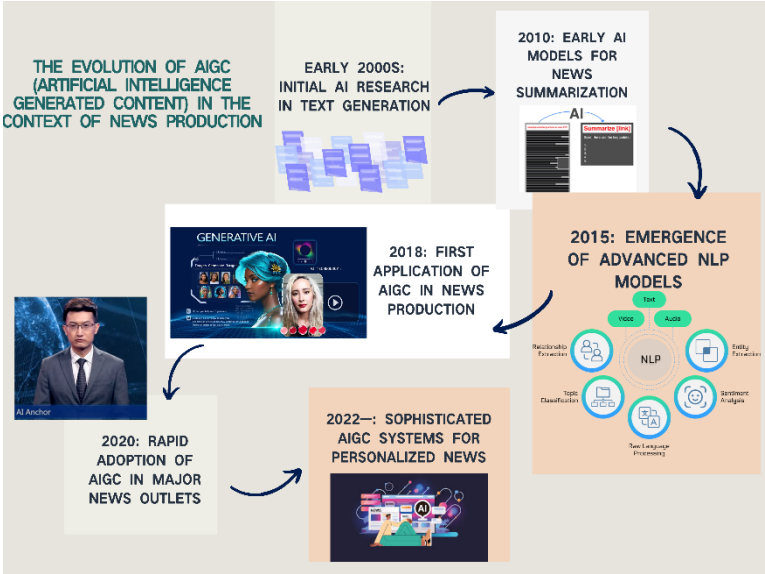

Figure 2: the evolution of AIGC in the context of news production

2.2. Multidimensional News Data Mining for Creativity and Diversity

AIGC can analyze large-scale data, including news content from different themes, domains, and sources. It extracts interesting associations and news leads, aiding editors and journalists in discovering new creative angles and stories. For example, AIGC can customize personalized news content based on user interests and preferences, recommending various styles and themes of reports, from politics and economics to entertainment and technology, achieving diversity in news content. Moreover, AIGC can automatically generate different forms of content, such as text, images, and videos, increasing the diversity and presentation of news reports. This automated generation process breaks the limitations of traditional editing, offering broader creative and diverse space for news production, meeting users' demands for diverse content, and enhancing the attractiveness and engagement of news reports.

In April 2023, the "Upstream News AIGC Creation Center" was launched. Users can input topics and keywords for articles they want to generate, and with AI-powered rewriting, the text and word count can be modified and adjusted. Finally, the "AIGC Creation Center" automatically generates a complete video news script with voiceover, integrating multiple AIGC technologies including "Wenxin Yiyan". This has significantly advanced the efficiency and quality in the fields of news production, dissemination, and distribution. It also realizes the full empowerment of AIGC in the media field, injecting strong momentum into the practice of deep media integration, thereby facilitating more efficient transformation and value realization of media resources.

2.3. Development and Optimization of Multi-Dimensional Prompt Words for Personalization and Customization

The core mechanism for achieving personalization and customization in news production is multimodal data modeling and processing based on individual user differences. This process involves deep learning analysis of user data to capture preferences, behaviors, and needs. This analysis uses large pre-trained models (e.g., GPT-4 or its equivalents) to understand and interpret users' multimodal

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inputs, including text, images, audio, and video data. Through self-supervised learning and reinforcement learning techniques, AIGC models can gradually adapt to different users' information consumption habits and interests, accurately responding to individualized needs. [7]For instance, the diversity and randomness of the text or other content generated by the model can be controlled by adjusting the AIGC temperature value (T). The AIGC temperature value balances the conservativeness and diversity of generated content. Lower temperature values are typically used for generating more definite and consistent text, while higher values are for texts that require more creativity and diversity. Depending on specific applications and needs, different temperature values can be chosen to adjust the behavior of the generation model.

Furthermore, by incorporating users' personalized signals into the news generation process, AIGC achieves targeted content creation. This includes using users' historical browsing records, social media behaviors, personal profile information, and instructions or preferences provided in real-time interactions. In the content generation phase, the AIGC model adjusts the article's style, language, key information emphasis, and visual elements based on the user's personalized signals. This process requires advanced natural language processing and computer vision technologies to ensure the generated content aligns with the user's needs and expectations.

3. Risks of AIGC in News Production

3.1. User Cognition Risk: The Intelligence Gap and Overreliance

The generative artificial intelligence with "high computing power, wide-ranging data, and deep potential" is undoubtedly a technological innovation with strong intrinsic dynamics. It promises revolutionary changes in all industries and life aspects. However, as artificial intelligence becomes increasingly foundational and internalized in lifestyles, it may also bring unintended consequences of the intelligence gap and social inequality. Although AIGC is considered to bridge gaps in information integration and usage across different levels and regions, there are still limitations in eliminating the information access gap. More worrisomely, with the continuous development of AIGC and other machine learning algorithms, the intelligence gap may widen further. Differences in technological levels among journalists have become more pronounced with the introduction of AIGC technology. On one hand, some journalists may actively learn and apply AIGC technology as a tool to enhance work efficiency and expand reporting scope. They can effectively use natural language processing algorithms and big data analysis to generate news articles and provide information rapidly. On the other hand, some journalists may not have sufficient understanding or access to these technologies, exacerbating the technological gap. Meanwhile, if journalists overly rely on AIGC technology, which depends on the same algorithms and data sources, the produced news might become monotonous in format and content. This could lead to a lack of diversity in news reporting, failing to meet the information needs of all societal levels.

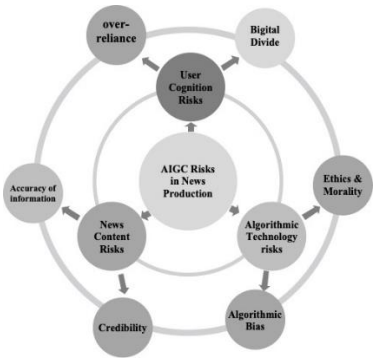

Figure 3: Risks of AIGC in News Production

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3.2. News Content Risk: Information Accuracy and Credibility

The challenges of information accuracy and credibility faced by AIGC in news production mainly stem from its limitations based on training data and algorithms. The essence of news requires reporting the latest and most timely information. As of now, most AIGC systems, especially those trained before 2021, lack the capability to acquire or understand events that occurred after that date. This limitation may negatively affect their accuracy and practicality in news reporting and real-time information queries. Scholars generally believe that this limitation could lead to inaccuracies and incompleteness in information generated by models like ChatGPT 3.5 when dealing with events post-2021, as they cannot generate content based on the latest data and trends. [7]Therefore, users need to be cautious with information generated by ChatGPT 3.5 in news production and information queries, especially in areas involving current affairs and latest trends, and should corroborate with other sources to ensure accuracy and comprehensiveness when possible. Ensuring the accuracy and credibility of AIGC-generated news content requires a combination of manual review and monitoring mechanisms to maintain reliability and objectivity in news reporting.

3.3. Algorithmic and Technological Risks: Algorithm Bias and Ethical Considerations

Since algorithms and bots were first used to produce news, many critics have warned that widespread use of the technology could jeopardize newsroom jobs. Discussion of the ethical challenges posed by the new media environment should be accompanied by a series of analyses of the best recommendations for putting these challenges into practice. News media currently face a huge challenge to deal with innovation in an ethical manner in line with their social responsibilities.[8]

Firstly, AIGC often uses black-box algorithms such as deep learning, making it difficult to interpret the decision-making process behind generated content, thus raising accountability issues. If the generated news content exhibits bias or discrimination, it's challenging to determine whether the cause lies in algorithmic bias or training data issues. This could lead to confusion in regulatory and legal responsibilities. Moreover, the training data for AIGC may be influenced by bias or discrimination, introducing unfair or harmful information into generated content. Algorithmic decisions could also be influenced by the biases of programmers and data scientists, further exacerbating the risk of algorithm bias. Ethically, the potential misuse of AIGC is a concern, such as for spreading false information, malicious attacks, or privacy violations, which could lead to ethical misconduct and social instability.

4. Pathways to Mitigate Risks of AIGC in News Production and Future Prospects

4.1. Human-Machine Collaboration for Integrating Artificial Intelligence with News Editing

Achieving a harmonious integration of artificial intelligence and news editing requires effectively combining technology and human expertise, capitalizing on the strengths of editors and AI systems. For example, editors can use AI systems to automatically collect and organize large amounts of data, rapidly analyze and identify news hotspots, thereby enhancing the agility and timeliness of reporting. In content creation, editors can use the automation capabilities of AI systems to quickly generate initial drafts of news articles, which are then refined and edited to maintain professional judgment and creativity while improving production efficiency. Additionally, through AI systems' data analysis and user behavior tracking, editors can provide more personalized news recommendations, satisfying diverse user needs and enhancing user experience. The organic integration of AI and news editing promises a more efficient, higher quality, and more satisfactory news production model for the industry.

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Table 1: Key measures for artificial intelligence global governance

Governance Principle or Measure	Specific Description or Details
Global Collaboration	Emphasize mutual respect and equality in AI development, encouraging global cooperation for healthy AI growth. Oppose ideological divisions, technology monopolies, and unilateral measures.
Risk Assessment Framework	Establish a risk-level testing and agile governance system, with categorized management. AI developers should improve interpretability and predictability, ensuring AI remains under human control.
Legal and Regulatory Framework	Gradually establish laws and regulations to protect personal privacy and data security. Oppose illegal collection and use of personal information.
Fairness and Non-discrimination	Adhere to principles of fairness and non-discrimination to prevent biases in data acquisition, algorithm design, and application processes.
Ethics Guidelines and Accountability	Establish and refine AI ethical standards, guidelines, and accountability mechanisms. Set up technology ethics review and regulatory systems.
Broad Participation and International Cooperation	Engage in dialogue and cooperation, respecting policy differences, to form a broad international consensus in AI governance.
Technological Development and Application	Actively develop technologies for AI governance, enhancing technical capabilities for effective management.
Representation of Developing Countries	Enhance the representation of developing countries in global AI governance, ensuring equal rights and opportunities in development and management. Promote international cooperation and aid to bridge the digital divide.

4.2. Technological Evolution for Smarter and More Efficient News Production

As technology continually evolves, AIGC will further enhance the quality and accuracy of its content generation, addressing challenges of information accuracy and credibility, and providing users with more reliable and high-quality news reports. AIGC will also continuously optimize algorithms to address issues of algorithmic bias and balanced reporting, ensuring the objectivity and comprehensiveness of news content. In the future, AIGC will focus more on ethical considerations, establishing stricter review and regulatory mechanisms to prevent the spread of false information and inappropriate content. Additionally, AIGC will form a closer human-machine collaboration with traditional journalists, leveraging its auxiliary functions to enhance the efficiency and quality of news production and create more value. Furthermore, AIGC technology will continue to expand into various application fields, covering diverse news reporting formats such as text, images, and videos, enriching the expression of news content, and meeting the diverse needs of users. AIGC will also play a greater role in personalization and customization, providing users with personalized news recommendations and customized news experiences.

4.3. Strengthening Regulation to Address Potential Ethical and Bias Issues

Addressing the potential issues of AIGC in news production is a comprehensive challenge that requires collective efforts. [9]The "New Generation Artificial Intelligence Ethics Standards" were

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released in September 2021, promoting a fair, just, harmonious, and safe AI environment by embedding new norms and standards throughout the AI lifecycle, aiming to prevent biases, discrimination, privacy breaches, and information leaks. Internationally, the European Union's "EU Artificial Intelligence Strategy" report aims to establish an appropriate ethical and legal framework for AI.[10] It is essential to enhance algorithmic transparency by open-sourcing the design and training processes of AIGC models, allowing the public to understand the basis of generated content and reduce the impact of algorithmic biases. Additionally, establishing professional ethics review teams to scrutinize the content generated by AIGC, ensuring it doesn't involve sensitive or inappropriate information, is crucial. For instance, when a news organization uses AIGC to generate articles, it should follow guidelines such as not using false information or exaggerating headlines to ensure the accuracy and credibility of reports. These research initiatives and proposals will help promote the responsible application of AIGC in news production, elevating the standards and trust in the journalism industry.

5. Conclusion

The emergence of Artificial Intelligence Generated Content (AIGC) represents a transformative milestone in the realm of news production, ushering in a new era of efficiency, diversity, and customization. As evidenced by the groundbreaking announcement of OpenAI's Sora text-to-video model, the boundaries of content creation have expanded beyond traditional paradigms, paving the way for innovative approaches to news gathering, writing, and distribution. AIGC technologies, fueled by advancements in natural language processing, deep learning, and multimodal data processing, offer unparalleled opportunities to revolutionize every aspect of the news production process. From intelligent content planning and editing to automated content generation and review, AIGC enhances efficiency, scalability, and quality, enabling news organizations to meet the evolving demands of their audiences in real-time.

Moreover, the multidimensional capabilities of AIGC unlock new avenues for creativity and diversity in news content. By analyzing vast datasets and extracting meaningful insights, AIGC facilitates the discovery of unique story angles and the customization of news experiences tailored to individual preferences. Whether through text-based articles, images, or immersive videos, AIGC empowers journalists to engage audiences in dynamic and compelling ways, transcending traditional storytelling norms. However, the adoption of AIGC in news production is not without its challenges and risks. Concerns surrounding algorithmic bias, information accuracy, and ethical considerations underscore the need for comprehensive regulation, transparency, and accountability. Collaborative efforts among industry stakeholders, policymakers, and technology developers are essential to address these issues and ensure the responsible deployment of AIGC technologies in journalism.

Looking ahead, the future of AIGC in news production holds immense promise for innovation and transformation. As technology continues to evolve, AIGC will evolve in tandem, refining its algorithms, enhancing its capabilities, and strengthening its ethical frameworks. By embracing human-machine collaboration, fostering global cooperation, and prioritizing user trust and integrity, the journalism industry can harness the full potential of AIGC to deliver informed, impactful, and inclusive news experiences for audiences worldwide.

References

[1] *McCarthy, John. 1998. What Is Artificial Intelligence? CogPrints; Stanford.*
[2] *Gelgel, Ni Made Ras Amanda. 2020. Will Technology Take over Journalism? Informasi 50: 5–10.*
[3] *de-Lima-Santos M F, Ceron W. Artificial intelligence in news media: current perceptions and future outlook[J]. Journalism and media, 2021, 3(1): 13-26.*

DOI: 10.54254/2753-7048/50/20240923

[4] *Fang X, Che S, Mao M, et al. Bias of ai-generated content: An examination of news produced by large language models[J]. arXiv preprint arXiv:2309.09825, 2023.*
[5] *Yang, Jingfeng, et al. "Harnessing the power of llms in practice: A survey on chatgpt and beyond." arXiv preprint arXiv:2304.13712 (2023).*
[6] *Gptnews,2024,https://newsgpt.ai.*
[7] *Yu, Guo-Ming and Li, Fan. "Tip to Engineers: Identity Transformation and Logic Reconstruction of Future News Workers," Future Communication, 2023, 30(04): 2-12+140.*
[8] *Rojas Torrijos J L. Semi-automated Journalism: Reinforcing Ethics to Make the Most of Artificial Intelligence for Writing News[J]. News media innovation reconsidered: ethics and values in a creative reconstruction of journalism, 2021: 124-137.*
[9] *"New Generation Artificial Intelligence Ethics Standards Released," Robotics Technology and Applications, 2021, (05): 1-2.*
[10] *Zeng, Xiao. "ChatGPT New Thinking: Opportunities, Challenges, and Regulation Strategies in News Content Production under AIGC Model," Publishing Perspective, 2023, No. 433(07): 57-61.*