

# *A Study on the Fair Use Principles of Artificial Intelligence Generated Music*

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**Abstract:** The rapid rise of AI-generated music technologies and the associated fair use and copyright issues have become an important focus of the contemporary digital music industry. With the rapid development of AI, AI-generated music has begun to permeate music composition, performance and production. This evolution has brought new prospects as well as a series of legal and ethical dilemmas. This article embarks on an in-depth exploration into the application and enhancement of fair use regulations within the burgeoning domain of AI music generation technology. The text examines various aspects of artificial intelligence-generated music, closely scrutinizes the legal framework that supports it, and attempts to seek a balance between nurturing creativity and protecting the rights of creators and innovators.

**Keywords:** Artificial Intelligence, Fair Use Principles, Music

## **1. Introduction**

The contemporary digital landscape of the music industry has witnessed a significant transformation propelled by the rise of AI music generation technology. This transformative wave has not only introduced new horizons of creativity but has also ignited a complex interplay between the principles of fair use and copyright protection. With the rapid development of artificial intelligence technology, music composition, performance, and production have begun to be influenced by AI-generated music. This trend has brought about innovative opportunities but has also given rise to a series of legal and ethical challenges.

The purpose of this paper is to embark on an exploration of the burgeoning domain of AI music generation. It aims to shed light on the multifaceted issues that arise with the ascent of AI technology in music and to propose a coherent set of principles and methodologies for governing the fair use of AI-generated music. These principles will be designed to ensure that creators' rights are effectively safeguarded while fostering the creative potential that AI brings to the music industry.

In the second section of this paper, how the principles of fair use are applied to the field of AI music generation against the backdrop of its rise will be discussed. The third section will delve into the current applicability of fair use principles to AI-generated music works. Finally, the fourth section will summarise the research findings and provide recommendations to strike a balance between technological innovation and copyright protection in the domain of AI music generation.

## **2. Copyright Law, Music Works, and AI-Generated Music**

### **2.1. Copyright of Music Works**

Copyright provides comprehensive resources for musicians to establish their status in music works. Composers, as the creators of music works, are vested with copyright ownership, encompassing essential facets such as performing rights and adaptation rights. In addition, performers are entitled to performing rights and playback rights, while music producers also have copyright, including reproduction and distribution rights [1].

For example, according to US copyright law, each recorded song has two different copyrights: one is for the music work itself, including protection of basic structural elements such as chord progressions, melodies, and lyrics; the other is for the fixed sound of the recorded performance. Musicians express their thoughts and experiences through composition and performance, and they have a unique relationship with their works. However, US copyright law does not explicitly acknowledge the personal nature of the author's connection to the work, although this does not mean that such a connection does not exist. A similar scenario unfolded in the UK, where performer's rights were only introduced in 1988 and were categorized under neighboring rights, providing relatively limited protection [2].

Therefore, although copyright laws in various countries provide relatively comprehensive legal provisions for the protection of music works, there is also a certain imbalance among the various rights.

### **2.2. Legal Principles of Fair Use**

In relation to the fair use of works, particularly music works, Abhimanyu Bhargava, in the article titled "Copyright Law and AI-Generated Works: Ownership and Responsibility," presents the criteria for fair use. These criteria encompass the purpose and nature of the use, the quantity and significance of the use, the impact of the use's effect on the copyright holder, and the existence of alternative options [3].

#### **2.2.1. Purpose and Nature**

Firstly, one needs to consider the purpose and nature of the use. If the use is for educational, critical, news reporting, academic research, or other public interest purposes, it may be more easily recognized as fair use. However, in practice, AI-generated music works often tend to have a commercial and profit-oriented nature. This commercial nature makes it less likely to be deemed as fair use, especially if the use significantly impacts the rights holder [3].

#### **2.2.2. Quantity and Importance**

Secondly, one must consider the quantity and significance of the use. If only a small portion of the work is used, and the impact on the overall work is limited, it may more easily meet the fair use criteria. The amount of music work used and its significance in the training of generative AI data might affect the determination of fair use principles. If only a small portion of the music work is used, and it's solely used for a portion of the model's training, it may be more likely to be considered fair use [3].

#### **2.2.3. Impact on Copyright Holders' Market Interests**

Additionally, the impact of the use on the rights holder's market interest must be considered. If the use does not significantly affect the rights holder's market interest, it may more easily meet the fair

use standards. If generative AI data training negatively affects the music market, such as causing sales to decline or encroaching on the potential market for original music, this may have a detrimental impact on the applicability of fair use [3].

#### **2.2.4. Availability of Alternatives**

Lastly, one needs to consider the existence of viable alternatives. If there are no reasonable alternative options available, it may be more easily deemed as fair use. Whether there are alternative ways to conduct AI data training without the use of copyrighted music works may also impact the applicability of fair use [3].

These legal principles of fair use serve as a cornerstone for assessing the ethical and legal implications of employing copyrighted music works in AI-generated creations, ensuring a delicate balance between innovation and copyright protection.

### **2.3. Emergence of AI-Generated Music**

#### **2.3.1. Commercial Applications and Profit Motive**

The commercial application of artificial intelligence-generated music refers to the use of machine learning techniques to create music compositions and employing them for commercial purposes to generate profits. This commercial application is profit-oriented, meaning it aims to gain economic benefits through the sale or licensing of music compositions generated by artificial intelligence [4]. Commercial applications can take various forms, including music streaming on digital music platforms, record sales, music videos, advertising music, and more. While the commercial use of AI-generated music can offer new creative resources and musical experiences, it may also impact traditional music creators and the music industry. Hence, in commercial applications, issues related to music copyrights and rights protection should be considered to ensure lawful use and fair distribution of benefits.

#### **2.3.2. Impact on the Music Market**

Artificial intelligence-generated music compositions may blur the boundaries between the rights of composition and performance. In the traditional music market, music composers and performers are seen as two distinct roles, but music compositions generated by artificial intelligence may not clearly define the identities of composers and performers. This ambiguity could lead to issues related to music copyrights and revenue distribution. Furthermore, AI-generated music compositions may lead to copyright disputes. Under current copyright laws, music composers have the rights to the composition, while performers have the rights to performance [5]. Yet, AI-generated music compositions often lack clearly defined composers and performers, leading to disputes over copyright ownership. Additionally, the proliferation of AI-generated music compositions may impact the competitive landscape of the music market. Traditionally, music composition was the domain of a select number of human creators, and this exclusivity afforded music composers a competitive edge. However, if artificial intelligence can generate high-quality music compositions on a large scale, it will introduce more competitors, potentially reducing the market standing of music composers [5].

#### **2.3.3. Defining Rights in Creation vs. AI Generation**

Defining the rights of music creation and AI-generated music compositions presents certain challenges. According to existing copyright laws, the copyright of music compositions belongs to the authors, and whether AI-generated music compositions can be considered as the creative output of authors remains unclear. Nevertheless, AI-generated music compositions may involve different rights,

such as performance rights, adaptation rights, and more [6]. Consequently, when striving to define the rights associated with music creation and AI-generated music compositions, these diverse rights must be thoughtfully considered, and the specific contributions of AI in the music creation process need to be comprehensively determined.

### **3. Applicability Status of Fair Use Principles to AI-Generated Music**

#### **3.1. Conflict between AI Music Generation and Copyright**

##### **3.1.1. Working Principles of AI Music Generation**

The inception of a musical composition typically commences with a creative spark – a seed, if you will. This seed can take various forms, from a guitar riff or a bass line to synthesizer chords or even a vocal sample. Humans can arrange them in some way to building music. Output is from author's imagination given that input [6].

In contrast, when artificial intelligence embarks on the musical creation journey, it operates without the need for constant input from a human programmer. AI music generation hinges on patterns learned from previous experiences. AI can create music in two ways: by manipulating mini data or by engaging in raw audio synthesis. For example, Google's Magenta Music Writing AI learn from previous melodies, drum patterns and others sounds to create a new one. However, it may not be capable of constructing an entire song structure and often requires human intervention to bring coherence to its output.

OpenAI takes a different approach by using raw audio to train a model. The models were trained on a raw data set of 1.2 million songs and used metadata and lyrics from lyric wiki. The progress works in two main ways. Specify a genre and this will make something from scratch or feed it a sedition of a song and let it continue writing that song [7]. But this approach has limitations. The further the AI get away from the initial point of the song, the more the directions become unstable. If it happens a lot, the music eventually becomes unlistenable [8].

##### **3.1.2. Analysis of Copyright Infringement Cases**

The case of *Bamgboye v Reed* delves into the intricate realm of music copyright, casting a spotlight on the nuanced relationship between the creation and performance of musical works. The core issue of the case is whether there should be a legal distinction between composers and performers. The case explores how performers negotiate and leverage different rights to establish ownership through interviews with musicians and relevant precedents. The research finds that a musician's creative process can be understood as a continuum between composition and performance, rather than a binary opposition. Musicians position their work within this continuum based on factors such as composer-performer discourse, career development, music genre, and power dynamics. The study also reveals that, legally, collaborative creation and individual creation of music works, as well as contributions like adaptations and performances, all can receive protection and align with societal understanding of different types of contributions. However, the research also notes that from a more normative perspective, redefining these rights could potentially help address inherent inequalities in music practice and the law. Therefore, the main focus of the *Bamgboye v Reed* case is to examine the relationship between the creation and performance of musical works and the corresponding legal protection and rights [9].

## 3.2. Application of Fair Use in AI Music Generation

### 3.2.1. Examination of Fair Use Standards

In the context of AI music generation, the standards for fair use should encompass several key aspects. Firstly, adherence to copyright laws is of paramount importance to safeguard the rights of original music creators. When employing AI-generated music, it is imperative to duly recognize and respect the rights of the original authors. Whenever feasible, obtaining the necessary permissions or authorizations is a fundamental step in ensuring compliance with copyright laws [7].

Secondly, fair use also takes into account the creative process and sources of music. AI-generated music might be created by training models to learn and imitate a vast body of existing musical works. Therefore, it is important to avoid excessive reliance on or imitation of a specific work, to prevent copyright infringement or a decrease in originality [5]. For instance, AI should demonstrate a degree of skill and judgment in the music generation process, rather than merely producing music mechanically. If AI generates music solely based on predefined patterns and rules, it may be considered to have lower creativity and originality, potentially not meeting the requirements for copyright protection. However, if AI can autonomously generate music based on input materials and creative objectives, showing a degree of uniqueness and creativity, it may be considered eligible for copyright protection [5].

Moreover, the application of fair use should also acknowledge the roles of human creators and performers in the music generation process, safeguarding against the misrepresentation or plagiarism of AI-generated music as their own creations. For example, the level of human involvement in the music generation process, their decisions regarding dataset selection and programming parameters, should also be taken into consideration [10]. If humans only provide input data or parameters without substantial intervention or creativity in AI-generated music, their role may be considered minimal, and the copyright may primarily belong to the AI. However, if humans play a significant creative and decision-making role in guiding AI's music generation, they should have corresponding copyright entitlement [5].

Lastly, fair use should also consider the social impact and value of music. When using AI-generated music, it is essential to respect the artistic and aesthetic value of the music and avoid its misuse or vulgarization in music creation [9].

### 3.2.2. Case Studies of Fair Use in AI Music Generation

While most AI systems do not yet possess fully autonomous capabilities, some systems are already exhibiting autonomous or nearly autonomous abilities. Many semi-autonomous AI systems have collaborated with human composers to create music. Notably, systems like AIVA possess the capability to compose entire musical compositions with minimal direct human intervention. These AI systems exhibit the capacity to generate music at a brisk pace, potentially leading to AI owners amassing a substantial portfolio of copyrighted musical works. [10] For instance, AIVA is a prime example of an AI composer that, based on deep learning algorithms, detects musical patterns and creates compositions on this basis. It has been officially recognized as a composer by the Société des Auteurs, Compositeurs et Éditeurs de Musique (SACEM) in Luxembourg and France. In light of the criteria for reasonable use outlined above, AIVA appears to align with existing copyright law frameworks, exhibiting a certain level of independent creative capability.

The current legal framework still applies to most copyrighted works, but it may not always be suitable for rapidly growing categories of computer-generated works. Most judges lack backgrounds in computer science, engineering, or mathematics, making it challenging for them to understand the processes behind computer-generated works. As a result, judges, copyright agencies, and legislators



will eventually have to confront the reality that current copyright frameworks worldwide are insufficient in the context of artificial intelligence [7].

### **3.3. Limitations of Existing Regulations for AI Music Generation**

#### **3.3.1. Issues with Copyright Law Applicability**

The absence of a distinct human creator in AI-generated music poses significant challenges when determining copyright ownership and protection. Current copyright laws require a clear human author to assert rights, but in the case of AI-generated music, this is difficult to establish. To safeguard the copyright of AI-generated music, it is essential to amend existing copyright laws or establish specific legal provisions that clarify copyright ownership and protection responsibilities for such works. This step is essential to ensure that the creators of AI-generated music can enjoy the rightful protection and benefits of their copyright [7].

#### **3.3.2. Disputes Between Copyright Holders and AI Developers**

Disputes concerning the copyright of AI-generated music primarily revolve around the collaborative nature of the creative process, involving both humans and AI. This process differs significantly from the traditional copyright model, as attributing the final form of a work to humans becomes challenging, given AI's demonstrated creativity. The best approach to address copyright infringement issues arising from AI is to assign responsibility to the humans involved in the AI music creation process, following the dominant theory that AI-generated artistic works belong to humans. Humans may no longer be the sole source of creative output, at least not the exclusive source [8].

Debates have emerged regarding whether AI-generated music might compete with and possibly replace original compositions, further intensifying the dispute over whether such works should be entitled to copyright protection. On one hand, some contend that copyright for AI-generated music should belong to AI developers because they created the AI algorithms that enable music composition. They view AI as a tool or medium without creative capability, thus assigning copyright to human creators [8]. On the other hand, some argue that AI-generated music should be attributed to AI itself. They maintain that AI, through learning and analyzing vast musical works, has acquired creative abilities, and AI-generated music possesses originality. Therefore, as the creator, AI should enjoy copyright protection. Currently, there are no clear legal provisions for copyright ownership of AI-generated music. In resolving this dispute, factors such as the creators of AI algorithms, the originality of AI-generated music, and its impact on the music industry need to be considered [11].

#### **3.3.3. Discrepancies between Law and Technology**

AI-generated music faces issues of asynchrony between legal and technological aspects. From a legal perspective, composition and performance are considered separate rights in copyright law. Composition is regarded as a creative act and enjoys broader copyright protection, whereas performance is seen as an interpretive act with more limited rights. This makes it challenging to accurately attribute AI-generated music to either composition or performance. Furthermore, the lack of human creative thought and emotional expression in AI-generated music leads to disputes regarding whether it should be considered an independently copyright-protected work [12]. From a technological perspective, AI-generated music has advanced far ahead of legal regulations. AI technology can create new music by learning and emulating the human music composition process, but at the legal level, the legitimacy and protection of these works remain unclear [13].

## **4. Enhancements to Fair Use Principles for AI-Generated Music**

### **4.1. Special Fair Use Principles for AI Music Generation**

To begin with, specific fair use principles should take into account whether AI-generated music works possess a certain degree of originality and creativity. If AI-generated music works are entirely based on existing datasets and patterns, they may not meet the requirements of originality and creativity, and specific fair use principles may not be applicable. Secondly, specific fair use principles should consider the intent and purpose of human programmers in generating AI music. If the purpose of human programmers is to create new music works and share them with the public, specific fair use principles may be applicable. However, if the purpose of human programmers is to commercially exploit AI-generated music works, some limitations may be required in these specific fair use principles [7]. Additionally, specific fair use principles may also take into account the nature of the datasets and pre-existing music recordings used in music works. Should the dataset encompass copyrighted classical, jazz, and rock music works, AI-generated music works should make concerted efforts to steer clear of direct replication of these compositions to avoid infringing on copyright infringement [2].

### **4.2. Coordination of Fair Use Rules with Other Regulations**

#### **4.2.1. Complementarity of Copyright Licensing and Fair Use**

Copyright licensing and fair use for AI-generated music works are complementary. Traditionally, music creators receive compensation by transferring their copyrights to copyright management organizations, which motivates them to create new works. AI-generated music works may involve multiple copyright owners, so it is necessary to ensure legal permissions are obtained. Licensing and fair use for AI-generated music works need to consider two aspects. First, these works themselves may encompass copyrights in various facets such as music composition, performance, and recording, thereby underlining the importance of obtaining proper permissions from the relevant copyright holders [10]. Secondly, since AI-generated music works may involve multiple copyright owners, an appropriate licensing mechanism needs to be established to protect the interests of all parties. This licensing mechanism empowers AI creators to access legally sound training data while also affording due compensation to copyright owners, a harmonious arrangement that preserves copyright integrity and fosters innovation in AI music [3].

#### **4.2.2. Balancing Innovation and Copyright Interests**

Balancing innovation and copyright in AI-generated music works is a critical issue. While AI-generated works have creativity and originality, their lack of human creative intent and emotional expression presents challenges to copyright law. Questions about whether these works should be granted copyright protection and how to balance the rights of AI and human creators need consideration. On one hand, the innovation in AI-generated music works is undeniable; they can create diverse music works through algorithms and data analysis, injecting new elements into music creation. These works have commercial value and should receive appropriate protection and incentives to encourage innovation [7]. On the other hand, AI-generated music works lack human emotion and expression, making them challenging to compare with human works. Additionally, issues related to the duration of ownership of AI-generated works and whether programmer authorship should be granted need consideration. If copyright is fully granted to programmers, it may limit the creative space for other artists and have economic disadvantages. Consequently, it is incumbent upon us to strike a harmonious equilibrium within the existing copyright law framework.

In addressing the balance between innovation and copyright in AI-generated music works, fair use provisions in copyright law can be referenced. Fair use provisions can be used to protect societal diversity and new insights, which is precisely the purpose of using copyrighted works as training data for AI. Fair use provisions can be employed to balance the relationship between innovation and copyright protection, allowing AI to use copyrighted works as "raw materials" to create new and creative music works [3].

## 5. Conclusions

The confluence of artificial intelligence and music has heralded a transformative era, characterized by the emergence of AI-generated music technologies that transcend human boundaries in creativity and productivity. As these advancements continue to reshape the music industry, the ethical and legal considerations surrounding fair use and copyright are brought to the forefront.

This paper have explored the principles of the reasonable use of AI-generated music works and attempted to find a balance in the rapid rise of AI music generation technology to promote technological innovation and protect the rights of creators. The emergence of AI music generation technology has brought unprecedented opportunities but has also sparked a series of legal and ethical challenges. To ensure the continuous development of this field, this paper proposes specific reasonable use principles for AI music generation and provides recommendations for coordinating reasonable use with other regulations. This includes the establishment of appropriate licensing mechanisms and fair use terms for borrowing copyright to balance the relationship between copyright and innovation.

In conclusion, the rise of AI music generation technology has brought many opportunities to the music field but has also posed ethical and legal challenges. By establishing and adhering to reasonable use principles, a balance between technological innovation and copyright protection can be achieved, ensuring the sustainable development of AI music generation while respecting the rights of creators.

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