Exploration of the Human-Computer Synergy Paradigm for Literary Creation via the Lens of Digital Humanities

Xiaonuo Ye[1], Libin Huang[1] & Zhifeng Wang[1]

[1] College of Humanities, Minjiang University, China

Correspondence: Xiaonuo Ye, College of Humanities, Minjiang University, Fuzhou, 350108, China. Tel: 86-181-5074-9815. E-mail: 2746584976@qq.com

Abstract

In order to study the human-computer collaboration paradigm of literary creation in the field of digital humanities, and to analyze the application and influence of human-computer collaboration technology in literary creation, this paper adopts the methods of literature analysis and case study to sort out the evolution of literary creation paradigm from "author-centered" to "reader-centered" to "digital interaction". Using literature analysis and case study methods, this paper examines the evolution of the literary creation paradigm from "author-centered" to "reader-centered" to "digital interaction", and explores the application and impact of human-computer collaborative technology in literary creation. The study finds that the integration of human-computer collaborative technology promotes the diversification of creative subjects, methods and platforms, and promotes the development of cross-media narrative and multimodal expression of texts; however, at the same time, AI creation faces the problems of insufficient expression of emotions and difficulties in defining originality, and the copyright attribution of the works and the subjectivity of the authors have triggered legal and ethical discussions. This paper enriches the theory of human-computer collaborative creation in the field of digital humanities, and provides a reference for the innovation of future literary creation paradigms.

Keywords: digital humanities, Natural Language Processing, machine learning, Generative Art, interactive literature

1. Introduction

Under the background of the digital age, the research methods and scope of the humanities are undergoing unprecedented changes. Digital humanities, as an emerging field of study, uses technologies such as artificial intelligence, big data, and cloud computing to dig deeper and analyze cultural and social phenomena. Its origins date back to 1949, when, in the mid-twentieth century, Father Roberto Busa, in collaboration with International Business Machines Corporation (IBM), used computers to index the vocabulary of the Thomas Aquinas Collection, a practice that laid the foundation for the study of digital humanities. About 20 years ago, "humanities computing" gradually evolved into "digital humanities," marking the field's transition from preliminary exploration to mature discipline construction[1]. The first issue of "Digital Humanities" of Tsinghua University also pointed out that digital humanities is "humanities research with the help of computer and data science and other methods and means, and its nature is an interdisciplinary discipline, which applies digital technology to humanities interpretation, and is a transformation of knowledge production paradigm triggered by media transformation[2]."In this context, the literature creation paradigm in the digital humanities perspective has changed from "centralized" to "interactive" and then to "interdisciplinary man-machine collaboration", reducing the traditional mode's dependence on professional technology and human resources, and significantly enhancing the research potential of digital humanities. Although the existing research shows that digital humanities provides a new perspective for humanities research through "visualization" and other technical means, it has become a hot spot of academic attention. However, due to the lack of a unified paradigm in the methodology of different disciplines, technology integration faces challenges, which hinders the deep integration of digital technology and humanities[3].

Based on this, the purpose of this study is to explore the application of human-machine collaboration technology in literary creation and its impact and challenge on traditional literary creation mode. By analyzing practical applications of artificial intelligence in literary creation, this paper attempts to reveal how digital technology is changing the creative process and the possible impact of this transformation on the role of the writer and the reader experience. In order to explore these problems systematically, the paper adopts the method of literature analysis

and case study. Literature analysis helps us understand the theoretical foundations and research trends in the field of digital humanities, while specific case studies demonstrate the specific application and effects of these theories in practice.

2. Retrospect on the Evolution of Literary Creation Paradigm

2.1 Discussion on the Author's Death -- from "Writer Center" to "Reader Center"

Before modern times, it was generally believed that the ownership of a work belonged to the author, who was regarded as the sole creative subject, while the reader only enjoyed the right to use the work. In traditional literary creation, the author is regarded as the sole creator, giving the text a fixed meaning. Under this concept, the work is regarded as a fixed and closed existence, and the role of the reader is reduced to a passive one, unable to have a real influence on the production of the text. Roland Barthes poses a subversive challenge to this traditional concept in The Death of the Author. He maintains that "readers are the creators of meaning" and puts the generation of meaning in the multiple interpretations of readers. He believes that the author is no longer the sole master of the text, but only a temporary voice in the text, and thus the reader replaces the author. Becoming the primary interpreter of the text can even be seen as the new "creator" or "God" of the text. This theory realizes the transformation from "author-centered theory" to "reader-centered theory". Since the theory that the author is dead was proposed, the role of the reader has changed significantly. Readers are no longer simply recipients, but gradually participate in the creative process and even become one of the important driving forces of text constructio[4].

Since the beginning of the 20th century, the development trend of literary criticism theory has been from the author centered mode, to the text as the core, and finally to the reader-centered critical view. By negating the author's dominant position and subverting the traditional structure of "author -- work -- reader", a reader-centered relationship model of "reader -- text -- author" is established, which completely deconstructs the author's central position in the traditional sense. It emphasizes the independence of the text itself and the subject position of the reader in the interpretation of the text, which reflects the shift of the literary center. The text itself has also gained more vitality, becoming a language game that gets rid of fixed meaning and operates freely, showing more powerful computing power[5]. Today, readers can directly influence the content and direction of a work through comments, voting, and other ways. For example, on online novel platforms, authors often adjust plot development based on readers' feedback and even incorporate ideas provided by readers in the creation process. This mode of interaction transforms readers from passive receivers to active participants, further blurring the boundaries between authors and readers.

2.2 Interactive Literary Creation: From "Reader-centered" to "Digital Interaction"

The immediacy and interactivity of the contemporary network have completely changed the traditional closed way of creation and facilitated a more complex cooperative relationship between the author and the reader. The interaction between author and reader not only changes the way literature is written and critiques, but also makes the text more participatory and offers the possibility of multiple perspectives. As Paul Levinson says, text on the web allows us to interact quickly. This interaction can not only take place in real time, but also unfold asynchronously, across time and space. Levinson further explained that the rhythm of asynchronous interaction in the network can be minutes, hours, or even days, rather than the traditional delay of days or months, and this asynchronous interaction further enhances the impact of communication through digital interaction[6].

Through "digital interaction", works are no longer the product of isolated creation by the author, and the text is not only dependent on the initial creation, but also constantly reconstructed through the participation of subsequent creators, reflecting its interaction and openness, beyond the one-way interpretation of traditional static texts. Many writers choose to publish their works on digital platforms, hoping to influence their creative direction through real-time feedback from readers. For example, renowned Taiwanese poet Su Shao-lian, as a junior creator, has created more than 90 digital poems and posted them on his personal blog. When reading these works, readers enter the network text composed of various symbolic forms by clicking the link, and carry out the literary acceptance process in the traditional sense. In this process, Su Shaolian and readers jointly participated in the construction of text structure and aesthetic meaning, forming a highly interactive and fully communicated literary creation relationship[7]. Iser, the founder of reception aesthetics theory, once pointed out in his book The Act of Reading that "literary works are essentially a form of communication." The interactive cooperation in network creation further deepens this view. In the field of online literature, readers are not only passive recipients, they often start to intervene in the early stages of the text and even become actual collaborators. In this case, the "implied reader" mentioned by Iser is no longer an abstract concept, but gradually becomes the core force in the text creation. Gadamer's "the melting of the distance between the viewer and the performer" mentioned in the Reality of Beauty

can also be used to explain this literary phenomenon. The deep integration between subjects has been well reflected in the "author-reader" interaction of network literature, which makes literary creation change from a single artistic output to a dynamic process of multi-party cooperation. Digital interactive literature not only deconstructs the traditional barriers between authors and readers, but also promotes the continuous generation and reproduction of texts with the participation of multiple subjects.

2.3 The Interdisciplinary Practice of Whitehead's Educational Philosophy -- from "disciplinary Isolation" to "Cross-domain Communication"

In his book The Purpose of Education, Whitehead emphasized the integration of disciplines in education and believed that isolated disciplinary differentiation would limit students' cognition. Whitehead aimed to advocate "breaking disciplinary barriers" and advocated that various disciplines should penetrate each other. The research in the field of digital humanities is essentially an interdisciplinary exploration, involving linguistics, history, archaeology, computer science, statistics and other fields. The human-computer collaborative system can combine human understanding with machine processing power through data visualization, intelligent interpretation and other functions, so that the research of different disciplines can use various digital tools more naturally and intuitively. Understand each other's professional languages to be more competent and effective in dealing with interdisciplinary problems. Although in the field of digital humanities research, humanists usually do not have in-depth programming ability or complex data processing skills, human-machine collaboration, as an important tool to achieve interdisciplinary integration, lowers the threshold of technology use through natural language interface and simple tools, and promotes new forms of literary creation in combination with literature, computer science, artificial intelligence and other fields. For example, some literary creators have cooperated with computer scientists to generate poems and novels using artificial intelligence algorithms, achieving a deep integration of technology and humanities, and carrying out quantitative and data-driven analysis research without over-reliance on computer science experts. This interdisciplinary cooperation is exactly the practice of Whithead's educational concept. In this way, information sharing and collaboration between various disciplines become more fluid and comfortable.

In traditional research contexts, the humanities are often considered qualitative and subjective, while technology-assisted scientific research is more focused on quantitative and precise research. As a result, data collection and analysis are often confined to a single discipline, which hinders data sharing and integration across disciplines. As an interdisciplinary research paradigm, digital humanities not only integrates the qualitative exploration of humanities with the quantitative analysis of computing technology, but also realizes the organic combination of the two through man-machine collaboration. Shanghai International Studies University has always been good at language and literature, and in recent years, it has added the first new interdisciplinary linguistics major in China, which combines traditional linguistics courses with modern courses such as neuphilology, cognitive neuroscience technology and Python programming, fully demonstrating the interdisciplinary talent training system that integrates arts and sciences, and gives interdisciplinary learning greater space for expansion. Specifically, digital humanities uses data mining, text analysis and other means, combined with quantitative tools, to promote the open and interdisciplinary sharing of databases by breaking the disciplinary barriers between computer science and humanities.

2.4 Ai-Driven Revolution in Literary Creation - from "Technology Empowerment" to "Human-Machine Dance"

At the beginning of 2024, the Ministry of Industry and Information Technology, together with six other departments, issued the Implementation Opinions on Promoting Future Industrial Innovation, which clearly proposed the application of cutting-edge technologies such as brain-like intelligence and large models to the development of future information industry[8]. In March of the same year, Professor Wang Feng's team from East China Normal University created the first intelligent novel in Chinese based on the domestic large language model. This achievement not only shows the potential of collaborative creation between artificial intelligence and human authors, but also marks the opening of a new era of man-machine collaborative writing in China. These policies and practices show that artificial intelligence is gradually becoming an important force in literary creation, driving the shift from "technology empowerment" to "human-machine dancing." In this context, the combination of human-machine collaboration and digital humanities, with the help of artificial intelligence, generative art, three-dimensional imaging, and virtual and augmented reality (VR/AR) and other technologies, has injected a new driving force into literary creation. As Sun Ninghui said, intelligent computing has entered the fourth stage of "large model computing system". At this stage, intelligent computing not only has powerful computing power, but also gradually understands and reflects human values through the processing of massive training data, showing humanoid processing ability[9]. Driven by this technological evolution, research-driven Artificial Intelligence (AI4R) came into being. This model has shown extensive application potential in the fields of natural science, social science and humanities, and provides a new research perspective and method for the humanities. For

example, generative AI builds systems through knowledge representation, uses data modeling to make predictions, and supports decision making and idea generation. In literary creation, generative AI can help writers optimize text structure, improve the accuracy of vocabulary and grammar, and provide suggestions for plot development by analyzing massive text data, thus significantly improving the efficiency and quality of creation. The application of these technologies shows that artificial intelligence is gradually transforming from an auxiliary tool to an actual participant in creation, driving profound changes in artistic creation in the digital age. At the same time, with the continuous development of virtual reality (VR) and augmented reality (AR) technologies, the art experience is shifting from passive reception to active, immersive interaction. The role of the audience has also changed from a static receiver to a dynamic participant, thus reshaping the interaction mode between art and audience and enhancing the multi-dimensional art experience. Nowadays, artists can fine-tune their works in the digital modeling stage and predict the final effect in advance, thus reducing mistakes and waste of resources in the creative process[10]. This data-driven approach not only enhances the user experience, but also makes literary creation more personalized, deepening the interaction and emotional connection between readers and works.

The continued development of the digital humanities further highlights the importance of data as a core factor of production. The wide application of data not only accelerates the deep integration of art and technology, but also promotes cross-cultural innovation and interaction, showing its increasingly important position in modern art and cultural creation. At the same time, online platforms have provided more opportunities for collaboration and dialogue between creators from different cultural backgrounds, giving birth to the continuous emergence and prosperity of new literary forms. These changes show that digital technology is reshaping the ecology of artistic creation and opening up a broader space for future cultural development.

3. New Characteristics of Literary Creation under the Paradigm of Man-Machine Collaboration

3.1 Progress of Digital Technology and Evolution of Creative Methods

In the early stage of the development of digital humanities, human-computer dialogue and interaction can only rely on readers to type natural language, based on a fixed sequence of catalogs. The reader must interact by telling or asking in a specific order, with low autonomy. With the development of deep learning and natural language processing technology, artificial intelligence is playing an increasingly important role in literary creation. By simulating the cognitive processes of the human brain, deep learning is able to analyze and generate complex text. Natural language processing technology enables machines to understand and generate natural language, which provides a technical basis for human-computer collaborative creation. Artificial intelligence can generate creative poems or stories according to a given theme or style, help writers explore new creative directions, and show the ability to imitate the style of masters such as Shakespeare and Jane Austen by analyzing a large number of classic works, help writers explore different styles in a multicultural background, and promote the replication and innovation of literary styles. Shows the potential to redefine literary traditions. Natural Language Processing (NLP) intertwines linguistics, artificial intelligence and computational science, covering the two core areas of natural language understanding (NLU) and generation (NLG) : NLU converts human language into machine-processed symbols for in-depth analysis; NLG analyzes the output language text and transforms it into an understandable form to enhance human-machine interaction. With the help of this technology, virtual dialogue can show authenticity, and readers can achieve a freer and more authentic interaction with the work. It is no longer used as an auxiliary tool, but through complex algorithms and powerful generation capabilities, participate in the creative process. For example, in 2016, a novel assisted by NLP technology was shortlisted for the Japanese Hoshi Shinichi Literature Prize. This indicates that AI is no longer at the stage of imitation in creation, but is gradually possessing the ability of creativity and emotional expression[11]. The large language model is based on the Transformer architecture, which can capture the subtle relationships in the language and understand the complex connections between words, so as to generate both coherent and creative text, with powerful functions of large-scale production, multi-modal interaction, and long text reading. Some of the more representative language models include GPT-4, BERT, XLNet, and T5. OpenAI's GPT-4 model, for example, can be trained on large amounts of text data to produce high-quality articles indistinguishable from human creators.

From one-way "creation - reading" to two-way "co-creation - interactive reading", under the characteristics of strong interactive literature, man-machine collaborative creation mainly presents two modes: Navigational writing" In other words, humans act as the leader, guide AI to make specific creations through clear instructions, and control the narrative direction and quality, similar to the captain at the helm while AI is responsible for power output; "Two is" Exploratory writing" It breaks the traditional master-slave relationship, regards creation as an equal dialogue between man and machine, expands the creative boundary through mutual inspiration, and discovers new narrative possibilities. These two modes have their own characteristics: navigational writing emphasizes efficiency and control, exploratory writing focuses on innovation and breakthrough, and together

constitute a new paradigm of creation in the AI era, which not only improves the efficiency and quality of creation, but also implies that future creation will be a more open and interactive process, requiring creators to explore and practice with an inclusive and open mind.

3.2 Creation Subject and Platform Transformation

The research paradigm of digital humanities is changing from static data analysis to dynamic intervention and shaping of future literary creation, directly serving the creative process of writers. This kind of collaborative creation is leading to the structural transformation of literary creation, especially in the transformation of creative subjects and creative platforms.

With the wide application of generative artificial intelligence tools, literary writing is full of unprecedented vitality, and the structure of creative power is also undergoing profound changes. In the man-machine collaborative creation mode, the introduction of artificial intelligence has gradually shifted from the traditional creation mode dominated by elite writers and grassroots writers to the diversified creation subject with artificial intelligence as the core. The main body of creation has expanded from a single human author to human-machine collaboration, and even pure machine creation. Microsoft's Xiaoice, for example, has maintained a steady pace of creation every year since the publication of his poetry collection "Sunshine Lost the Window" in 2017, and all of his works have been copyrighted, which shows that artificial intelligence has a certain independence and creativity in literary creation. With the development of technology, new creative platforms continue to emerge, promoting the decentralization of literary production. For example, Zhihu and other platforms access the large language model "Wenxinyi", providing users with artificial intelligence-based creation tools. These platforms have not only changed the way literature is created and distributed, but also deepened the interaction between authors and readers.

In this process, digital technologies have played a crucial role, accelerating the pace of innovation in literary forms and cultural dissemination. The rise of such platforms not only provides a new form of display for literary works, but also a complete record of each stage of creation, showing the dynamic characteristics of online literature. It can be seen that the combination of digital humanities and artificial intelligence is profoundly reshaping the ecology of literary creation, opening up new possibilities for the future development of literature.

3.3 The Rise of Cross-Media Narrative

Cross-media narration refers to the joint telling of a story through a variety of media forms (such as text, image, sound, video, etc.), breaking the limitation of the single medium of traditional literature. This kind of narrative expands the means of expression in literature and enables readers to participate in the work with a richer sensory experience. Marie-Laure Ryan proposes that the logical framework of digital narrative is based on the binary opposition between textual structure and interactive mode. She divides digital storytelling into five main forms: interactive fiction, hypertext, online storytelling, interactive drama, and narrative games. The diversity of media forms further expands the possibilities of literature, and digital narration provides a new opportunity for novel narration, poetic creation and text presentation. The intervention of digital technology also makes nonlinear narrative become a reality, and the traditional linear narrative is gradually deconstructed, and cross-media narrative emerges[12]. The form, sound and meaning of language can be creatively recombined through digital technology, and cross-media text derivation is thus a natural result.

Creative writing across genres and media is a typical product of highly technical creative practice in the new media era because of its non-linear, visual and multi-media creation, dissemination and reception. This practice takes text as the main carrier of production value, which reflects the profound influence of digital technology on literary creation. In the experience of cross-media narrative, readers can not only feel the interactivity of the story, but also put forward their own creativity on this basis, and actively participate in the creation and extension of the content. This open creation mode breaks the closed structure of traditional reading, and makes content creation more open, diversified and creative, so as to realize the co-creation of content value. For example, Pottermore builds a community of loyal readers through interactive cross-media modules, using different narrative modes to create individual story fragments, and ultimately forming a unique overall narrative space. The platform encourages readers to actively participate in content creation, making them both audiences, creators and disseminators, thus promoting the extension of cross-media narrative space.

3.4 The Multimodal Expression of Text and the Reconstruction of the Relationship between Literary Elements

In the existing research, "multimodal" is usually regarded as an important attribute of information resources in the digital age, that is, the expression of literary works gradually transitions from a single mode to a variety of modes such as text, image, audio, video, etc., and achieves deep integration between modes. Since the 21st century, with the deep involvement of digital technology and Internet technology, digital literature and digital text have been

developing rapidly. "New genres" such as hypertext, multimedia text, interactive text and machine text have gradually become the main forms of database writing, and network literature has therefore become the mainstream of contemporary man-machine collaborative creation[13]. Hypertext novels based on hyperlink technology have significantly changed the creation paradigm and reading mode of traditional literature. The introduction of hyperlink and multimedia function has broken the linear structure and stability of traditional text, and transformed the literature form from a single and flat mode dominated by linear text to a complex situation of multi-modal coexistence and human-computer interaction. In this context, readers' reading experience has also been upgraded from the traditional single-sensory participation to the multi-sensory immersion experience. In Michael Joyce's hypertext novel Twelve Intersecting Roads, the hyperlink technology allows readers to choose different link paths and experience different storylines. This multi-modal literary form not only breaks through the reading barriers brought by language and cultural background, but also provides a more open and shared reading experience for global readers.

With the continuous expansion and change of writing application scenarios, the balance of elements of traditional literary creation is gradually broken, and this change redefines the relationship between authors, works and readers. Writing is no longer just the exclusive domain of literary creators, but has become a universal form of labor in cultural production. In the process, the identity of creators has also become more diverse. They may be artists skilled in new media technologies, engineers with programming skills, or other professionals capable of creating with new technologies, or they may come from traditional humanities or interdisciplinary fields. Anyone can generate text content that conforms to their personal preferences by entering the corresponding instructions. The role of the creator changes from a single author to all the readers, and the readers further become the producers of media content, actively participate in the construction of the text, and become "writing readers". The enhancement of interactivity and initiative makes the relationship between readers and authors closer, and at the same time, through the creative sharing and interaction between readers, a constantly improving story world system is gradually constructed.

4. The Challenge and Response of Man-Machine Collaborative Paradigm in Literary Creation from the Perspective of Digital Humanities

4.1 The Main Challenges of Human-Machine Collaborative Creation

4.1.1 The Main Challenges of Human-Machine Collaborative Creation

In the 1950s, Alan Turing proposed the question "Can machines think?" This issue has led to discussions about the differences between artificial intelligence and human emotions. Emotion is the core of human literature creation, and the reason why classical works can move people's hearts is precisely because of its profound expression of emotion. Although human-machine collaborative technology makes up for the lack of human creation ability through text mining function, artificial intelligence usually relies on existing data and algorithms in emotional expression, resulting in the lack of emotional delicacy and uniqueness of creation, showing the depth of mechanization and lack of humanity. This puts the inherent emotional value of artistic creation at risk of dilution. The emotional expression generated by machines is difficult to reach the emotional resonance of human creators. Parisi and Petrosino pointed out that without autonomous motivation, a robot would not have emotions[14]. Writer Nan Fan also said, for example, artificial intelligence has a powerful memory function, but it does not recall, it is impossible to suddenly recall how a programmer wrote a key instruction in a sad afternoon, there is no moving scene blend into the touch of creation[15].

4.1.2 Originality and Copyright Attribution

With the rise of man-machine collaborative creation, the ownership of works becomes complicated. As a creative subject, how do the works produced by artificial intelligence define originality? How to define the subjectivity of the author? At the legal level, traditional copyright law emphasizes the spiritual rights of human creators, and works generated by artificial intelligence are often difficult to be protected by law due to the lack of human subjective creativity, which has triggered legal and ethical discussions on the originality of works and the subjectivity of authors. On February 14, 2022, the Copyright Review Board of the United States Copyright Office once again denied a request for reconsideration of the copyright registration of the AI-created work "Entrance to Heaven" submitted by Stephen Thaler, represented by Mr. Abbott, reaffirming that under the provisions of the United States Copyright Act, Requires works to include a human authorship. Therefore, the work "a rececententrance to paradise" created by artificial intelligence cannot be licensed. It can be considered that the originality standard built on the basis of "personality values" is the product of "anthropocentrism" and has the essence of the will of the work and the subjectivity of the author[16].

4.1.3 Creation Homogenization and Excessive Entertainment

The "decentralized" creation mode makes the author and the reader gradually shift from a single linear reception mode to a more complex two-way feedback mechanism, and the reader is not only the recipient of the text, but also deeply involved in the interaction of literature production. For example, in the field of online literature, the number of clicks and reading data directly affect the transmission path and audience response of works through platform feedback. On the one hand, this interactive mode allows creators to adjust the direction of creation under the pressure of catering to readers' tastes, and on the other hand, it also blurs the boundary between creators and readers, prompting them to participate in the generation of text meaning. French scholar Giulia Kristeva first proposed the concept of "intertextuality" on the basis of absorbing Bakhtin's dialogue theory. She pointed out that the text of any work is constituted like the Mosaic of many texts, and any text is the absorption and transformation of other texts[17]. In this mode, interactive literary creation faces two challenges: On the one hand, in order to attract readers and pursue traffic, some writers pay more attention to the entertainment of their works, but ignore the due ideological depth and connotation. On the other hand, the creation style is becoming more and more homogenous, and the popular works on the network platform are imitated and copied in large numbers, which makes some creations lose their original uniqueness and personality expression. For example, under the influence of the "rice circle culture", fans' excessive rewards and comments gradually deviate from their attention to the works themselves, becoming more like an emotional transaction driven by capital, and even triggering public opinion. This kind of capital logic has a profound and complex impact on cultural consumption and literary ecology.

4.2 The Coping Strategy of Man-Machine Collaborative Creation Challenge

4.2.1 Integrate into the perceptual model, break through the emotional trap

In the face of the shortcomings of artificial intelligence in emotional expression, breakthroughs need to be made in key technologies such as deep learning. Through the introduction of affective computing, affective generation model and other methods, artificial intelligence to enhance the perception and expression of human emotions. In addition, the combination of multi-modal data to simulate human emotional experience makes the works created by artificial intelligence more emotional depth and appeal. Through the integration of emotion recognition technology, it helps machines to better analyze the emotional fluctuations in human works, so as to achieve more delicate emotional expression in creation. Deepmoji is a deep learning-based model whose core lies in the learning of large-scale emoji corpora and the construction of an emotion perception system that can achieve top performance on multiple emotion-related text modeling tasks . Deepmoji analyzes large-scale text data through deep learning to predict and simulate complex emotional attitudes. Applying this technology to literary creation allows machines to produce texts that are not only grammatically correct, but also emotionally engaging, and thus closer to the emotional experience of humans.

4.2.2 We will improve laws and regulations and clarify the ownership of copyright

The intelligent creation of the "machine author" not only contains the "consent" of the human creator's intention, but also shows the "co-creation" characteristic of the machine accepting the guidance of human beings. Under the man-machine collaborative creation mode, the process of generating literary works by artificial intelligence depends on the design of programming language and the formulation of specific information processing rules. The literary works generated according to the "feeding" of human information and the pre-training of big data have more or less "reference" parts, but there is also the integration of innovative elements of human brain. Although it is difficult for the existing copyright system to fully explain the legal identity of the machine author, it is necessary to reconstruct the originality theory in jurisprudence in the face of the originality of the works generated by artificial intelligence and the subjectivity of the author. We can consider man-machine collaborative creation as a new creation mode and establish the evaluation standard of relative separation of subject and object. At the legal level, relevant regulations should be improved to clarify the copyright ownership of works generated by artificial intelligence, and provide institutional protection for man-machine collaborative creation. With the continuous advancement of machine learning, deep learning and natural language processing technologies, human-computer interaction systems are gradually adapting to complex and changeable application situations, effectively enhancing the ability of creation and regeneration, and its originality is yet to be explored. In addition, strengthening international cooperation and formulating unified international legal standards can help better deal with the copyright issues arising from cross-border human-machine collaborative creation.

4.2.3 Guide the direction of creation and enhance the connotation of works

In order to avoid excessive entertainment and homogenization of literary creation, it is necessary to introduce moral and social responsibility consciousness in the creation process. At the societal level, literary funds and innovation awards can be set up to encourage creators and developers to explore more diverse and deeper forms

of literary expression; Education departments can set up specialized courses and seminars to appropriately guide young creators on how to innovate literary form and content while maintaining literary depth and cultural value in collaborative creation with machines. In these ways, creators can not only improve the quality of their works, but also use technology as a link to better express their creativity and emotions, and ultimately promote the development and diversity of literature and art. At the same time, the creator should also balance innovation and rationality, pay attention to the ideological depth and cultural value of the work. In the creation of artificial intelligence, deep learning algorithms can be used to conduct sentiment analysis and trend prediction on public opinion information to avoid generating content that may cause negative social impacts.

5. Conclusion

From the perspective of digital humanities, this paper discusses the application and evolution of man-machine collaborative paradigm in literary creation. By reviewing the development of literary creation from "author-centered" to "reader-centered" to "digital interaction", this paper analyzes the influence of Whitehead's educational concept in interdisciplinary practice and the transformation of literary creation driven by artificial intelligence. The research shows that the integration of human-machine collaboration technology not only enriches the subject, mode and platform of literary creation, but also promotes the rise of cross-media narration and the development of multi-modal expression of text, and reconstructs the relationship between the elements of literary creation. However, at present, man-machine collaborative creation still faces challenges such as lack of emotion and difficulty in defining originality. Future research should focus on improving the emotional expression ability of artificial intelligence, improving relevant laws and regulations, as well as strengthening interdisciplinary cooperation, promoting the deep integration of technology and humanities, and promoting the continuous innovation of literary creation paradigm. Through continuous technical improvement and theoretical exploration, it is expected to achieve greater breakthroughs in man-machine collaborative creation in the future, and inject new vitality into the development of literature and art.

References

[1] Salerno, E. (2024). Digital humanities: Mission accomplished? An analysis of scholarly literature. *Cultures of Science, 7*(1), 34–48.

[2] Hao, Y. (2024). An analysis on the practice path of digital humanistic service in university libraries. *Shenhua, (19)*, 131–133.

[3] Pierre-Luc, G. (2018). SABINA LEONELLI, *Data-centric biology: A philosophical study*, Chicago: The University of Chicago Press, 2016, 275 pp., $35/24.5. *History and Philosophy of the Life Sciences, 40*(3), 57.

[4] Barthes, R. (2004). The death of the author. In Y. Zhao (Ed.), *Collection of semiotic literature* (pp. xx–xx). Tianjin: Baihua Literature and Art Publishing House.

[5] Bi, R., & Song, S. (2020). Thoughts on the problem of "author" in artificial intelligence literary writing. *Writing, (03)*, 69–75.

[6] Levinson, P. (2001). *Digital McLuhan*. Beijing: Social Sciences Academic Press.

[7] Shan, X. (2018). "Writer-centered," "reader-centered," "digital interaction": Media literature and art analysis of literary writing styles in the new media era. *Learning and Exploration, (8)*, 156–162.

[8] Central Government of the People's Republic of China. (2024, January 18). *Implementation Opinions of Ministry of Industry and Information Technology and other seven departments on promoting future industrial innovation and development* [EB/OL]. Retrieved October 9, 2024, from https://www.gov.cn/zhengce/zhengceku/202401/content_6929021.htm?s_trans=1927466135_&s_channel=4

[9] Sun, N. H. (2024, April 30). *Development of artificial intelligence and intelligent computing* [EB/OL]. Retrieved October 9, 2024, from http://www.npc.gov.cn/c2/c30834/202404/t20240430_436915.html

[10] Li, B. (2023). New literary features of digital literature under the background of media transformation. *Hubei Social Sciences, (05)*, 101–108.

[11] Parisi, D., & Petrosino, G. (2010). Robots that have emotions. *Adaptive Behavior, xx*(xx), xx–xx.

[12] He, Y. (2023). From symbol, device to production mechanism: The change and limit of writing in network literature database. *Modern Chinese Literature Research Series, (07)*, 242–260.

[13] Yang, S., & Wang, S. (2020). Human emotion and machine emotion: Emotion research in the field of artificial intelligence. *Art Museum, (03)*, 63–71.

[14] Wang, D. (2022). When art meets AI. *Innovation World Weekly, (09)*, 110–111.

[15] Wu, H. (2019). Questions about the copyright law of works generated by artificial intelligence. *Chinese and Foreign Law, 32*(3), 653–673.

[16] Zhang, F. (2021). Analysis of adaptation strategies from network novels to domestic network animation. *Southeast Communication, (01)*, 108–112.

[17] Kristeva, J. (1980). *Desire in language: A semiotic approach to literature and art* (L. S. Roudiez, Ed.; T. Gora, A. Jardine, & L. S. Roudiez, Trans.). Columbia University Press.