A Preliminary Analysis of Artificial Intelligence Technology Applications in Digital Publishing in the New Media Era (Postprint)

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Abstract

In recent years, with the rapid development of scientific information technology, new media has attracted widespread attention from a growing audience and become a hot topic of discussion. New media refers to media forms that have emerged under the support of current new technologies, such as digital magazines, digital broadcasting, mobile television, digital television, and touch media. Propelled by new media, artificial intelligence is also being widely utilized throughout the digital book publishing process. Whether in topic selection and planning, editing and proofreading, or marketing promotion and other dimensions, all aspects are inseparable from artificial intelligence. This article analyzes the current application status of artificial intelligence technology in the new media era, elaborates on the application of artificial intelligence technology in digital publishing within this context, and finally proposes the development trends for the application of artificial intelligence technology in the digital publishing field in the new media era.

Full Text

Preamble

In recent years, with the rapid development of scientific information technology, new media has attracted widespread attention and become a popular topic of discussion. New media refers to media forms that have emerged with the support of new technologies at the present stage, such as digital magazines, digital broadcasting, mobile television, digital television, and touch media. Driven by new media, artificial intelligence is also being widely used in the digital book publishing process, permeating every aspect from topic planning and editing to marketing promotion. This paper analyzes the current application status of

artificial intelligence technology in the new media era, elaborates on its applications in digital publishing, and finally proposes development trends for its use in the digital publishing field.

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Artificial intelligence primarily involves using digital computers or computer-controlled systems to simulate and extend machine capabilities, thereby perceiving environments and acquiring knowledge and methodologies. To some extent, AI is human-centered computing supported by data, strengthening environmental perception and achieving complementary advantages in interaction to enhance learning and adaptation capabilities, with continuous expansion as its hallmark characteristic. Therefore, in the current new media era, intensifying the application of artificial intelligence technology in the digital publishing field holds significant practical importance.

In the new media era, artificial intelligence technology is widely used in digital publishing, particularly in digital book publishing. During the topic planning stage, AI enables editors to effectively improve work efficiency. By expanding the bibliographic information database through big data, editors can obtain timely supplementation of author information, content information, and corresponding reader behavior data. Through keyword searches, this provides a basis for topic planning, allowing for precise market positioning and meeting the needs of more consumers. During the editing and proofreading stage, AI is gradually replacing manual work, effectively automating routine review tasks while also strictly controlling special content. For instance, the proofreading software used by Beijing Heima Feiteng Technology Co., Ltd. has become an indispensable tool in editorial review work. This technology employs advanced information processing capabilities including information compression, rapid retrieval, and Chinese character segmentation, primarily using big data technology to analyze billions of Chinese characters and raw materials to form a massive corpus. The intelligent detection system can effectively correct sensitive vocabulary, grammar, and sentence errors, maximizing the improvement of proofreading efficiency and thereby achieving content originality. Additionally, during the marketing promotion stage, AI can collect book information data to enable market analysis and dissemination of data information, providing publishers with more marketing strategies and problem-solving solutions, thereby summarizing marketing experience. Both e-commerce platforms like JD.com and Taobao track electronic footprints to monitor large amounts of user information, using big data to achieve customized and personalized push services. Notably, using AI in content consumption stages can effectively present the full

picture of reading forms, delivering more content to readers. In the digital book market, companies like Migu Digital Media Co., Ltd. use AI and voice recognition technology to achieve multi-role simulation. Users can select voices and tones according to their preferences, and AI can also create holographic imaging and project wonderful story plots in full view, bringing readers a unique reading feast.

1. Application Status of Artificial Intelligence Technology in the New Media Era

Since the State Council issued the New Generation Artificial Intelligence Development Plan in 2017, China has strongly supported AI development through funding, technology, and talent, with continuous policy dividends ushering in a new era for Chinese AI. Particularly in recent years, as cultural and technological levels have continuously developed, the strategy of technology driving cultural innovation has strengthened. Continuous cultural and technological innovation has effectively improved technical equipment levels in the cultural field, promoting the continuous application of science and technology in cultural domains. At present, AI technology is widely used in various industries including healthcare, education, finance, and smart home systems. In recent years, as market scale has continuously expanded, global investment in AI technology has reached over 5 billion US dollars, making AI the hottest emerging technology. In its development process, AI has won favor from more enterprises with its advantages of speed and precision, particularly shining in the digital publishing process. The use of AI technology can effectively promote the development of new-generation AI toward big data and cross-media intelligence. Both domestic and international digital publishing institutions are actively using AI technology to effectively improve product research and development, achieve resource construction, enhance service intelligence levels, and integrate various data resources and services to build digital publishing resources, thereby improving the efficiency and potential commercial value of digital publishing services.

2. Applications of Artificial Intelligence Technology in Digital Publishing in the New Media Era

2.1 AI in Digital Book Publishing Workflow

In the topic planning stage, AI technology enables editors to effectively improve work efficiency. Through big data, the bibliographic information database is expanded, allowing timely supplementation of author information, content information, and corresponding reader user behavior data. Through keyword searches, this provides a basis for editors' topic planning, enabling effective and precise market positioning to meet consumer demands. During the editing and proofreading stage, manual proofreading work is gradually being replaced by AI, which can effectively and automatically handle routine review tasks while also strictly controlling special content. For example, the proofreading soft-

ware used by Beijing Heima Feiteng Technology Co., Ltd. has become an indispensable technology in editorial review work. This software employs advanced information processing technologies including information compression, rapid retrieval, and Chinese character segmentation, primarily using big data technology to analyze billions of Chinese characters and raw materials to form a massive corpus. It then uses an intelligent detection system to effectively correct sensitive vocabulary, grammar, and sentence errors, maximizing the improvement of proofreading efficiency and achieving content originality. Furthermore, during the marketing promotion stage, AI technology can collect book information data to enable market analysis and dissemination of data information, providing more marketing strategies and problem-solving solutions for publishers, thereby summarizing marketing experience. Both JD.com and Taobao and other e-commerce marketing platforms track electronic footprints to monitor large amounts of user information, using big data to achieve customized and personalized push services. Notably, using AI in the content consumption stage can effectively present the full picture of reading forms, delivering more content to readers and giving full play to AI technology in the digital book market. For instance, Migu Digital Media Co., Ltd. primarily uses AI technology and voice recognition technology to achieve multi-role simulation. Users can select voices and tones according to their preferences, and AI technology can also create holographic imaging and project wonderful story plots in full view, bringing readers a unique reading feast.

2.2 AI in Digital Products

AI technology can also be applied to digital products. For example, when China Legal Publishing House established a multimedia interactive platform for youth legal animation, it strictly followed the Chinese government' s legal and industry digital resource interactive knowledge base, focusing on the "Law Fun Park" to provide legal education services for young people, helping them develop legal awareness, improve their legal literacy, and establish legal thinking in a subtle way. Various functional modules including story theaters, book materials, and leisure stations track each user' s learning content, duration, and interests through legal knowledge classrooms and library material models. AI technology analyzes the resulting content data, then comprehensively discusses error-prone questions and user behavior patterns during usage. Additionally, it can create special learning profiles for each user, thereby providing personalized teaching services. Typically, this module function can compile learning materials and formulate scientific education plans for users during usage, using intelligent teaching to conduct homework, writing, and evaluation, achieving effective assessment of teaching quality and truly implementing personalized instruction. This is particularly effective in the "Law Fun Park" simulation module, which provides users with realistic court scene simulations. This big data-based simulation approach increases interactivity in information dissemination, effectively improving the 趣味性 of content consumption and creating a relaxed and pleasant learning atmosphere [1].

2.3 Using AI to Enhance the Digital Publishing Industry

The use of AI technology can effectively strengthen the digital publishing industry. First, using AI technology can gain a first-mover advantage, as employing new technologies can secure an upper hand in the fiercely competitive digital publishing market and bring corresponding economic benefits to publishing enterprises. At the same time, it can attract professional attention, particularly when conducting in-depth exploration of knowledge and skills in certain fields, where AI technology can inject more vitality and promote long-term industry survival and development. Second, the use of AI technology can broaden the resource sharing mechanism of digital publishing enterprises, laying a sound network foundation for development and providing effective solutions for users, particularly achieving specialization in resource sharing, completing platform installation and maintenance work, finding corresponding resources and teams, and establishing a strong business ecosystem that injects fresh vitality into more digital publishing industries. Finally, it can effectively achieve personalized customization services in the digital publishing industry. Using AI technology can shift the competitive focus from standard products to personalized product services, maximizing the satisfaction of consumer needs. Additionally, it can effectively broaden business model innovation and tap potential consumers. To some extent, for Chinese publishing houses, the variety of new books published each year is diverse and covers extensive content. Therefore, big data intelligence technology can be used to research fragmented book content, thereby establishing a sound educational knowledge base and broadening internal technical talent reserves to meet consumers' personalized and comprehensive basic needs [2].

3. Development Trends of Artificial Intelligence Technology Application in Digital Publishing in the New Media Era

Currently, under the AI environment, the digital publishing industry is developing extensively, not limited to the text expression level but also gaining widespread attention in the promotion of digital products such as live streaming, audio, and video. AI technology in the digital publishing field can effectively mine cutting-edge scientific and technological resources, innovate new fields, and open up new forms of digital publishing industry in the new era. New media brings freedom, diversity, and creativity, which can effectively change publishers' thinking and enable cultural dialogue and business exchange on this basis. As a publishing carrier, new media forms create an era where everything is media through AI technology. Additionally, new media technology can effectively achieve cooperation between internet technology companies and research institutions, creating digital intelligence products based on technology and platform data to provide more precise services for users, enabling digital publishing to develop continuously toward open sharing, green, and coordinated directions [3].

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Note: Figure translations are in progress. See original paper for figures.