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Research Article

## Analysing the role and impact of AIGC on the process of music creation and dissemination

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### Abstract:

The application of Artificial Intelligence Generated Content (AIGC) in music creation and dissemination is profoundly transforming the music industry. AI technology has enhanced the efficiency of music production, making it more accessible and offering low-cost solutions for creators. Additionally, AI-driven personalized recommendation algorithms have significantly improved user experience and enriched the ways in which music is consumed.

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AI's influence extends beyond music creation and distribution, impacting audio equipment by introducing smart features, and revolutionizing music education with AI-powered tools. However, the widespread application of AIGC in the music industry also presents several challenges. For example, AI-generated music often relies on mimicking existing styles, lacking innovation and individuality, which may lead to the homogenization of musical works. Furthermore, while AI recommendation algorithms enhance personalized music suggestions, they can also create an "information cocoon," limiting users' exposure to new genres and styles. Another pressing issue is the question of copyright ownership for AI-created works, as the current legal framework does not adequately address this emerging challenge.

Looking ahead, AI has the potential to further revolutionize music creation, education, and cross-cultural dissemination. AI may help bridge language and cultural barriers, promoting global exchange and integration of music. However, as AI continues to play a larger role in the industry, careful consideration of its impact on creativity, diversity, and social ethics is essential to ensure the harmonious development of technology and human creativity.

**Keywords:** AIGC, music creation, cross-cultural, dissemination, copyright, ownership

## Introduction

Music as a unique art form has an important role in conveying information and communicating emotions. Music can have a remarkable impact on listeners' emotional states. (Juslin & Sloboda, 2010). With the changes in the form of music



communication, music also presents the characteristics of media, which also leads to the subversive transformation of music in terms of content and form. Music is often used as a powerful medium for inducing and mediating the mood and emotional state of the listener (Agres et al., 2021) (Clements-Cortés, 2004). The pace of music development is constantly updated, and every technological innovation plays an important role in the shape and existence of music. The emergence of AIGC has revolutionised every aspect of the music industry, from the way music is created, to digital music distribution, to audio equipment, etc. The impact of AI on the music industry has permeated almost every aspect.

With the improvement of digital technology and exponential growth of computer power, the application areas of AI are much wider compared to before. The concept of Artificial Intelligence originated in the 1950s by Alan Mathison Turing published the first paper on the subject, 'Machinery and Intelligence', AI is also defined as a field of science that attempts to explain and emulate intelligent behavior using computational methods (Kazaka & Vilde, 2021) until the 1990s, when Deep Blue, developed by IBM, defeated the world Go champion. Artificial Intelligence is usually defined as intelligence demonstrated by machines, and AI music is music generated by algorithms such as computer neural networks. China's rapid development of artificial intelligence in recent years on the music industry can not be ignored, artificial intelligence music can be roughly divided into voice (speech), music (music) and environmental audio (environment) three categories, in addition to the emergence of intelligent compositions is the process of music dissemination of technological development from the primary into the advanced stage of the prominence of the sign.



At present, the application of AIGC in the field of music has covered a lot of aspects, and has had a certain impact on the exploration of music creation mode and the horizontal and vertical industry chain of music as well as different levels. AI-based algorithms can support aspects of the creative process, such as mechanizing part of the music composition (e.g., the accompaniment), thereby sharing some of the creative burden with musicians (Kantosalo & Toivonen, 2016), (Micchi et al., 2021).

As AIGC continues to mature, music production and dissemination modes will have richer performance, and this paper will analyse and discuss the current situation of AIGC on music production and dissemination. The main research questions can be divided into two categories, the first is how AI technology affects music creators and audiences, and the second is the impact and challenges of AI on the process of music dissemination. Through the discussion of these two parts can have a general understanding of the current development of AI technology and its application in the music industry, in addition, AI in the process of music dissemination has also appeared certain dilemmas and challenges, and the analysis of this status quo can also explore more possibilities for the combination of music dissemination and AI technology.

## **2.The Impact of Artificial Intelligence on the Music Industry**

### **2.1AIGC in music production**

While we usually define artificial intelligence as ‘intelligence demonstrated by machines’, AI refers specifically to music generated by algorithms such as computer neural networks. Artificial intelligence (AI) technology encompasses a wide range



of computer technology capable of performing tasks or making decisions that require human intelligence (B. Zhang & Dafoe, 2019). This technology can generate thousands of melodies in a minute or a few minutes, but these melodies are often created by mimicking more regular styles of music, such as Chopin and Bach. Artificial Intelligence as it relates to music composition has its origins in the American acoustic engineering guru Harry F. Olson, who introduced Markov models to the process of music generation. Since music composition is similar to the sequence problem, this is the key to the application of Markov models in music generation models to this day.

As regards music, it is widely known that AI can assist anyone in the creation of unique compositions (Gouzouasis & Bakan, 2011).

The trend of Artificial Intelligence in music has been on the rise in recent years and there are a number of startups that have gained more investment and attention through this space, such as Amper Music, Jukedeck, and AIVA. these three companies focus on different areas of Artificial Intelligence, for example, Amper offers a service where you just need to choose a style a mood and the length of time that the user needs to get a piece of music. Jukedeck, which follows a similar logic to Amper, was acquired by TikTok in 2019 to become its music-generated content repository. Compared to the previous two, AIVA mainly focuses on high-quality AI works, where they release AI-generated pieces for bands and invite orchestras to finish playing them, which is an area that many music AI companies have mainly experimented with initially.

The main logic of intelligent music generation model is to



have melody, rhythm, harmony of the digital format music files into the computer, through the LSTM algorithm for deep learning and then create a completely original music, these works can be widely used in video, games, advertising and other aspects. However, there is still a certain gap in the ability of AI creation, in the enjoyment of the music can be clearly felt in the past machine, the current technology can meet the demand for a large number of low-cost original music or music creation to assist in the production.

## **2.2 Personalisation of the music distribution medium**

Music composition is the most central attempt of AI technology to enter the music industry, and more diversified combinations have emerged based on this. After the online music market enters the copyright era centred on user experience, music streaming will be the way to profit and inseparable from artificial intelligence technology, although the number of copyrights is an important measurement standard for music applications, but personalised recommendation function based on big data technology has become the most important business of music applications. Music platform with the help of ‘recommendation algorithm’ service to provide users with customised song list, to avoid the song homogenisation, the user experience decline. Based on artificial intelligence algorithms, this intelligent recommendation function is able to comprehensively analyse the user's mood and recommend the right music for the user according to the scene they are in. In addition, based on this algorithm, the music application expands in addition to a richer plate, the user can choose according to their own habits, ‘conservative’, ‘moderate’ and other different levels of songs to try.



Another important manifestation is the emergence of the mediatisation of music, which has been mediated by the addition of artificial intelligence technology. This trend is reflected in the fact that music can link various elements to form social networks that help audiences form music-mediated group interactions. Music is both an important element of collaborative communication and a key platform for forming social networks.

### **2.3 Music audio equipment reconfiguration**

Artificial intelligence has an important impact on the music industry is another aspect of audio equipment. Traditional audio equipment mainly focuses on the development of acoustic technology and sound quality, which is also an important competitive point of traditional audio equipment, after the emergence of artificial intelligence technology, the core of audio equipment has also shifted to the ‘intelligent’, ‘assistant’, ‘human-computer interaction’ and other functions. AI has become the core of the smart speaker, which also directly affects the user's habits, in addition to improving the sound pickup technology to improve the sensitivity of the audio wake up, smart audio can also identify user commands through voice technology, and users continue to interact with the user to learn commands.

### **3. Challenge**

Although the current artificial intelligence technology covers almost every aspect of the music industry, it does not mean that the combination of the two does not have any drawbacks. Especially as digital technology continues to innovate and user demand for music consumption continues to change, a reasonable analysis and prediction of the status quo can provide a certain degree of help for the development of AI music.



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From the perspective of creation, there is no uniform quantitative evaluation mechanism for works created by human beings, and the human brain's perception of music often cannot be measured by numbers or standards. At the same time, the preference for music cannot be simply defined as 'good' or 'bad'. Music aesthetics is influenced by many factors, and is a derivative of individual life experience. If the standard of music creation by AI is raised to this level, it will be an extreme challenge in itself.

The current artificial intelligence technology has been able to create complete musical works, but the attribution of kinds of musical works is also a problem that can not be ignored. The music created by artificial intelligence is almost the same as the works created by human beings in terms of form and genre, so whether the works created through this method belong to the programmer of the artificial intelligence or the operator of the artificial intelligence music system, and the regulatory system related to this also needs to be further improved in the future.

From the point of view of communication, the user's appreciation habits of music works on the one hand by their own subjective preferences, on the other hand in the recommended algorithms to decide. However, this service has also given rise to the problem of 'information cocoon', the user has got the desired music recommendation, but there is also a single song list, music style cannot be expanded. In the future, the platform also need to think about the proportion of artificial intelligence in the dissemination process, to bring users a better experience.

#### **4. Future Outlook**

Artificial Intelligence is an important trend in the current



development of technology, more and more industries are beginning to explore the combination with artificial intelligence, in the future the music industry will also appear more diversified ways of combination. It may be possible to solve the problem of music accompaniment through AI, which can not only be applied to live music or recorded music scenarios, but also bring a newer model for music learning. The use of AI is most often closely intertwined with different forms of online learning, making them more effective. A study concerning online music education demonstrated that online learning has motivated gifted students regardless of their location or gender (Ismail et al., 2021).

Artificial intelligence is able to provide students with accompaniment services and reduce learning costs by analyzing the problems that may arise during the learning process of musical instruments through big data. At the same time, AI can also help build an intelligent music education system, providing multi-dimensional teaching modes such as video, audio and rehearsal, which not only lowers the threshold of learning but also broadens the age of music learning. In addition, AI has become an increasingly popular tool in recent years, which not only companies but also other entities (such as universities) like to exploit to their advantage (Bamigbola, 2021), (Yam, 2018), the dissemination of music is often cross-cultural and cross-regional, artificial intelligence in the future can also help appreciate the understanding of the work, to achieve the cross-regional dissemination of culture, I believe that in the future the combination of artificial intelligence and music dissemination will be more comprehensive and more diversified.



## 5. Summary

The application of Artificial Intelligence Generated Content (AIGC) in music creation and distribution is profoundly changing the landscape of the music industry. Through AI technology, music creation has become more efficient and convenient, and AI also provides creators with low-cost music creation solutions. In addition, AI-driven personalised recommendation algorithms have greatly improved the user experience and further enriched the way of music consumption.

AI has great potential to improve the efficiency of music creation and distribution accuracy, but there are also many challenges and problems. It is difficult for AI to completely replace the traditional music creation process, and the works created are often limited to imitating existing styles, lacking innovation and individuality, which may lead to homogenization and homogenization of music works. At the same time, although AI recommendation algorithms improve the accuracy of personalized recommendations, they may also lead to the phenomenon of 'information cocoon', which makes the user's music experience too closed, and may reduce the opportunity for users to discover new music. In addition, the widespread application of AI in music creation has also brought about problems such as copyright ownership, which is also a problem that platforms and related departments need to work together to improve in the future.

In the future, the application of AI in the music industry remains promising. Through intelligent educational tools, it helps music learners improve their skills in a personalized way, lowers the threshold of learning, promotes cross-cultural and cross-regional music dissemination, helps musical works break through



the barriers of language and culture, and promotes the exchange and integration of global music culture.

Overall, the application of AIGC in the music industry brings both innovative opportunities and many challenges. The music industry needs to enjoy the convenience and efficiency brought by AI while fully considering the impact of AI on the depth of creation, musical diversity and social ethics, and ensure the benign interaction and common progress between technological development and human creativity.

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