

The Dilemma of "No Author" Generated by Algorithm: Reflection on Aesthetic Autonomy and Cultural Discourse Power in Artistic Creation

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ABSTRACT

This research aims to deeply analyze the dilemma of "no author" faced by algorithm-generated art. With the rapid development of technology, the application of algorithms in the field of artistic creation has become increasingly extensive. As an emerging form of art, algorithm-generated art has gradually emerged, but its issue of "no author" has sparked many controversies and thoughts. From the unique perspectives of aesthetic autonomy and cultural discourse power, this research comprehensively uses methods such as literature research method and case-analysis method to conduct a comprehensive analysis of the dilemma of "no author" in algorithm-generated art. The study finds that the "no author" of algorithm-generated art not only challenges the definition of the author concept in traditional artistic creation but also brings difficulties to copyright ownership. In terms of aesthetic autonomy, algorithm-generated works exhibit unique aesthetic characteristics and values, while also influencing human aesthetic expression. From the perspective of cultural discourse power, algorithm-generated art plays an important role in cultural dissemination, but the cultural biases behind the algorithms and their "no author" characteristics have a complex impact on the distribution of cultural discourse power and cultural diversity. This research provides a new theoretical perspective for understanding the nature of algorithm-generated art and also provides useful reference for guiding artistic creation practice and standardizing the development of the art market.

KEYWORDS

Algorithm-generated art; No author; Aesthetic autonomy; Cultural discourse power; Artistic creation

1. INTRODUCTION

1.1. Research Background

With the rapid advancement of digital technologies, the application of algorithms in artistic creation has emerged as a significant component of the contemporary art ecosystem. AI-driven generative technologies like ChatGPT signify the widespread adoption of generative AI in the art field. This technology not only expands the expressive boundaries of digital art but also provides innovative technical tools and conceptual frameworks for artistic creation. As an emerging art form, algorithm-generated art has achieved a remarkable transformation from traditional manual creation to automated production through data mining and machine learning, with its development pace being particularly noteworthy. However, this technology-driven creative model also brings new challenges. For instance, the algorithm-generated art creation process often involves multiple stakeholders, including algorithm designers, data providers, and users. While this makes the production process increasingly

efficient, it simultaneously raises complex issues regarding author identity and copyright ownership [5]. Moreover, the emergence of algorithm-generated art not only alters the technical logic of artistic creation but also profoundly impacts traditional aesthetic standards and cultural dissemination methods, prompting us to re-examine the essence of art and its sociocultural significance.

1.2. Problem Statement

The rise of algorithm-generated art has sparked the "authorship crisis," which has become one of the core controversies in contemporary art creation. In traditional art, the creator is typically seen as the central figure whose personal experiences, emotional expressions, and aesthetic choices collectively shape the work's unique artistic value. However, in algorithm-generated art, the creative process heavily relies on algorithmic models and data inputs, significantly weakening or even completely erasing the human creator's role. This makes it difficult to clearly define the authorship of the artwork. This "authorship crisis" not only challenges aesthetic autonomy in art creation but also profoundly impacts the distribution of cultural discourse power. On one hand, whether algorithm-generated art can achieve genuine aesthetic expression without human intervention has become a focal point of academic debate. On the other hand, the underlying cultural biases in algorithms and their influence on cultural dissemination patterns further exacerbate inequalities in cultural discourse power. Therefore, in-depth research into the "authorship crisis" of algorithm-generated art not only helps reveal its inherent technical and aesthetic contradictions but also provides new perspectives for exploring cultural power dynamics in artistic creation.

1.3. Research Significance

This study aims to explore the "no author" dilemma in algorithm-generated art from both theoretical and practical perspectives, providing valuable insights for understanding its essence and guiding related practices. Theoretically, the rise of algorithm-generated art challenges traditional art theories and aesthetic systems, particularly regarding authorship identity, creative subjectivity, and aesthetic value judgments. Through in-depth analysis of the "no author" dilemma, we can further clarify the technical logic and aesthetic characteristics of algorithm-generated art, laying the foundation for constructing an art theory framework adapted to the demands of the new era [3]. Practically, the rapid development of algorithm-generated art imposes higher requirements on artistic creation practices and market management. For instance, how to reasonably define copyright ownership of algorithm-generated works, standardize the creative process of algorithm-generated art, and avoid the negative impact of cultural biases behind algorithms on cultural dissemination are pressing issues that need resolution. Additionally, this study seeks to explore the status and role of algorithm-generated art in cultural dissemination, offering policy recommendations to promote cultural diversity and equity, thereby advancing the sustainable development of artistic creation and the cultural industry.

2. LITERATURE REVIEW

2.1. Theoretical Analysis of Algorithmic Art

Algorithm-generated art refers to artworks automatically created through computer algorithms, with its core principle being the use of technologies like data mining, machine learning, and deep learning to analyze and process massive datasets, thereby generating artistic forms with aesthetic value. Gu Pengfei's research indicates that generative AI such as ChatGPT transcends the limitations of traditional algorithmic programs in artistic "creation," demonstrating anthropomorphic innovative production characteristics. This demonstrates that algorithms are no longer merely technical tools but are gradually exhibiting the "subjectivity" of artistic creation [2]. Additionally, Zhang Xiaojuan further explores the creative process of text-based generative painting, emphasizing the collaborative relationship between humans and technology in this field. She argues that the roles of both parties in

creation are not fixed but dynamically evolve based on specific participation methods [10]. From a technical perspective, algorithm-generated art relies on complex data set training and model optimization. For instance, the Stable Diffusion algorithm achieves high-level imitation of diverse styles by integrating massive commercial illustration datasets [8]. However, this technology-driven art form has also sparked debates about its artistic attributes. Some scholars argue that it lacks the emotional depth and ideological expression inherent in traditional art, while others contend that its unique formal innovations and stylistic diversity inject new vitality into artistic expression [6].

2.2. State of Research at Home and Abroad

Research on algorithm-generated art both domestically and internationally primarily revolves around three themes: "authorship ambiguity," aesthetic autonomy, and cultural discourse power. Regarding authorship ambiguity, Chinese scholars generally focus on the unclear creative identity in algorithm-generated art. For instance, as mentioned in reference [4], the authorship of AI-generated virtual characters is often difficult to define, with Microsoft XiaoIce system-generated poems and paintings sparking extensive discussions about attribution. International studies, however, concentrate more on the applicability challenges of copyright law, particularly in determining copyright ownership for algorithm-generated works, where existing legal frameworks struggle to address emerging art forms [7]. In the realm of aesthetic autonomy, domestic research tends to explore whether algorithm-generated works meet traditional aesthetic standards and investigate their unique aesthetic characteristics. For example, studies indicate that algorithm-generated art demonstrates significant advantages in formal innovation and stylistic diversity, but debates persist regarding whether its aesthetic expressions can remain free from human intervention. Conversely, international research emphasizes algorithms' impact on human aesthetic expression, suggesting that algorithm-generated art is reshaping the structure and boundaries of traditional art aesthetics [6]. Concerning cultural discourse power, domestic and international studies both examine the role of algorithm-generated art in cultural dissemination and the underlying cultural biases. For instance, reference [8] points out that data sources for SD algorithms often involve illegal scraping practices, which not only infringe on original authors' rights but may also perpetuate cultural biases in generated works. In general, both domestic and international research demonstrate methodological diversity, encompassing case-based empirical studies as well as theoretical explorations of art's essence [3, 10].

2.3. Research Gaps and Innovation Points

While existing research has achieved certain results in multiple fields of algorithm-generated art, several research gaps remain to be addressed. First, regarding in-depth analysis of the "no author" dilemma, current literature mostly remains at the level of vague descriptions of the creative subject, lacking systematic exploration of underlying causes. For instance, although reference [4] mentions the difficulty in defining the creator, it fails to adequately analyze the complex interest relationships between algorithm designers, data providers, and users, as well as their impact on author identity recognition. Second, in comprehensive studies of aesthetic autonomy and cultural discourse power, existing literature often discusses them separately, failing to fully reveal their intrinsic connections. For example, references [6, 7] explore the aesthetic value and cultural dissemination effects of algorithm-generated art respectively, but fail to conduct comprehensive analysis of its overall impact through the lens of "no author". Additionally, practical application research on algorithm-generated art remains relatively insufficient, particularly in balancing technological innovation and artistic ethics, where feasible solutions are still lacking [8]. The innovation of this study lies in integrating multidisciplinary perspectives to comprehensively analyze the "no author" dilemma of algorithm-generated art from three dimensions: technology, aesthetics, and culture. It also proposes practical solutions based on real-world cases, aiming to provide theoretical support and practical guidance for the healthy development of algorithms in artistic creation [3, 10].

3. THE EXPRESSION OF THE DILEMMA OF "NON-AUTHORSHIP" IN ALGORITHM-GENERATED ART

3.1. The author's Definition is Vague

3.1.1. The challenge of the traditional author concept

In traditional art creation, the artist is regarded as the sole or central creator, with their identity typically established through subjective initiative, personal experience, and emotional expression during the creative process. This concept, deeply rooted in Romantic art theory, emphasizes that artworks are external manifestations of the creator's inner world, possessing irreplaceable individuality and uniqueness [1]. However, the rise of algorithm-generated art fundamentally challenges this traditional notion of authorship. By automating the creative process through data mining and machine learning technologies, algorithm-generated art no longer relies on a single human creator. For instance, Microsoft's Xiaoice system can independently produce poetry and paintings, with works even published under the name "Xiaoice" [5]. This phenomenon has sparked debates about authorship: Should algorithms be considered creators, or should their designers, users, or data providers be recognized as authors? Complicating matters further, algorithm-generated art often involves multi-layered collaborative relationships that further blur traditional boundaries of authorship. Thus, algorithm-generated art not only disrupts the core assumptions of traditional authorship but also prompts us to reconsider the essential meaning of "author" in artistic creation.

Moreover, the creation process of algorithm-generated art exhibits a high degree of technical dependence, which diminishes the subjective agency inherent in traditional authorship concepts. In pre-industrial times, artistic creation required creators to invest substantial time and effort in technical training and emotional accumulation—such as Wang Xizhi's lifelong dedication to calligraphy or Vincent van Gogh's meticulous observation of natural landscapes to complete "Sunflowers". However, in algorithm-generated art, the creative process is reduced to the result of data input and algorithmic computation, significantly weakening the role of human creators. This technology-driven mode of creation not only transforms the logic of artistic production but also complicates the definition of authorship. Particularly against the backdrop of rapid advancements in generative AI, algorithm-generated artworks often demonstrate diversity and innovation surpassing human creators' capabilities, further highlighting the limitations of traditional authorship concepts in contemporary art contexts.

3.1.2. Roles of multiple stakeholders

The creation process of algorithm-generated art involves multiple stakeholders, including algorithm designers, data providers, and users. While these participants play distinct roles in the production process, this complexity makes it challenging to identify a single author. First, algorithm designers serve as the core architects of generative models. By writing code and setting parameters, they establish the technical foundation for artistic creation. However, these designers do not directly participate in the actual creation process. Instead, they grant algorithms autonomy through technical means, enabling them to generate artworks based on input data. This indirect involvement makes it difficult to attribute sole authorship to the algorithms. Second, data providers also play a crucial role in algorithm-generated art. As the foundation for algorithm operation, the data sources often encompass diverse creator communities. For instance, the Stable Diffusion algorithm builds its dataset by crawling massive amounts of internet illustrations. Although the original creators did not authorize their works for algorithm training, their creations indirectly influence the quality and style of the generated artworks [8]. While the contributions of data providers cannot be overlooked, the relationship between these providers and the final output remains difficult to clearly define.

Furthermore, the role of users in algorithm-generated art cannot be underestimated. By inputting instructions and adjusting parameters, users guide algorithms to create specific artworks, with this

interactivity enabling them to participate in the creative process to some extent. However, since user interventions typically fall within the algorithm's predefined functional scope rather than representing fully autonomous creative acts, whether they can be considered authors remains controversial. In summary, the creation process of algorithm-generated art involves multiple participants, each undertaking distinct roles while maintaining extremely blurred boundaries. This complexity of multi-participant involvement not only intensifies the difficulty of authorship definition but also sparks profound discussions about the identity of artistic creators.

3.2. Copyright Ownership Issues

3.2.1. The dilemma of existing copyright law

The existing copyright law framework is built around the concept of "human authors," requiring works to be created by legally recognized natural persons who meet the fundamental criteria of originality and reproducibility. However, the "no author" nature of algorithm-generated art poses significant challenges for this legal system. Firstly, algorithm-generated artworks often lack identifiable creators, which directly conflicts with copyright law's strict requirements for authorship. For instance, while Microsoft Xiaoice is labeled as the "creator" in its generated works, from a legal perspective, Xiaoice as an AI program does not possess an independent legal personality and thus cannot be recognized as an author under copyright law [5]. This contradiction between legal requirements and technological reality creates uncertainty regarding copyright ownership, ultimately affecting both the legal protection and market circulation of such works.

Secondly, existing copyright law standards for assessing originality prove inadequate in algorithm-generated art. Traditional copyright frameworks primarily evaluate works based on creators' subjective creativity, requiring artistic expressions to demonstrate personalization. However, algorithm-generated art relies heavily on technical processes and data inputs, with uniqueness stemming from algorithmic randomness and dataset diversity rather than human creativity. For instance, while Stable Diffusion-generated images possess significant artistic value, their creation process involves no human creative labor. This technology-driven production model makes it challenging for current copyright laws to effectively assess the originality of algorithm-generated artworks, thereby intensifying copyright ownership disputes.

Furthermore, current copyright law typically adheres to the "creator-first" principle in determining rights attribution, meaning copyrights are presumed to belong to the creator or their authorized party. However, in algorithm-generated art, the determination of rights attribution becomes exceptionally complex due to the involvement of multiple stakeholders in the creative process. For instance, algorithm designers may claim technical contributions to the work, data providers may assert ownership of their data, while users may claim creative contributions to their input instructions. This interplay of competing interests leaves existing copyright law inadequate in resolving attribution issues for algorithm-generated artworks, necessitating legislative or judicial interpretation to address these gaps.

3.2.2. Case Study

The current cases of copyright disputes arising from algorithm-generated artworks further highlight the complexity and contentious issues in determining copyright ownership. For instance, the 2022 high-profile case involving Stable Diffusion, an AI image generation software, saw multiple artists allege that the algorithm had illegally used their works as training data, resulting in the imitation of their creative styles and the generation of numerous derivative works. The copyright ownership dispute in this case primarily focused on three aspects: First, whether artists retain control over the usage rights of their works' datasets; Second, whether algorithm-generated works constitute infringement of original works; and Third, whether algorithm users should be held responsible for the copyright of generated works. These questions reflect the complexity of determining copyright ownership in algorithm-generated artworks.

Another notable case is the publication controversy surrounding the artwork "Probabilistic World: Who is the AI Painter XiaoIce?" created by Microsoft's XiaoIce system. In this instance, XiaoIce was credited as the "author", but this attribution sparked extensive debates about whether artificial intelligence possesses legal personality. Furthermore, since XiaoIce's operation relies on vast amounts of unlicensed datasets, the copyright ownership of its generated works has created conflicts of interest between data providers and users. These cases demonstrate that copyright attribution for algorithm-generated artworks involves not only technical legal challenges but also profound ethical and moral controversies. Therefore, establishing reasonable copyright frameworks for such works within existing legal systems has become a critical issue requiring urgent resolution in both academic and practical fields.

4. EXPLORING THE AESTHETIC AUTONOMY OF ALGORITHM-GENERATED ART

4.1. Aesthetic Value Judgment of Algorithm-generated Works

4.1.1. Comparison with traditional aesthetic standards

Algorithm-generated artworks present distinct aesthetic value judgments compared to traditional human creations. Traditional aesthetic standards typically emphasize the creator's subjective intent, emotional expression, and technical mastery, highlighting artworks as crystallizations of human thought and emotion with unique, irreplicable qualities. However, the aesthetic value of algorithm-generated works primarily relies on data-driven logical operations and formal innovations, often lacking the traditional notions of "inspiration" or "emotional investment" in their creative processes. For instance, in painting, AI image generation technologies analyze and reorganize massive datasets through deep learning models, producing visual effects that may surpass human creators' imagination. Yet whether these effects align with traditional aesthetic standards remains debatable. Moreover, the aesthetic value of algorithm-generated artworks is constrained by technical tool limitations, with their expressions often confined within algorithmic frameworks that diminish emotional depth and cultural significance. Nevertheless, as algorithmic technologies continue to advance, some generated works have begun to emulate traditional artistic techniques and even surpass human creators in certain aspects, offering new possibilities for redefining aesthetic standards.

From the perspective of aesthetic value judgment, whether algorithm-generated artworks can be incorporated into the traditional aesthetic system remains a complex issue. On one hand, their formal innovation and stylistic diversity endow them with unique aesthetic value; on the other hand, the absence of clear creative subjects and emotional projection makes it difficult for them to fully align with traditional aesthetic standards. Therefore, it is necessary to establish a new evaluation framework beyond traditional aesthetics to more comprehensively reflect the aesthetic characteristics and value of algorithm-generated artworks.

4.1.2. Uncovering Unique Aesthetic Features

Algorithm-generated artworks exhibit distinctive aesthetic characteristics, particularly in formal innovation and stylistic diversity. First, algorithmic generation technology utilizes sophisticated mathematical models and data processing capabilities to create artistic forms that transcend human imagination. For instance, text-to-painting technology can generate highly complex visual images based on brief user descriptions, often blending multiple artistic styles and demonstrating unprecedented compositional and color coordination. Second, the stylistic diversity of algorithm-generated artworks stems from the extensive data sources and flexible algorithmic logic. By learning from vast collections of artworks, algorithms can produce pieces that combine classical and modern, abstract and figurative elements, thereby breaking the stylistic limitations of individual creators [10].

Furthermore, the aesthetic value of algorithm-generated artworks stems from the "defamiliarization" effect created by their technical characteristics. According to Gu Pengfei's research, AI-generated artworks create new digital forms through algorithmic logic, which can guide or reconstruct viewers' bodily perception patterns, thereby evoking emotional surplus and kinesthetic sensations [2]. This "defamiliarization" effect not only enhances the artistic appeal of the works but also provides audiences with a novel aesthetic experience. However, it is noteworthy that the unique aesthetic features of algorithm-generated artworks are not entirely free from human intervention, but rather result from the collaborative interaction between humans and technology. Therefore, when exploring the sources of their aesthetic value, it is essential to fully consider the interactive relationship between humans and technology in the creative process.

4.2. The Algorithm's Aesthetic Expression Capability

4.2.1. The Possibility of Algorithmic Aesthetic Expression

The potential for algorithms to achieve autonomous aesthetic expression in generating artworks has become a significant focus in academic circles. From a technical perspective, algorithms as rule-makers can create artworks with aesthetic value through data processing and automated judgment. For instance, in the film industry, "algorithmic creators" enhance narrative structures and visual presentations, endowing films with characteristics of randomness, unpredictability, and intertextuality in aesthetic expression. These features transcend the limitations of traditional linear storytelling, offering audiences a fresh cinematic experience. Moreover, the autonomous aesthetic expression capability of algorithm-generated artworks also manifests in their efficient data utilization. By studying extensive artistic works, algorithms can identify and extract aesthetic patterns, then apply them to new creations, thereby achieving a certain degree of "autonomy".

However, whether algorithms can truly achieve fully autonomous aesthetic expression without human intervention remains controversial. On one hand, the designers and users of algorithms to some extent determine the direction and style of their generated works; on the other hand, algorithms themselves lack emotions and consciousness, often resulting in works that lack depth and substance. Nevertheless, with the continuous development of generative AI technology, algorithms are gradually enhancing their autonomy in aesthetic expression. For instance, generative AI tools like ChatGPT have already been able to produce a large number of high-quality text and image works within short timeframes, with forms that approach or even surpass human creators' standards. This indicates that algorithms' potential in aesthetic expression should not be overlooked, but their autonomy still requires further exploration and refinement.

4.2.2. Influence on Human Aesthetic Expression

The transformation of human aesthetic expression through algorithm-generated art primarily manifests in its impact on traditional artistic creation models and the evolution of artistic aesthetics. First, the widespread adoption of algorithmic generation technology has made artistic creation more accessible and efficient, lowering the threshold for artistic expression and enabling broader public participation. However, this convenience has not only promoted artistic egalitarianism but also sparked debates about creative autonomy and originality. For instance, in algorithm-generated art, human creators are gradually shifting from dominant figures to collaborators or guides. This transition not only reshapes the structure of artistic creation but also challenges the traditional aesthetic framework's definition of "authorship".

Secondly, the impact of algorithm-generated art on human aesthetic expression is also reflected in its expansion of the artistic aesthetic system. Through learning and recombining a vast number of artworks, algorithms can generate pieces that incorporate multiple stylistic characteristics, thereby enriching artistic expression forms and aesthetic dimensions. However, this expansion may also bring certain negative effects, such as cultural biases and technical dependencies in algorithm-generated works. These issues not only weaken the artistic value of the works but may also undermine cultural

diversity [12]. Therefore, when exploring the influence of algorithm-generated art on human aesthetic expression, it is essential to weigh the opportunities and challenges it brings, and seek a balance to achieve a virtuous interaction between technology and art.

5. REFLECTION ON THE CULTURAL DISCOURSE POWER OF ALGORITHM-GENERATED ART

5.1. The Status of Algorithm-generated Art in Cultural Communication

5.1.1. Methods and Characteristics of Dissemination

The dissemination of algorithm-generated artworks exhibits diverse and efficient characteristics, primarily relying on digital technologies and internet platforms. Through digital media such as social media, online galleries, and virtual reality exhibitions, algorithm-generated art can swiftly transcend geographical boundaries to reach global audiences. This dissemination model not only breaks through the time and space limitations of traditional art exhibitions but also significantly enhances the accessibility and interactivity of artworks. For instance, generative AI models like Midjourney's "text-to-image" works can instantly generate artistic images through simple text input, which rapidly spread across online platforms and attract massive user engagement [14]. Additionally, the rapid dissemination of algorithm-generated art benefits from the efficient computational capabilities and automated processing of algorithms, drastically shortening the time from creation to publication. This characteristic of swift dissemination positions algorithm-generated art as a unique phenomenon in contemporary cultural communication, emerging as a new cultural trend.

Meanwhile, the reach of algorithm-generated art has expanded due to its technical characteristics. Algorithmic models, capable of learning from massive datasets and mimicking diverse artistic styles, produce works with cross-cultural appeal. For instance, the Stable Diffusion algorithm, by integrating vast commercial illustration datasets, can simulate artistic expressions across different cultural contexts, thereby satisfying the aesthetic demands of diverse audiences [8]. However, this widespread dissemination also brings potential challenges in cultural communication, particularly regarding cultural identity and diversity. Therefore, algorithm-generated art represents both an innovative force and a cultural phenomenon requiring careful consideration in contemporary cultural communication. Its unique status and role warrant further exploration.

5.1.2. Impact on the Cultural Communication Landscape

The rise of algorithm-generated art has profoundly reshaped cultural communication patterns, particularly in the distribution of dissemination opportunities and the restructuring of cultural discourse power. By lowering the technical barriers to artistic creation, this approach enables more non-professional creators to participate in artistic production and dissemination. This decentralized model has transformed the traditional elite-dominated landscape of art communication, providing diverse cultural groups with expanded opportunities for cultural exchange [11]. For instance, in film production, generative AI technology enables personalized customization, allowing audiences to select content based on their preferences, thereby achieving targeted and diversified cultural dissemination. However, this democratization trend may also lead to homogenization issues in cultural communication. When algorithmic recommendation systems dominate, audiences are more likely to encounter content aligned with their cultural backgrounds, potentially diminishing the diversity of cultural dissemination.

Secondly, algorithm-generated art's impact on cultural dissemination patterns is further reflected in its uneven distribution of communication opportunities among different cultural groups. While algorithmic technology offers new possibilities for cultural exchange, the underlying technical logic and data sources are often influenced by specific cultural contexts. For instance, many algorithmic models primarily use datasets from Western cultural contexts, leading to artworks that tend to reflect

Western aesthetic standards and values. This cultural bias not only restricts expression opportunities for other cultural groups but may also create imbalances in cultural dissemination. Therefore, while algorithm-generated art transforms cultural communication patterns, it must also address the challenge of balancing fairness and diversity in cultural exchange.

5.2. Cultural Bias Behind the Algorithm

5.2.1. Sources of Cultural Bias

Cultural biases in algorithm-generated art primarily stem from limitations in data sources and the cultural backgrounds of algorithm designers. First, training datasets for algorithm models are typically sourced from publicly available internet resources, which inevitably reflect prevailing cultural preferences and power structures in contemporary society. For instance, many algorithmic datasets contain disproportionately large quantities of artworks from Western cultural contexts, while those from other cultural backgrounds remain relatively scarce. This imbalance leads algorithms to favor imitating Western aesthetic characteristics when generating artworks. Furthermore, selective biases during data collection may exacerbate cultural bias issues. Certain algorithm models might prioritize representative works from popular culture while overlooking artistic expressions from marginalized or ethnic minority cultures, thereby reinforcing the hegemonic status of mainstream culture.

Secondly, the cultural background of algorithm designers significantly influences the cultural biases embedded in algorithm-generated art. As these designers typically originate from specific cultural groups, their values and aesthetic perspectives may subtly permeate the algorithm design process. For instance, in the film algorithmic production industry, recommendation systems often generate personalized suggestions based on users' viewing histories and behavioral data – information that may inherently carry designers' cultural biases [11]. Such biases not only limit the diversity of algorithm-generated art but may also lead to misinterpretations and stereotypes about particular cultural groups. Therefore, addressing cultural bias in algorithm-generated art requires comprehensive analysis of both data sources and designer backgrounds to develop effective solutions.

5.2.2. Manifestations and effects of cultural prejudice

Cultural biases in algorithm-generated art manifest through stereotypical portrayals of specific cultural groups and the undermining of cultural diversity. For instance, in some algorithm-generated artworks, non-Western cultural figures are often oversimplified or distorted, failing to authentically reflect their cultural characteristics and social realities. Such representations not only damage the image of these cultural groups but may also lead to cultural misunderstandings and conflicts. Moreover, these biases in algorithm-generated art can negatively impact cultural diversity. As algorithmic models tend to mimic mainstream cultural aesthetic standards, artistic expressions from marginalized or ethnic minority cultures are frequently overlooked, thereby exacerbating imbalances in cultural dissemination [13].

However, the existence of cultural biases also provides opportunities for reflection and improvement in algorithm-generated art. By diversifying the datasets used in algorithm models and implementing transparent oversight of their design processes, we can effectively reduce the occurrence of cultural biases. For instance, in the industrial production of movie algorithms, introducing multicultural design teams and diverse training data can enhance the cultural inclusivity and representativeness of algorithm-generated art. Such improvements not only help protect cultural diversity but also lay the foundation for algorithm-generated art to play a positive role in cultural dissemination.

5.3. The Effect of "Non-authorship" on Cultural Discourse Power

5.3.1. Changes in the distribution of cultural discourse power

The "no author" nature of algorithm-generated art has significantly reshaped the distribution of cultural discourse power, particularly in the relationship between traditional authorship and cultural authority. In conventional artistic creation, creators are typically seen as cultural ambassadors whose creative processes are intrinsically linked to their works, granting them a dominant role in cultural dissemination. However, the "no author" nature of algorithm-generated art disrupts this traditional paradigm, blurring the creative subjectivity of artworks. For instance, in Stable Diffusion-generated artworks, while both programmers and users participate in the creative process, the final output cannot be attributed to any specific individual, leading to a decentralized distribution of cultural discourse power.

The decentralization of cultural discourse power has reshaped the dynamics of cultural authority contention among various stakeholders. On one hand, algorithm-generated art has lowered the technical barriers to artistic creation, enabling broader public participation in cultural dissemination and thereby weakening the traditional elite's monopoly on cultural discourse. On the other hand, the "no author" nature of such works has sparked debates over ownership rights and interpretive authority, particularly regarding copyright attribution and artistic interpretation. For instance, in actual copyright disputes involving algorithm-generated artworks, differing interpretations of cultural significance and value among participants often intensify the struggle for cultural discourse power. Consequently, the "no author" characteristic of algorithm-generated art not only transforms the distribution of cultural discourse power but also presents new opportunities and challenges for diverse actors in cultural communication.

5.3.2. Impacts and opportunities for cultural diversity

The "no author" nature of algorithm-generated art has a dual impact on cultural diversity, presenting both challenges and opportunities. Firstly, this "no author" nature may lead to homogenization in cultural dissemination, particularly when dominated by algorithmic recommendation systems. As these models tend to mimic mainstream cultural aesthetic standards, artistic expressions from marginalized cultures or ethnic minority groups are often overlooked, thereby weakening cultural diversity. For instance, in some algorithm-generated visual works, non-Western cultural figures are frequently oversimplified or distorted, failing to authentically reflect their cultural characteristics and social realities. Such cultural bias not only limits the diversity of algorithm-generated art but may also result in imbalances in cultural dissemination.

However, the "no author" phenomenon also opens new possibilities for cultural diversity. By lowering the technical barriers to artistic creation, algorithm-generated art enables more non-professional creators to participate in cultural dissemination, thereby providing expression opportunities for marginalized cultures or ethnic minority cultures. For instance, in the algorithm-driven film industry, generative AI technology allows personalized customization, enabling audiences to select content based on their preferences, thus achieving precise and diversified cultural communication. Moreover, "no author" prompts people to rethink the essence of artistic creation and cultural dissemination, offering fresh perspectives and methods for preserving and promoting cultural diversity. Therefore, while the "no author" nature of algorithm-generated art challenges cultural diversity, it simultaneously creates new opportunities for its development.

6. ANALYSIS BASED ON PRACTICAL CASES

6.1. Examples of Artworks Created by Different Types of Algorithms

6.1.1. Paintings

As a significant branch of emerging art forms, algorithm-generated artworks face a prominent "no author" dilemma in creative practice. Take Stable Diffusion as an example: By deconstructing and recombining massive commercial illustrations, this algorithm produces images with diverse styles and aesthetic value. However, this generative mechanism makes it difficult to define traditional authorship. Technically, while algorithm designers provide foundational frameworks, they do not directly participate in creating specific works. Although illustrators contribute style materials from datasets, they remain passive contributors to conceptualization and expression. Moreover, users play a crucial role in inputting instructions and filtering results, though their actions primarily involve algorithmic intervention rather than original creation. Consequently, these artworks exhibit a phenomenon of multi-subject participation, resulting in the absence of singular authorship.

In terms of aesthetic autonomy, algorithm-generated artworks exhibit distinctive aesthetic characteristics. On one hand, their formal innovation stems from algorithms' deep learning and recombination capabilities of datasets, enabling them to transcend human creators' conventional thinking patterns and produce visually imaginative forms. For instance, some works integrate stylistic elements from multiple art movements, creating entirely new artistic languages. On the other hand, whether this aesthetic expression remains entirely independent of human intervention remains controversial. Although algorithms can achieve autonomous aesthetic expression to some extent, their core logic still relies on human-provided datasets and algorithm parameter settings, resulting in complex sources of aesthetic value.

From the perspective of cultural discourse power, algorithm-generated artworks play a crucial role in cultural dissemination. Thanks to their rapid creation and wide reach, these works quickly gain public attention and become part of contemporary cultural communication. However, the cultural biases underlying algorithms also profoundly impact their cultural discourse power. For instance, limitations in datasets may lead to excessive imitation of certain cultural styles while marginalizing others. Moreover, the decentralized nature of algorithm-generated works could weaken traditional artists' cultural influence, potentially raising concerns about cultural diversity preservation.

6.1.2. Literary works

The rise of algorithm-generated literary works has sparked extensive discussions about "no author," aesthetic autonomy, and cultural discourse power. Take text-generation models like ChatGPT as an example: by learning from vast literary corpora through deep learning, they can produce grammatically sound and plot-rich content. However, compared to traditional literary creation, these works lack clear authorship. As generative tools, algorithms inherently lack subjective consciousness or emotional expression. Users merely provide prompts to guide the generation process without actively participating in the creative conception. Consequently, algorithm-generated literature exhibits an "no author" characteristic, challenging the direct author-work relationship inherent in traditional literary creation.

In terms of aesthetic autonomy, algorithm-generated literary works demonstrate notable innovation. Their language styles exhibit diversity, capable of mimicking characteristics of various literary schools and even creating unique narrative structures. However, this aesthetic autonomy remains constrained by algorithmic logic. For instance, the content of generated texts often relies on the distribution of training data, potentially leading to repetitive or monotonous themes. Moreover, the emotional depth and intellectual substance of algorithm-generated texts are frequently questioned, as they lack the life experiences and emotional investment of human creators, making it difficult to achieve the artistic heights of traditional literary works.

From the perspective of cultural discourse power, algorithm-generated literary works play a dual role in cultural dissemination. On one hand, their efficient generative capabilities and extensive distribution channels provide new possibilities for popularizing literature, enabling more people to engage with and participate in literary creation. On the other hand, the cultural biases inherent in algorithm-generated works cannot be overlooked. For instance, cultural biases in training data may lead to stereotypical portrayals of certain cultural groups in these works, thereby affecting the fairness and diversity of cultural communication. Moreover, the "no author" characteristic may further weaken traditional writers' cultural discourse power, posing challenges to the restructuring of cultural authority structures in the literary field.

6.2. Case Comparison and Summary

Through analyzing algorithm-generated artworks in painting and literature, we observe both shared challenges in "no author," aesthetic autonomy, and cultural discourse power, while also identifying significant differences. Firstly, regarding authorship ambiguity, both domains face difficulties in defining author identity. Whether it's the multi-participant dynamics in paintings or the algorithm-user collaboration in literary works, traditional authorship concepts prove inadequate. However, painting's technical generation process relies more on dataset characteristics, whereas literary works are predominantly shaped by linguistic logic and semantic rules. This divergence leads to distinct manifestations of authorship ambiguity between the two fields.

In terms of aesthetic autonomy, both categories of works demonstrate innovative potential, though through distinct modes of expression. While paintings derive their aesthetic value primarily from formal innovation and stylistic diversity, literary works showcase uniqueness through distinctive linguistic styles and narrative structures. Nevertheless, both share similar limitations in aesthetic expression: algorithm-generated works often lack profound emotional depth and intellectual substance, making it challenging to achieve genuine autonomous aesthetic creation without human intervention.

Finally, regarding cultural discourse power, both art forms have profoundly shaped the landscape of cultural dissemination. While paintings accelerate the spread of visual culture through rapid transmission, literary works expand their audience through the universal accessibility of language. However, their manifestations of cultural bias differ significantly. Visual art primarily exhibits stylistic biases, whereas literature often perpetuates stereotypical portrayals of themes and characters. Moreover, the "no author" nature of these works affects cultural discourse power differently: paintings may diminish the authority of traditional artists, while literary works challenge the cultural representation of writers.

In conclusion, the performance of algorithm-generated artworks across various fields not only reflects their common characteristics but also reveals their essential differences. These analyses provide crucial references for understanding the "no author" dilemma and its impact on aesthetic autonomy and cultural discourse power, while also laying the foundation for exploring subsequent solutions.

7. SUMMARY

7.1. Solutions for the dilemma of "no authorship"

7.1.1. Theoretical Considerations

In algorithm-generated art, resolving the "authorship dilemma" requires in-depth exploration from both art theory and aesthetic perspectives. First, redefining the concept of authorship stands as a crucial approach to overcoming this challenge. In traditional art creation, the creator is typically regarded as the central figure whose inspiration, emotions, and ideas imbue the work with unique significance. However, in algorithm-generated art, the authorship extends beyond individual humans

to include algorithm designers, data providers, and users. This transformation demands breaking free from the constraints of traditional romantic authorship concepts and adopting a more open definition. For instance, authors could be viewed as dynamic, collective entities where each participant is assigned varying weights based on their contributions to the creative process. Additionally, drawing from deconstructivist theories, authors might be seen as decentralized entities whose authority isn't determined by personal will, but rather shaped by the technical logic and cultural context of the artwork itself.

Secondly, establishing a new aesthetic evaluation framework serves as a crucial strategy to address the "no author" dilemma. Traditional aesthetic standards often prioritize human creators' subjective intentions, emphasizing emotional expression and intellectual depth in artworks. However, the aesthetic value of algorithm-generated art primarily manifests through its innovative forms and technology-driven uniqueness. Therefore, it is essential to develop a comprehensive evaluation system that integrates subjective and objective factors, considering both the artistic expressiveness of works and their underlying technical logic and algorithmic mechanisms. For instance, introducing the emerging concept of "algorithmic aesthetics" could explore how algorithms achieve autonomous aesthetic expression during the generation process, thereby redefining the value sources of artworks. Meanwhile, incorporating postmodernist trends in contemporary art theory can further reduce reliance on authorial authority, instead emphasizing the active participation of audiences in interpreting works. This approach provides broader theoretical space for the aesthetic autonomy of algorithm-generated art.

7.1.2. Practical recommendations

To address the "no author" dilemma in practice, solutions must be developed from both artistic creation processes and market management mechanisms. First, improving copyright legislation stands as a core measure. Current copyright laws typically establish ownership rules based on the premise of "human authors," which becomes inadequate in algorithm-generated art contexts. Therefore, legislation should clarify copyright attribution standards for algorithm-generated works—such as granting rights to entities making substantial contributions to the creation process, or introducing the concept of "legal person works" to accommodate the unique attributes of algorithm-generated content. Additionally, judicial interpretations can refine existing provisions to ensure legal frameworks adapt to technological advancements. For instance, algorithm designers could be recognized as "indirect authors" while users are treated as "co-creators," thereby protecting rights while fostering sustainable artistic development.

Secondly, standardizing the creative process is a crucial approach to addressing the "attributability dilemma". In algorithm-generated artworks, the involvement of multiple stakeholders complicates the creation process and makes it difficult to trace origins, necessitating transparent documentation mechanisms. For instance, blockchain technology could record every critical step in the creation process—including data sources, algorithm parameter settings, and final outputs—to establish reliable attribution frameworks. Additionally, creators should be encouraged to provide detailed creation notes when releasing works, clearly defining each participant's role and contributions. This not only clarifies authorship but also enhances the artwork's credibility and market acceptance. Furthermore, the art market should strengthen regulatory oversight by establishing unified industry standards to ensure the legitimacy and compliance of algorithm-generated artworks during transactions and dissemination.

7.2. Future Application of Algorithms in Artistic Creation

Looking ahead, the application of algorithms in artistic creation holds vast potential, yet it also comes with numerous challenges. To prevent the "authorship-less" dilemma from persistently affecting artistic creation, we must explore sustainable development paths for algorithms in the art field from both technical and ethical perspectives. On one hand, technological advancements will provide more

possibilities for algorithm-generated art. For instance, as deep learning models continue to optimize, algorithms will gain stronger autonomy and creativity in generating artworks, thereby reducing reliance on human intervention. This not only enhances the artistic value of works but also expands the boundaries of algorithmic aesthetics [9]. Meanwhile, interdisciplinary collaboration will become a crucial driving force for algorithmic art development. By integrating research findings from computer science, art theory, and cognitive psychology, we can develop more intelligent and personalized creative tools, providing artists with new expressive mediums.

On the other hand, ethical considerations must not be overlooked. The issue of cultural bias in algorithm-generated art reminds us that technology is not neutral, but is deeply influenced by its designers and social environments. Therefore, in future algorithm design, we should emphasize the diversity of data sources and algorithmic transparency to minimize the emergence of cultural biases. For example, introducing multiculturally diverse datasets combined with human review mechanisms can ensure algorithm-generated works achieve innovative expressions while respecting cultural diversity. Moreover, as algorithm-generated art increasingly influences cultural dissemination, how to balance the distribution of cultural discourse power has become an urgent issue to address. In this context, we should encourage participation from different cultural groups in algorithmic art creation, leveraging technological empowerment to protect and preserve cultural diversity.

In conclusion, the application of algorithms in artistic creation presents both opportunities and challenges. Through theoretical innovation and practical exploration, we can not only effectively address the 'authorship-less' dilemma but also fully leverage algorithms' positive impact on artistic creation, thereby driving innovative development in the digital age.

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