Research on the Innovative Application and Impact of AIGC Technology in Dramatic Stage Arts

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Abstract: The effectiveness of various stage facilities largely determines the success of dramatic stage arts. The utilization of these devices aims to present personalized theatrical effects that evoke emotional resonance with the audience, providing them with a high-quality audiovisual experience. Technologies employed on the theatrical stage encompass lighting, sound, set design, and more, necessitating ongoing artistic innovation in the realm of theater. The application of AIGC technology in dramatic stage arts is aimed at generating materials based on AI, fostering numerous innovative presentation techniques and possibilities in the theatrical arts, thereby catalyzing the industry's process of innovation.

Keywords: Dramatic stage; AIGC technology; Innovative application and impact

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1. Introduction

With the steady growth of the economy, there is an increasing demand for spiritual fulfillment among the public, which imposes stricter requirements on the innovative presentation of stage arts. Dramatic arts, including various forms such as Yu Opera, Peking Opera, and Ping Opera, each carry rich historical and cultural characteristics and are hailed as crucial "national treasures" in our cultural heritage. To cater to the aesthetic preferences of young audiences, it is imperative to ensure that the presentation and overall experience of contemporary stage dramas align with their tastes, which is essential for enhancing their enjoyment during the viewing process. The application of AIGC technology in the field of dramatic stage arts has sparked significant transformations within the industry, facilitating the digital transformation and innovation of stage arts and opening up new growth possibilities for classic theaters.

2. The Current Status of Innovative Application of Stage Technology in Dramatic Stage Arts and the Importance of Utilizing Stage Technology in Dramatic Stage Art Creation

In theatrical performances, it is essential to create a sense of realism to fully present the allure of theater arts, providing the audience with a high-quality emotional immersion experience and inspiring them to develop personalized aesthetic concepts. In modern society, people have access to various leisure activities, and if the stage backgrounds are outdated, it will undoubtedly hinder the widespread dissemination of theatrical arts. However, some theatrical stages still adhere to classic performance styles, relying solely on the exceptional acting skills of the actors is insufficient to attract audiences. They urgently need to incorporate appropriate

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lighting techniques, sound systems, and modern technologies that combine virtual and real resources. If theatrical stages fail to innovate and break through, this traditional cultural heritage will struggle to gain recognition and appreciation from today's society. In the process of innovating and improving theatrical stages, there must be significant technological and economic support. However, currently, few are willing to invest adequately in these areas, leading to significant barriers to major breakthroughs in the field of stage technology innovation, thereby severely hindering the comprehensive progress of theatrical performance arts activities.

(1) Meeting the spiritual and cultural needs of modern people

Former high-quality theatrical performances often deeply touched the souls of seasoned audiences. However, the younger generation often encounters a psychological barrier when it comes to stage dramas, making it difficult to resonate emotionally. The presentation techniques of theatrical arts are diverse, embodying profound cultural historical essence. To fully present the unique charm of theatrical works on stage, technological innovation and practice in stage settings are necessary. Advanced stage technology should be used to recreate ancient historical backgrounds as accurately as possible while enhancing the audience's sensory experience visually and audibly. Only in this way can audiences be intellectually and emotionally resonant with the depth of the plot.

(2) Injecting vitality into traditional dramas

Drama is a precious intangible cultural heritage of China, with over three hundred genres currently preserved, including Yue opera, Huangmei opera, Peking opera, etc. Due to geographical constraints, it is imperative to modernize and innovate the platforms for theatrical performances to ensure that this ancient art form's means of dissemination keeps pace with the times. Incorporating cutting-edge theatrical arts into theatrical performances allows for original transformations in narrative and expression methods, helping this platform showcase new trends in artistic culture of the new era, effectively promoting the enhancement and growth of China's classical cultural endeavors.

(3) Fostering new dramatic creative inspiration

In this era of rapid technological advancement, innovative resources are urgently needed to create highquality artistic enjoyment environments for the public. The creators of theatrical arts must have access to a wide range of innovative artistic realms to fully explore their unique imaginations. Integrating modern stage technology into theatrical performances can stimulate playwrights to generate unprecedented artistic sparks of creativity. Such unrestrained forms of theatrical arts can leave a profound impact on audiences' minds, potentially exerting a profound influence on global cultural exchanges. The unique stage charm of theatrical performances can significantly enhance the dissemination effect of theatrical arts, effectively achieving the goal of protecting and promoting traditional artistic cultural heritage.

3. AIGC Technology: A New Opportunity for Innovative Development in Stage Dramatic Arts

In recent years, with the advancement of cutting-edge technology and its pervasive influence in various aspects of daily life, the integration of AIGC technology into the realm of stage dramas has become an inevitable trend for the progress of theatrical arts. The current landscape of stage art creation and performance continues to thrive, presenting diverse facets while gradually phasing out old concepts. As audience preferences, interests, and viewing perspectives undergo significant changes, traditional stage design, artistic expression, and audiovisual experiences have gradually become inadequate to meet people's aesthetic expectations for contemporary theater. To adapt to the evolving times and meet audience expectations, playwrights are continuously exploring more innovative presentation methods, techniques, and strategies for stage art creation.

In the current landscape of artistic performances, a new trend is emerging: transcending traditional boundaries, integrating different elements, and employing various advanced multimedia technologies to create unique stage styles. This approach not only showcases diversified performing arts but also caters to audiences with rich visual and auditory effects, accommodating different backgrounds and preferences. In recent years, diverse commercial performances have frequently utilized cutting-edge technology to enhance the visual impact of the stage, attracting more audiences. This poses a significant challenge to traditional and singular forms of theatrical stages. Particularly, many young audiences lack sufficient understanding and interest in classic dramas, preferring and seeking intense audiovisual impacts created by advanced technology. This preference is not unreasonable and reflects certain requirements of societal progress. Even widespread adult and elderly audience groups are no longer satisfied with the simple stage settings, props, and slow-paced repetitive plots typical of traditional dramas. In the tide of societal evolution, new aesthetic standards continually emerge. As planners and practitioners of stage dramas, it is imperative to follow the trends of the times and cater to audiences' desire for novel experiences, constantly innovating performance techniques to enhance the infectiousness and charm of theatrical performance arts in contemporary culture. When multimedia technology permeates the visual arts of stage dramas, it essentially innovates and reorganizes classical theatrical components, enhancing the allure and enjoyment of stage performances while meeting and satisfying the increasingly elevated artistic appreciation demands of modern audiences, reflecting the natural direction of evolution in theatrical stage arts.

4. AIGC Technology: Various Manifestations in Driving Innovative Development in Stage Dramatic Arts

(1) AIGC technology demonstrates strong innovative potential in scriptwriting

The script, as the foundation of stage art, profoundly determines the overall effect of a theatrical performance. Traditional drama creation requires significant time and effort, from initial conception and writing to subsequent revisions and optimizations, posing numerous challenges throughout the process. However, amidst the continuous advancement of technology and the increasing use of artificial intelligence, dramatic writing is undergoing a revolutionary change, with AIGC technology playing a pivotal role. Utilizing AIGC technology allows for the rapid generation of new script materials, injecting fresh inspiration and creativity into playwrights and directors. Conventional dramatic text conceptualization often consumes a vast amount of time and labor. However, the application of AIGC technology significantly compresses the writing timeline and breaks through the constraints of existing dramatic text frameworks, allowing authors to explore unique narrative structures and presentation methods. Furthermore, the use of AIGC technology provides playwrights and filmmakers with unprecedented inspiration and innovative thinking. Given the remarkable data analysis and computational capabilities of AIGC technology, it can swiftly sift through and examine vast amounts of textual data, identify connections and commonalities among various works, and offer creators new perspectives and ideas. By leveraging this method of intelligent creative conception aided by extensive data analysis, scriptwriters can swiftly gather necessary information and inspiration, circumvent potential pitfalls in the creative process, thereby enhancing both the efficiency of creation and the guality of the works. Moreover, AIGC technology demonstrates certain advantages in structuring story frameworks and conceptualizing plots. Traditional dramatic scripts are often constrained by classic narrative styles and frameworks, making it challenging to innovate. The introduction of AIGC technology can break these constraints, providing playwrights and directors with a wider range of creative potentials and options by autonomously creating narrative frameworks or offering innovative suggestions. For example, AIGC technology has the capability to generate multiple script variants based on diverse themes and artistic styles, granting creators the freedom to choose from numerous alternative scenarios. This, in turn, enables a breakthrough of old creative boundaries and expands the scope of artistic creation.

Additionally, AIGC technology assists playwrights and directors in better understanding audience expectations and interests, facilitating tailored adjustments to script materials. Through the evaluation of audience activities and responses, AIGC technology can create plot concepts that cater to the preferences and interests of specific audience groups, enhancing the appeal and attractiveness of the storyline. Such customized innovations not only enhance the commercial competitiveness of stage dramas but also increase audience participation and depth of experience, deepening the emotional exchange and interaction between audiences and playwrights. Furthermore, AIGC technology can assist scriptwriters in script analysis and evaluation, improving the quality of the script.

(2) AIGC technology introduces unique expressive methods to stage design and visual presentation in dramatic arts

By leveraging advanced technologies such as virtual reality and augmented reality, AIGC technology can create stunning stage backgrounds and visual effects, infusing theatrical performances with more technological innovation and elements, immersing the audience in a more captivating and awe-inspiring performance experience. This technology-based digital performing arts not only enhances audience enjoyment but also successfully engages and interacts with numerous young audiences, bringing fresh vitality and appeal to theatrical arts, making them more attractive and cutting-edge. Lighting and sound effects are key tools in creating the theatrical atmosphere. Designers creatively plan and layout elements based on the comprehensive requirements of the entire theatrical production, presenting the envisioned elements to the audience through video means. Simultaneously, these audiovisual elements blend with the performers' interpretations, collectively completing the presentation of the entire production. When producing visual effects, it is essential to design them strictly according to the theme of the stage performance or celebratory event, ensuring that the visual content is closely linked to the rhythm of the entire event, achieving perfect synchronization. In the context of classical theatrical performances, creating illusions often relies on manipulating lighting tones and the direction of light movement, among many other factors, to achieve the desired stage effects. This practice has posed significant obstacles to the rapid advancement of theatrical arts. AIGC technology can present virtualized scenarios through video or animation modes while integrating videos with stage performances and event shows comprehensively, ensuring that all performance content exhibits stronger visual effects, prompting performers to immerse more comprehensively in the performance process, and also ensuring that the overall expression of the performance effect better fits the requirements.

(3) AIGC technology plays a vital role in character performance and actor training

Character portrayal is the essence of theatrical art, and the expressive abilities and performance level of actors tightly determine the quality and appeal of the entire theatrical production. Traditional methods of performing arts and actor training are typically based on accumulated experience and manual guidance. However, with the continuous advancement and integration of artificial intelligence technology, AIGC is gradually emerging as a key support in the performing arts and actor training industry. This tool can assist actors in deeply understanding character traits by providing psychological insights and performance suggestions, allowing them to present fuller and multidimensional character forms on stage. Moreover, AIGC technology also has the capability to create unique visual effects and interactive components, thereby providing actors with additional spaces for role-playing that are filled with innovation and challenge, thus stimulating their potential in performing arts and creative talents.Firstly, AIGC technology demonstrates tremendous potential in the field of character portrayal, assisting actors in constructing character images and presenting emotions more excellently. By analyzing the unique characteristics, emotional fluctuations, and historical backgrounds of various roles, artificial intelligence-generated content technology can provide actors with more delicate character shaping and emotional expression guidance. For example, leveraging advanced methods such as voice recognition and emotion detection, AIGC technology can interpret the pronunciation and facial dynamics

of actors, providing real-time feedback on the accuracy and fluency of emotion transmission, assisting actors in deeply understanding and mastering the spiritual world of characters, thereby enhancing the authenticity and appeal of performances. Furthermore, AIGC technology can provide actors with customized performance exercises and guidance, helping them explore and enhance their respective performance talents. Through indepth research and comparison of the data presented by actors, AIGC technology can identify the shortcomings in artistic expression and the potential for improvement, and provide specialized training guidance and exercise plans. Such customized theatrical training methods not only promote rapid enhancement of actors' performance skills and cultivation but also help them build confidence and expand their performing arts repertoire to better cope with diverse and multi-style role challenges. Similarly, AIGC technology can bring revolutionary creative space and expression techniques to actors, promoting the advancement of theatrical art to deeper levels and the expansion of its diversity. For example, AIGC technology can reproduce diverse performing styles and presentation methods, providing materials for actors to learn from and innovate their thinking, enriching their performance skills. Additionally, AIGC technology can create a sense of performing practice and display in virtual reality, allowing actors to try performing on a digital stage, experiencing the situation and challenges of real-life performances in advance, and preparing adequately for future live performances.

5. AIGC Technology: Promoting the Digital Transformation and Innovation of Theatrical Stage Art

With the widespread dissemination and advancement of digital technology, the theatrical arts are gradually entering a new era. As an advanced artificial intelligence technology, AIGC is injecting richer creative potential and exciting new experiences into the field of theatrical arts. Firstly, AIGC technology plays a crucial role in theater rehearsals and stage setting. In conventional theatrical preparations, directors and performers traditionally rely on their professional knowledge and intuitive instincts. However, in actual performance situations, they often face numerous unforeseen difficulties and challenges. With the integration of AIGC technology, directors and theater teams can use virtual reality tools for scene simulation and synchronized rehearsals, enabling them to identify and address potential problems in advance, ensuring smooth execution of theatrical performances. Moreover, AIGC technology can assist in intelligent script interpretation and character development, helping performers grasp the depth of the story and the connections between characters, thereby enhancing the effectiveness and guality of overall rehearsals. Additionally, AIGC technology demonstrates significant innovative potential in stage design and visual effects. AIGC technology reveals great potential for innovation in stage set design and visual impact. Traditional theater set design often struggles to achieve more refined and dazzling visual effects due to constraints in performance space and construction materials. With the introduction of AIGC technology, stage art directors can use virtual and augmented reality methods to create more diverse and unique stage landscapes and visual spectacles, providing audiences with a more captivating and immersive audio-visual experience. Furthermore, AIGC technology can integrate melody and lighting creativity, achieving excellent synchronization between stage visuals and musical beats, enhancing the artistic charm and sensory enjoyment of the entire performance. It also brings deeper interaction and participation to theatrical stage art, breaking the conventional unidirectional and fixed nature of performances. Through Al-guided gaming creation technology, with tools such as augmented reality headsets, audiences can select various viewing angles and plot clues, immerse themselves in the performance, and interact with performers, making the entire performance more vivid and engaging. This catalyzes technological innovation and boundary integration in the theater arts, establishing more compact interactive bridges and communication channels among creators, technical experts, and audience groups. Such interdisciplinary collaboration not only drives innovation and progress in theatrical performance art but also opens up new opportunities for interaction and collaboration across different industries.

6. Conclusion

Modern theater to some extent represents the pursuit of spiritual culture in today's era, as well as the changes and progress in cultural environments during the process of social development. The use of AIGC technology on stage can add more colors to modern theatrical performances.

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