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Rage against the Machine: Copyright Infringement in AI-Generated Music

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Rage against the Machine: Copyright Infringement in AI-Generated Music

Cover Page Footnote

J.D. Candidate, University of Georgia School of Law 2025. I would like to thank my friends and family for their support as well as Professor David Shipley for his guidance.

NOTE

**RAGE AGAINST THE MACHINE: COPYRIGHT
INFRINGEMENT IN AI-GENERATED MUSIC***Joseph Will**

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I. INTRODUCTION

The proliferation of artificial intelligence (“AI”) has the potential to radically alter our society. One area of life likely to be impacted by this nascent technology is music. The music industry has proven itself to be particularly susceptible to changes in technology, with the current debate over AI-generated music being

*J.D. Candidate, University of Georgia School of Law 2025. I would like to thank my friends and family for their support as well as Professor David Shipley for his guidance.

redolent of earlier debates over the rise of digital sampling.¹ The music industry has already expressed concerns over the implications of AI, prompting congressional attention.² These concerns often involve the use of copyrighted materials as input data in machine learning programs.³ Many fear that allowing AI to use human-made music as input data will have a deleterious effect on both the music industry as well as on human creativity.⁴

While AI can be used to merely ape the styles and innovations of original creators, the technology also has the potential to bolster human creativity and thus to further certain goals of copyright law. Many instances of AI-generated music will likely be viewed as blatant copyright infringement, but there are possible uses of the technology where this is far less certain. This Note will examine these latter uses of AI, looking at the use of AI to create music that is not merely derivative of prior work but exists as a distinct piece of music.

There is good reason to be skeptical of the ultimate artistic value of music that is partially or primarily the product of machine learning rather than human effort. Truly great art will remain the province of human effort and creativity, and most AI art will likely prove to be of little value. Few (if any) would seriously contend that generating music through AI is as impressive an accomplishment as composing something from scratch.

It would be myopic to assume, however, that AI cannot be used as a tool to create worthwhile and creative music in at least some instances. When hip hop and its practice of audio sampling first emerged, it was widely dismissed as artistically worthless.⁵ The genre's enduring resonance with music fans across generations suggests that this early derision was largely mistaken. Similarly, the ultimate artistic value of AI-generated music cannot be ascertained at this time, and the law should not put manacles upon art unnecessarily.

As genuinely creative AI-generated music can still involve the use of extant works as input data and training sets,⁶ even these uses of AI will need to be scrutinized for potential copyright infringement. Furthermore, there are

¹ See Eric Sunray, *Sounds of Science: Copyright Infringement in AI Music Generator Outputs*, 29 CATH. UNIV. J. L. & TECH. 185, 212 (2021) (“The debate over the future of AI music bears a striking resemblance to the debate over digital sampling.”).

² Veronica Roseborough, *Music Industry Sounds Alarm over AI Threat, Calls on Congress to Act*, THE HILL (June 27, 2023, 6:00 PM), <https://thehill.com/homenews/house/4070544-music-industry-sounds-alarm-over-ai-threat-calls-on-congress-to-act/>.

³ Sunray, *supra* note 1, at 192 (noting that AI-generated music consists of the “reproduction of copyrighted works plays in generating the sample”).

⁴ See *id.* at 186 (noting the “potentially devastating” impact that AI may have on human authorship).

⁵ See Robert M. Szymanski, *Audio Pastiche: Digital Sampling, Intermediate Copying, Fair Use*, 3 UCLA ENT. L. REV. 271, 287-288 (1996) (describing criticisms levied against digital sampling in music).

⁶ Kaushik Pal, *How Can an AI Model Create Music?*, TECHOPEDIA (last updated Jan. 18, 2024), <https://www.techopedia.com/how-can-an-ai-model-create-music>.

legitimate concerns about the impact that this technology will have on human artists and the creative industry.⁷

In incorporating AI-generated music into the framework of copyright law, a balance must be struck between the need to protect artists while allowing for creativity to flourish. This Note will attempt to delineate a standard for AI-generated music that considers the need to protect artists while allowing for uses of AI that further—rather than frustrate—the goals of copyright law.

This Note will examine the viability of traditional defenses of fair use and the de minimis exception to claims of copyright infringement against AI-generated music. Additionally, this Note will argue for a legal standard that can guide courts as they address this nascent technology going forward.

This Note will examine both fair use and the de minimis defense, outlining the current states of these doctrines and the split between the Sixth and Ninth Circuits over the availability of the de minimis defense to use of copyrighted music.⁸ These doctrines will be applied to the novel technology of generative AI, while also discussing whether intermediate copying will feature prominently in future litigation.⁹ Policy concerns surrounding this new technology will also be examined, arguing that AI-generated music should be protected under certain circumstances. As AI stands poised to transform the recording industry, it is imperative that the technology be situated within the framework of copyright law in a way that respects the competing interests at play.

II. BACKGROUND

AI technology can be used to generate new music in several ways. Two popular methods for generating music include generative adversarial networks (“GANs”) and autoencoders.¹⁰ GANs consist of two neural networks—a discriminator and a generator.¹¹ In simple terms, GANs work by training both networks on a training set of input data.¹² The generator will then produce new output data that the discriminator will evaluate to determine whether the output belongs to the training set.¹³ The generator’s task is to produce output data that convincingly resembles the input data and fools the discriminator.¹⁴

⁷ Anna Nicolaou, *Streaming Services Urged to Clamp Down on AI-Generated Music*, FIN. TIMES (Apr. 12, 2023), <https://www.ft.com/content/aec1679b-5a34-4dad-9fc9-f4d8cdd124b9>.

⁸ See *infra* notes 88–127 and accompanying text.

⁹ See *infra* notes 131–158 and accompanying text.

¹⁰ Sunray, *supra* note 1, at 189.

¹¹ Chris V. Nicholson, *A Beginner’s Guide to Generative AI*, PATHMIND, <https://wiki.pathmind.com/generative-adversarial-network-gan> (last visited Sept. 22, 2023).

¹² *Id.*

¹³ *Id.*

¹⁴ See *id.* (“[T]he generator is creating new, synthetic images that it passes to the discriminator. It does so in the hopes that they, too, will be deemed authentic . . .”).

The autoencoder is another neural network that can be used to produce music, with the WaveNet model showing particular promise.¹⁵ In contrast to GANs, autoencoders function by encoding and compressing input data that is then reconstructed using a decoder.¹⁶ The reconstructed output reduces the noise of the input data and produces an output that is very similar to the input in a process known as up-sampling.¹⁷ The autoencoder approach thus involves the direct manipulation of copyrighted works to generate music.¹⁸ This autoencoder approach is used by popular AI music generators such as Jukebox¹⁹ and MusicVAE.²⁰

Whether a GAN or autoencoder is used to generate music may affect any legal analysis relating to copyright claims. It has been argued that GAN-generated music categorically does not infringe on copyright as the GAN-generated music consists of independent fixation of sounds rather than direct use of sound recordings.²¹ Independent fixation is a complete defense to sound recording infringement actions, with the rights of copyright holders not extending to duplicate sounds that recreate rather than copy the original.²² It is not clear how courts will view the use of GAN networks and whether the output of GAN networks will be treated as an independent fixation, however. As AI represents a novel technology not anticipated by Congress when it passed the Copyright Act, a strictly literal reading of the Act may be deemed inappropriate when considering its basic purposes.²³ Regardless of how courts ultimately decide to treat GAN-generated music, music produced by autoencoders involves direct use of copyrighted recordings themselves and thus warrants scrutiny. This Note's analysis will assume the use of an autoencoder when discussing AI-generated music, but much of it may apply to GAN-generated music as well.

¹⁵ See Jesse Engel et al., *Neural Audio Synthesis of Musical Notes with WaveNet Autoencoders*, 70 PROCS. MACH. LEARNING RSCH. 1068, 1070 (2017).

¹⁶ *Id.* at 1076.

¹⁷ Sunray, *supra* note 1, at 192.

¹⁸ See *id.* at 209 (“[A]utoencoder-based approaches entail manipulation of actual copyrighted sounds to generate the music through the encoding and decoding process.”).

¹⁹ Prafulla Dhariwal et al., *JukeBox*, OPENAI, <https://openai.com/research/jukebox> (last visited Sept. 23, 2023).

²⁰ Adam Roberts et al., *MusicVAE: Creating a Palette for Musical Scores with Machine Learning*, MAGENTA (Mar. 15, 2018), <https://magenta.tensorflow.org/music-vae>.

²¹ *Id.*

²² 17 U.S.C. § 114(b); see also *Bridgeport Music, Inc. v. Dimension Films*, 410 F.3d 792, 800 (6th Cir. 2005) (“[T]he world . . . is free to imitate or simulate the creative work . . . so long as an actual copy . . . is not made.”).

²³ See *Twentieth Century Music Corp. v. Aiken*, 422 U.S. 151, 156 (1975) (“When technological change has rendered its literal terms ambiguous, the Copyright Act must be construed in light of [its] basic purpose.”).

There is also the issue of “deepfakes”—AI-generated content that can convincingly imitate the voice of a real person.²⁴ Deepfakes have been given particular attention by the music industry after AI-generated songs featuring voices that sound indistinguishable from popular performers went viral.²⁵ This Note will not address the issue of deepfakes and the imitation of voices through AI, focusing instead on the composition of music through copyrighted inputs.

A. FAIR USE OF COPYRIGHTED WORKS

One plausible defense to claims of copyright infringement is that the use of copyrighted materials to train generative AI constitutes fair use. The fair use doctrine represents a balancing of two competing public interests: encouraging creative works by rewarding creators and promoting the public availability of such works.²⁶ The purpose of the fair use exception is to avoid a “rigid application” of copyright law that “would stifle the very creativity which that law is designed to foster.”²⁷

Originally a common law principle, the doctrine of fair use was codified in Section 107 of the Copyright Act of 1976.²⁸ 17 U.S.C. § 107 includes four factors that must be analyzed in determining whether the fair use exception will apply:

- (1) the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes;
- (2) the nature of the copyrighted work;
- (3) the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and
- (4) the effect of the use upon the potential market or value of the copyrighted work.²⁹

Factors one, three, and four are of particular interest here. Each of these factors requires a case-by-case examination, with no bright-line rules allowing for

²⁴ Garling Wu, *What is Deepfake Music? And How is it Created?*, MAKEUSEOF (Apr. 29, 2023), <https://www.makeuseof.com/what-is-deepfake-ai-music/>.

²⁵ Geoff Mayfield & Jem Aswad, *AI vs. the Music Industry: With the Internet Full of Fake Drakes and Eminems, Who Gets Paid?*, VARIETY (May 3, 2023), <https://variety.com/2023/music/news/ai-vs-music-industry-fake-drake-eminem-who-gets-paid-1235601494/>.

²⁶ See *Andy Warhol Found. for the Visual Arts, Inc. v. Goldsmith*, 143 S. Ct. 1258, 1273 (2023) (“Creative work is to be encouraged and rewarded, but private motivation must ultimately serve the cause of promoting broad public availability of [creative works].” (quoting *Twentieth Century Music Corp. v. Aiken*, 422 U.S. 151, 156 (1975))).

²⁷ *Id.* at 1274 (quoting *Stewart v. Abend*, 495 U.S. 207, 236 (1990)).

²⁸ *Id.* at 1273.

²⁹ 17 U.S.C. § 107.

simple analysis.³⁰ Fair use will not be determined based on a simple determination of which side can claim the most factors, and the importance of a given factor may depend on the overall context.³¹ Courts do not mechanically keep score of the different factors to declare a winner, but instead carefully balance them in view of the goals of copyright law.³²

1. *Factor One: The Purpose & Character of the Work*

The first factor looks to the purpose of the use of copyrighted material, with the key question being whether the use merely “supplant[s] the original” or instead adds some “further purpose or different character.”³³ Using a copyrighted work to accomplish the same or similar purpose as that of the original work is likely to be seen as supplanting the original.³⁴ Works that have a different purpose or character are said to be “transformative” of the original, with “transformativeness” being a matter of degree.³⁵

Transformativeness is not strictly necessary for a finding of fair use, but transforming an existing work into something new furthers the copyright goal of promoting creativity and weighs in favor of a finding of fair use.³⁶ The more transformative a use, the less significant other factors that weigh against a finding of fair use (e.g., commercialism) will be.³⁷ Examples of transformative uses include parody, commentary, and criticism.³⁸

The purpose and character of the use must be weighed against other factors, including commercialism.³⁹ A commercial purpose of the use will not automatically invalidate a fair use defense, but it is relevant.⁴⁰ The secondary work both serving the same purpose of the original while also being commercial will likely lead to the first factor weighing against fair use absent some other justification.⁴¹

In the context of AI, it has been argued that using copyrighted data as inputs would not constitute infringement as the resulting outputs could be considered

³⁰ *Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569, 577 (1994) (citations omitted).

³¹ See *Google LLC v. Oracle Am., Inc.*, 141 S. Ct. 1183, 1197 (2021) (“[S]ome [§107 factors] may prove more important in some contexts than in others.”).

³² See Pierre N. Leval, *Toward a Fair Use Standard*, 103 HARV. L. REV. 1105, 1110 (1990) (“The factors do not represent a score card that promises victory to the winner of the majority.”).

³³ *Campbell*, 510 U.S. at 579 (citing *Harper & Row Publishers v. Nation Enters.*, 471 U.S. 539, 562 (1985)).

³⁴ *Andy Warhol Found. for the Visual Arts, Inc. v. Goldsmith*, 143 S. Ct. 1258, 1274 (2023) (citation omitted).

³⁵ *Id.* at 1275.

³⁶ *Campbell*, 510 U.S. at 579 (citation omitted).

³⁷ *Id.*

³⁸ *Id.*

³⁹ *Andy Warhol*, 143 S. Ct. at 1273 (citing *Campbell*, 510 U.S. at 579).

⁴⁰ *Id.* at 1276.

⁴¹ *Id.* at 1277.

transformative.⁴² AI musical generators may take copyrighted works as input data yet produce a work that is musically or aesthetically distinct, arguably using the input to produce a new artistic expression. Using an existing work for the purposes of new artistic expression may not be enough to establish that the first factor favors fair use, however. In the recent case of *Andy Warhol Foundation for the Visual Arts v. Goldsmith*, the Supreme Court addressed whether adding a new expression to an existing work satisfies the first fair use factor.⁴³

The case involved artist Andy Warhol's use of a picture of the musician Prince in 1984.⁴⁴ While Warhol's initial use was licensed, the Andy Warhol Foundation eventually used an image in its 2016 series without paying or crediting the original photographer.⁴⁵ In the ensuing litigation, the Foundation argued fair use on the grounds that Warhol altered the original photograph to convey a new message.⁴⁶ The majority found that adding new expression to an existing work is not enough to constitute fair use, particularly if the copied use serves the same purpose as the original (depicting Prince) and is commercial in nature.⁴⁷ The Court also approved of the Second Circuit's rejection of the notion "that any secondary work that adds a new aesthetic or new expression . . . is necessarily transformative."⁴⁸

Although the case did not address AI directly, some see it as having important implications for the debate surrounding machine learning and fair use.⁴⁹ The case makes it clear that the determination of whether a work is transformative rests less on aesthetics and more on the objective of the work.⁵⁰ This has significant implications for the availability of the fair use defense for AI-generated music.

Under the standards established in *Andy Warhol*, it would be difficult to argue that most AI-generated music is transformative. The Court specifically mentioned fair use of music multiple times in the decision. The Court gave

⁴² Riddhi Setty, *First AI Art Generator Lawsuits Threaten Future of Emerging Tech*, BLOOMBERG L. (Jan. 20, 2023, 5:05 AM), <https://news.bloomberglaw.com/ip-law/first-ai-art-generator-lawsuits-threaten-future-of-emerging-tech>.

⁴³ *Andy Warhol*, 143 S. Ct. at 1258.

⁴⁴ *Id.* at 1267–68.

⁴⁵ *Id.*

⁴⁶ *Id.* at 1273.

⁴⁷ *Id.* at 1280.

⁴⁸ *Id.* at 1283 (quoting *Andy Warhol Found. for the Visual Arts, Inc. v. Goldsmith*, 11 F.4th 26, 38–39 (2d Cir. 2021)).

⁴⁹ Isiah Poritz, *Generative AI Debate Braces for Post-Warhol Fair Use Impact*, BLOOMBERG L. (May 30, 2023, 5:05 AM), <https://news.bloomberglaw.com/ip-law/generative-ai-debate-braces-for-post-warhol-fair-use-impact-1>.

⁵⁰ See *Andy Warhol*, 143 S. Ct. at 1280–81 (noting that even secondary works that closely resemble the original—such as Andy Warhol's famous Campbell's Soup paintings—can be transformative if they are aimed at a different purpose).

sampling of existing music to create new works as an example of use that would not satisfy the first factor analysis absent some other transformative purpose.⁵¹

Further, the Court noted that the first factor will not weigh in favor of a commercial remix of an existing song even if the remix makes changes to the aesthetic and message of the original song.⁵² Even radical changes to the sound and aesthetics of a song do not automatically confer a finding of fair use absent a distinct purpose, as indicated in the prior case of *Campbell v. Acuff-Rose Music*.⁵³ At issue in *Campbell* was the hip hop group 2 Live Crew's use of the rock ballad "Oh, Pretty Woman" to create the bawdy hip hop song "Pretty Woman."⁵⁴ Despite the significant aesthetic and musical differences between the two songs, fair use was found solely due to the hip hop song's parodic purpose.⁵⁵

The cases above suggest that AI-generated music would struggle to satisfy the first fair use factor. Using copyrighted music to make new music will likely be held as supplanting the copyrighted works rather than transforming them unless some new purpose can be shown. AI developers may be able to claim fair use on the grounds that they are using existing music for the new purpose of training AI and creating a tool to perform a task.⁵⁶ By contrast, musicians who use copyrighted music for the purposes of making their own songs may not meet the criteria of "serv[ing] a purpose distinct from the original" required under the first factor.⁵⁷ This is particularly true should the music serve any commercial purpose, as then both relevant considerations under the first factor would weigh against fair use.⁵⁸

2. Second Factor: The Nature of the Copyrighted Work

The second factor is primarily concerned with whether the copyrighted work serves a creative rather than factual or utilitarian purpose and whether the copyrighted work has been published or not.⁵⁹ Creative works are generally given more protection than factual or utilitarian works, being closer to the core

⁵¹ *Id.* at 1286.

⁵² *See id.* at 1282 ("The first fair use factor would not weigh in favor of a commercial remix of Prince's 'Purple Rain' just because the remix added new expression or had a different aesthetic.").

⁵³ *See id.* at 1275 (citing *Campbell*, 510 U.S. at 580-583) (discussing the secondary song at issue in the *Campbell* case and noting that changes to the lyrics, music, and even genre of the original song were not enough by themselves for a finding of fair use).

⁵⁴ *Campbell*, 510 U.S. at 572-73.

⁵⁵ *Id.* at 574 ("It is uncontested . . . [that the] song would be an infringement . . . but for a finding of fair use through parody.").

⁵⁶ Paul S. Hunter, *Is Training AI Fair Use?*, MONDAQ (June 21, 2023), <https://www.mondaq.com/unitedstates/copyright/1332536/is-training-ai-fair-use>.

⁵⁷ *Andy Warhol*, 143 S. Ct. at 1282.

⁵⁸ *Id.* at 1280.

⁵⁹ *See* 4 MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT § 13F.06[A]-[B].

of what copyright law intends to protect.⁶⁰ Unpublished works are also given greater protection than published works, with a work being unpublished favoring the plaintiff and a work being published favoring the defendant.⁶¹

Factor two is likely of little relevance here. Musical works are clearly creative in nature, and only works that have been published can be used in machine learning. Therefore, the factor is unlikely to weigh heavily in how courts will view AI-generated music.

3. *Third Factor: The Substantiality of the Portion Used*

The third factor relates to how much of the work the defendant used in relation to the whole of the original work.⁶² Courts are to focus not only on how substantial the taking was quantitatively, but also whether the defendant used a qualitatively significant portion of the underlying work.⁶³ A copying that is qualitatively and quantitatively insignificant will weigh in favor of fair use.⁶⁴ No bright-line test determines when a taking is quantitatively significant, and juries may be required to determine when a taking is qualitatively significant.⁶⁵ Analysis under factor three, like the other fair use factors, is thus very fact-specific and will have to be evaluated on a case-by-case basis.

Generally speaking, “[i]f the amount copied is very slight in relation to the work as a whole, the third factor might strongly favor the alleged infringer, but that will not always be the case.”⁶⁶ Factor three could potentially weigh strongly in favor of much AI-generated music if the final output features only marginal traces from inputted works. Analysis under factor three may hinge on whether courts choose to focus on only the final output or whether courts will emphasize any intermediate copying done, as will be discussed below.

4. *Fourth Factor: The Effect on the Market*

The fourth factor—evaluating the market impact of the use—has been declared “the single most important element of fair use.”⁶⁷ Though the primacy of the factor has been questioned in recent years,⁶⁸ empirical studies have shown that it remains the factor with the closest correlation to the outcome of a case.⁶⁹

⁶⁰ See *id.* § 13F.06[A].

⁶¹ *Id.* § 13F.06[B].

⁶² *Id.* § 13F.07.

⁶³ *Id.*

⁶⁴ *Id.*

⁶⁵ *Id.* § 13F.07[A].

⁶⁶ *Ringgold v. Black Ent. Television*, 126 F.3d 70, 76 (2d Cir. 1997) (citation omitted).

⁶⁷ *Harper & Row Publishers, Inc. v. Nation Enters.*, 471 U.S. 539, 566 (1985).

⁶⁸ 4 NIMMER & NIMMER, *supra* note 59, § 13F.08.

⁶⁹ See *id.* (“[T]he correlation between a court’s assessment of factor four and its ultimate fair use determination factor is stronger than that of any other factor.”).

Factor four is primarily concerned with whether the secondary use serves as a market substitution for the original work.⁷⁰ Fourth factor analysis need not be limited to only the use in question but can also consider the potential market effect should the secondary use become widespread.⁷¹ Courts thus reject any de minimis defense as it relates to a single use's impact on the market.⁷² The analysis must consider both harm to the original and harm to the market for derivative works.⁷³ The essential inquiry under factor four "focuses on whether the copy brings to the marketplace a competing substitute for the original, or its derivative."⁷⁴

Every fair use involves at least some harm to the market for the original, if only due to the loss of royalties from the secondary user free riding on the work.⁷⁵ Therefore, the market impairment must be "reasonably substantial,"⁷⁶ threatening to "deprive . . . the . . . holder of significant revenues."⁷⁷

Market impact is likely to have particular significance when considering music. The music industry was hit hard by the advent of file sharing, seeing significant declines in revenue in the 2000s.⁷⁸ From 1999 to 2009, the industry's revenue declined from \$14.6 billion to \$6.3 billion.⁷⁹ Fortunes have reversed in recent years, with global music sales rising in each of the past eight years.⁸⁰

There is concern that the emergence of AI-generated music could reverse this recent change of fortune, however.⁸¹ There is already some evidence that AI-

⁷⁰ See *id.* ("The primary consideration under factor four is whether defendant's utilization functions as a market substitute for plaintiff's work.")

⁷¹ See *id.*; see also *Harper & Row Publishers*, 471 U.S. at 568 ("More important, to negate fair use one need only show that if the challenged use 'should become widespread, it would adversely affect the *potential* market for the copyrighted work.'" (quoting *Sony Corp. of Am. v. Universal City Studios, Inc.* 464 U.S. 417, 451 (1984))).

⁷² 4 NIMMER & NIMMER, *supra* note 59, §13F.08[2].

⁷³ *Harper & Row Publishers*, 471 U.S. at 568 (citation omitted).

⁷⁴ *Authors Guild v. Google, Inc.*, 804 F.3d 202, 223 (2d Cir. 2015), *cert. denied* 578 U.S. 941 (2016).

⁷⁵ Leval, *supra* note 32, at 1124.

⁷⁶ *Id.* at 1125.

⁷⁷ *Authors Guild*, 804 F.3d at 223.

⁷⁸ See Eamonn Forde, *Oversharing: How Napster Nearly Killed the Music Industry*, GUARDIAN (Aug. 25, 2020, 11:30 AM), <https://www.theguardian.com/music/2019/may/31> (describing the impact that the file sharing service Napster had on music industry profits).

⁷⁹ See David Goldman, *Music's Lost Decade: Sales Cut in Half*, CNN: MONEY (Feb. 3, 2010, 9:52 AM), <https://money.cnn.com/2010/02/02/news> (detailing the struggles that the music industry has faced after the emergence of free file sharing).

⁸⁰ Richard Smirke, *IFPI Global Report 2023: Music Revenues Climb 9% to \$26.2 Billion*, BILLBOARD (Mar. 31, 2023), <https://www.billboard.com/pro/ifpi-global-report-2023-music-business-revenue-market-share/>.

⁸¹ Sunray, *supra* note 1, at 212-213 ("[I]t would be shortsighted to assume that AI will have any less disruptive of an effect on the music industry than digital sampling did in the 1990s and beyond.").

generated music is diluting the share of streams for major labels on platforms like Spotify.⁸²

The music industry has raised alarms about the potential impact that AI-generated music will have on the industry, citing concerns of “content oversupply” and a market flooded with AI works.⁸³ AI can be used to generate music in seconds, allowing for a considerably streamlined creative process.⁸⁴ The relative ease of creating AI music threatens to unleash a deluge of new music on an already highly saturated market. There are over 100 million songs on major streaming platforms already,⁸⁵ and Spotify alone features over 8 million artists.⁸⁶ The advent of generative AI likely means that the music market will become even more crowded.

As AI-generated music becomes more common, it will increasingly compete with other music as a direct substitute in the marketplace.⁸⁷ While the realities of the music market make AI’s ultimate impact unclear, the fourth factor is certain to feature prominently in any fair use analysis.

B. THE DE MINIMIS DOCTRINE

Another common defense to infringement claims—and one that is potentially very relevant to the issue of AI-generated music—is the de minimis defense. The de minimis defense is based on the principle that the law does not concern itself with trivial copying.⁸⁸ To establish copyright infringement under this principle, a plaintiff must show that the alleged copying was greater than de

⁸² See David Salazar, *The Music Industry is Preparing for War Over AI-Generated Songs – and Streaming Services are the First Battleground*, FAST COMPANY (July 16, 2023, 9:00 AM), <https://www.fastcompany.com/90911297/generative-ai-music-industry-streaming-services> (describing how AI-generated songs on streaming platforms may erode major record labels’ share of streams).

⁸³ Tim Ingham, *Universal Music Group: Yes, Ripping Off Drake’s Voice for that AI Track Was Illegal – and We’re Certain of it*, MUSIC BUS. WORLDWIDE (Apr. 27, 2023), <https://www.musicbusinessworldwide.com/universal-music-group-ripping-off-drakes-voice-is-against-the-law/>.

⁸⁴ *AI in Music Production: Enhancing Human Creativity or Replacing it?*, MUSICIANS INST.: IN THE KNOW (May 24, 2023), <https://www.mi.edu/in-the-know/ai-music-production-enhancing-human-creativity-replacing/>.

⁸⁵ Amanda Hoover, *AI-Generated Music is About to Flood Streaming Platforms*, WIRED (Apr. 17, 2023, 7:00 AM), <https://www.wired.com/story/ai-generated-music-streaming-services-copyright/>.

⁸⁶ Tim Ingham, *Nearly 80% of Artists on Spotify Have Fewer Than 50 Monthly Listeners*, MUSIC BUS. WORLDWIDE (Apr. 25, 2022), <https://www.musicbusinessworldwide.com/over-75-of-artists-on-spotify-have-fewer-than-50-monthly-listeners/>.

⁸⁷ Sonia Sulakian, *Protecting the Artist: Licensing in an AI-Generated Music Market*, 39 ENT. & SPORTS L. 137, 138 (2022) (“Furthermore, an AI musical piece would compete as a direct substitute for the original composition (after all, there’s only one Billboard #1 spot).”).

⁸⁸ VMG Salsoul, LLC v. Ciccone, 824 F.3d 871, 877 (9th Cir. 2016) (quoting Newton v. Diamond, 388 F.3d 1189, 1193 (9th Cir. 2004)).

minimis.⁸⁹ The de minimis defense does not depend upon any particular statute but follows from the essential requirement of copyright that copying must be substantial to be actionable.⁹⁰

Traditionally, the fair use doctrine simply consisted of asking whether only an insignificant portion of a copyrighted work had been used.⁹¹ Today, if a use is found to be de minimis, then no fair use analysis is necessary and an infringement claim can be rejected on that ground alone.⁹² The doctrine has been applied to the issue of music copyright, with the Ninth Circuit holding that “use is de minimis only if the average audience would not recognize the appropriation.”⁹³

The de minimis concept frequently appears in cases involving the digital sampling of music.⁹⁴ In *Newton v. Diamond*, jazz composer James W. Newton sued the hip hop group Beastie Boys over their unlicensed use of his composition “Choir.”⁹⁵ The group received a license to sample the actual sound recording of the composition, but not the underlying composition itself.⁹⁶ The opening six seconds of the work were sampled and then looped throughout the song “Pass the Mic.”⁹⁷ The Ninth Circuit held that the sampling of the composition was de minimis and therefore not actionable.⁹⁸ Under the Ninth Circuit’s standard, only the substantial copying of an original work incurs legal consequences.⁹⁹

There is a split in the circuits over the availability of the de minimis defense as it applies to sound recordings.¹⁰⁰ In *Bridgeport Music Inc. v. Dimension Films*, the Sixth Circuit rejected the de minimis defense as applied to sound recordings and

⁸⁹ *Id.*

⁹⁰ 4 NIMMER & NIMMER, *supra* note 59, § 13.03.

⁹¹ *Merideth Corp. v. Harper & Row Publishers, Inc.*, 378 F. Supp. 686, 689 (S.D.N.Y. 1974) (“Originally ‘fair use’ was based on the assumption that the user might copy an insignificant portion of protected material . . .”).

⁹² See *Sandoval v. New Line Cinema Corp.*, 147 F.3d 215, 217 (2d Cir. 1998) (“[W]here . . . use . . . is de minimis . . . a determination of a fair use claim is unnecessary.”).

⁹³ *VMG Salsoul*, 824 F.3d at 878 (quoting *Newton*, 388 F.3d at 1193); see also *Fischer v. Dees*, 794 F.2d 432, 434 n.2 (9th Cir. 1986) (“As a rule, a taking is considered *de minimis* only if it is so meager and fragmentary that the average audience would not recognize the appropriation.”).

⁹⁴ See *Sunray*, *supra* note 1, at 217 (“Further, de minimis analyses of musical work appropriations . . . have become increasingly common in light of digital sampling[] . . .”).

⁹⁵ 388 F.3d at 1190.

⁹⁶ *Id.*

⁹⁷ *Id.* at 1192.

⁹⁸ *Id.*

⁹⁹ See *id.* at 1193 (“This means that even where the fact of copying is conceded, no legal consequences will follow from that fact unless the copying is substantial.”).

¹⁰⁰ See Adam Baldwin, *Music Sampling and the De Minimis Defense: A Copyright Law Standard*, 19 UIC REV. INTELL. PROP. L. 310, 317 (2020) (describing the split between the Sixth and Ninth Circuits over the availability of the de minimis defense for sound recordings).

held that no part of a sound recording can be sampled without permission.¹⁰¹ The case involved hip hop group N.W.A.'s unlicensed sampling of a four-second guitar riff from a Funkadelic song for the soundtrack of a film distributed by the defendants.¹⁰² The district court granted summary judgment to the defendants on the grounds that the use was de minimis and therefore not actionable.¹⁰³

The Sixth Circuit reversed and instead established a bright-line test for digital sampling: either “[g]et a license or do not sample.”¹⁰⁴ The court reasoned that this standard—no de minimis defense for sound recordings—follows directly from the Copyright Act of 1976.¹⁰⁵ Particular emphasis was placed on 17 U.S.C. § 114(b) and its interplay with 17 U.S.C. § 106.¹⁰⁶ Section 106 of the copyright law grants the copyright holder exclusive rights to reproduce the work or prepare derivatives, among other things.¹⁰⁷

Section 114(b) limits the rights bestowed by Section 106, clarifying that they “do not extend to the making or duplication of another sound recording that consists entirely of an independent fixation of other sounds.”¹⁰⁸ The court in *Bridgeport* reasoned that this insertion of the word “entirely” in Section 114(b) indicates that only the copyright holder may make any direct use of the sound recording itself.¹⁰⁹

The Sixth Circuit provided three justifications for adopting this interpretation of the copyright law.¹¹⁰ The first reason is that the bright-line approach is easy to enforce, simply asking whether a particular sample was licensed or not.¹¹¹ Second, market forces will prevent exorbitant licensing fees as artists have the option of recreating a duplicate sound for free, keeping prices in check.¹¹² Third, sampling is always intentional and done with the knowledge that one is taking another’s work.¹¹³

¹⁰¹ See *Bridgeport Music, Inc. v. Dimension Films*, 410 F.3d 792, 800 (6th Cir. 2005) (“If you cannot pirate the whole sound recording, can you ‘lift’ or ‘sample’ something less than the whole[?] Our answer to that question is in the negative.”).

¹⁰² *Id.* at 795-796.

¹⁰³ *Id.* at 795.

¹⁰⁴ *Id.* at 801.

¹⁰⁵ See *id.* (“We think this result is dictated by the applicable statute.”).

¹⁰⁶ See *id.* at 799–801.

¹⁰⁷ 17 U.S.C. § 106.

¹⁰⁸ 17 U.S.C. § 114(b).

¹⁰⁹ *Bridgeport*, 410 F.3d at 801 (“[A] sound recording owner has the exclusive right to ‘sample’ his own recording.”).

¹¹⁰ *Id.*

¹¹¹ *Id.*

¹¹² See *id.* (“The sound recording copyright holder cannot exact a license fee greater than what it would cost the person seeking the license to just duplicate the sample in the course of making the new recording.”).

¹¹³ *Id.*

The court in *Bridgeport* argued that the sampling of even small portions of a sound recording constitutes the taking of something valuable.¹¹⁴ The court reasoned that it is not the song itself that is relevant to the copyright holder, but the actual sounds fixed in some medium.¹¹⁵ The court thus held that the sampling of fixed sounds constitutes “a physical taking rather than an intellectual one.”¹¹⁶

The Sixth Circuit’s ruling in *Bridgeport* has been widely criticized, being rejected by numerous district courts for a variety of reasons.¹¹⁷ The Ninth Circuit formally split with the Sixth Circuit over its rejection of the de minimis defense in *VMG Salsoul v. Ciccone*.¹¹⁸

In *VMG Salsoul*, the Ninth Circuit dealt with the sampling of a 0.23-second horn blast from the song “Love Break.”¹¹⁹ The sample was modified and then used in the Madonna song “Vogue,” which garnered considerable commercial success.¹²⁰ Unlike the case in *Newton*, the Ninth Circuit here dealt with sampling of the actual sound recording itself rather than the underlying composition.¹²¹ The court affirmed that the de minimis exception applied to the sample, holding that a general audience would not be able to recognize that the sample came from “Love Break” as a matter of law.¹²²

The Ninth Circuit’s decision to split with the Sixth was not made lightly, with the court noting that circuit splits are “particularly troublesome in the realm of copyright” law.¹²³ Nevertheless, the Ninth Circuit felt that the widespread rejection of the Sixth Circuit’s standard diminishes the consequences of creating a circuit split.¹²⁴

The court argued that “as a practical matter, a deep split among the federal courts *already exists*.”¹²⁵ and noted the significant criticism of the *Bridgeport* decision by Nimmer’s leading copyright treatise.¹²⁶ The treatise calls the Sixth Circuit’s

¹¹⁴ *Id.* at 801-802.

¹¹⁵ *Id.* at 802.

¹¹⁶ *Id.*

¹¹⁷ Baldwin, *supra* note 100, at 322; *see also* VMG Salsoul, LLC v. Ciccone, 824 F.3d 871, 886 (9th Cir. 2016) (“Since the Sixth Circuit decided *Bridgeport*, almost every district court not bound by that decision has declined to apply *Bridgeport*’s rule.”).

¹¹⁸ *VMG Salsoul*, 824 F.3d at 886 (“Because we conclude that Congress intended to maintain the ‘de minimis’ exception for copyrights . . . we take the unusual step of creating a circuit split by disagreeing with the Sixth Circuit’s contrary holding in *Bridgeport*.”).

¹¹⁹ *Id.* at 874.

¹²⁰ *Id.*

¹²¹ *Id.* at 877-78.

¹²² *Id.* at 874.

¹²³ *Id.* at 886 (quoting *Seven Arts Filmed Ent. Ltd. v. Content Media Corp.*, 733 F.3d 1251, 1256 (9th Cir. 2013)).

¹²⁴ *VMG Salsoul*, 824 F.3d at 874.

¹²⁵ *Id.*

¹²⁶ *See id.* (“Nimmer devotes many pages to explaining why the Sixth Circuit’s opinion is, in no uncertain terms, wrong.”).

reasoning fallacious and notes that substantial similarity is a basic requirement for an infringement claim.¹²⁷ Given the widespread rejection and harsh criticism of the Sixth Circuit's standard, it appears unlikely that it will be adopted by other courts outside of that circuit.

III. ANALYSIS

A. AI-GENERATED MUSIC & DE MINIMIS DEFENSE

One plausible defense for AI-generated music is that the use of copyrighted material is de minimis and should be held to be non-infringing as a matter of law. Of course, this defense is very fact-specific and will not extend to all instances of AI-generated music. Many musicians making use of AI to generate sounds will however likely be able to satisfy the de minimis test as articulated in *VMG Salsoul*. While the de minimis defense for the use of sound recordings may remain unavailable inside the Sixth Circuit absent an overturning of *Bridgeport* or a contrary Supreme Court decision, it remains a viable defense in other jurisdictions.

As described above, the test for de minimis sampling in music is to ask whether the typical audience could recognize that a sample in a song came from another source.¹²⁸ Unless an AI-generated song is specifically aimed at imitating or parodying an existing artist, it is highly probable that the typical listener could not tell which songs or artists the AI was trained on.

Existing AI music generators train on thousands of audio samples, generating new sounds after training on a vast library of prior recordings. NSynth, a popular audio-generating AI, was trained on a library of over 300,000 musical notes.¹²⁹ Even simple machine learning algorithms can require thousands of samples to accomplish their goals.¹³⁰ Any given copyrighted work used in a training set is therefore unlikely to have played any significant role in the creation of the final product or to appear in any recognizable form in the ultimate work. When the test is whether an average audience would recognize the musical appropriation,

¹²⁷ See 4 NIMMER & NIMMER, *supra* note 59, §13.03[A][2][b] (“By validating entire sound-alike recordings, [section 114(b)] contains no implication that partial sound duplications are to be treated any differently from . . . the traditional standards of copyright law—which . . . include[s] the requirement of substantial similarity.”).

¹²⁸ *VMG Salsoul*, 824 F.3d at 879.

¹²⁹ *The NSynth Dataset*, MAGENTA (Apr. 5, 2017), <https://magenta.tensorflow.org/datasets/nsynth>.

¹³⁰ See Wojciech Marusz, *How Much Data Does AI Need? What to Do when You Have Limited Datasets?*, NEXOCODE (Feb. 6, 2022), <https://nexocode.com/blog/posts/ai-data-needs-for-training-and-data-augmentation-techniques/> (“1,000 samples per category are considered a minimum for simplest machine learning algorithms, but it won’t be enough to solve the problem in most cases.”).

most AI songs are likely to pass scrutiny. Under the *VMG Salsoul* standard then, AI-generated music can be found non-infringing even absent any fair use.

One potential obstacle for the availability of the de minimis defense for AI music generators is the concept of intermediate copying. “Intermediate copying” refers to the reproduction of a copyrighted work in one stage of the process of creating a new final product.¹³¹ It has been argued that the machine learning process entails substantial intermediate reproduction of copyrighted works in a violation of the Copyright Act.¹³² The WaveNet autoencoder, for instance, involves the encoding of raw audio and feeding this input through a decoder, reproducing the input.¹³³ The construction of an AI generator’s training set thus involves substantial reproduction of sound recordings in a potentially infringing way.¹³⁴ Many have identified this as a likely framework for evaluating infringement claims involving AI.¹³⁵

The Ninth Circuit addressed intermediate copying in the landmark case of *Sega Enters. v. Accolade*. There, the defendants had reproduced the entire object code of certain Sega games as an intermediate step in making their own games compatible with Sega’s console.¹³⁶ The court held that intermediate copying can support an infringement claim even where the final product of the copying is not substantially similar to the copied work.¹³⁷

A finding of infringement does not depend on “what stage of the alleged infringer’s work the unauthorized copies represent.”¹³⁸ This is because the Copyright Act grants to the copyright holder an exclusive right to reproduce the work that is distinct from the distribution right.¹³⁹ Given the autoencoders reproduction of input data during the construction of their training set, AI-generated music potentially involves significant infringement of the reproduction right.¹⁴⁰

¹³¹ Eric Sunray, *Train in Vain: A Theoretical Assessment of Intermediate Copying and Fair Use in Machine AI Music*, 13 AM. UNIV. INTELL. PROP. BRIEF 1, 3-4 (2021).

¹³² See *id.* at 1 (“[T]here has been little debate over the implications of using raw audio to train generative models, which necessarily entails pervasive [intermediate] copying . . .”).

¹³³ Engel et al., *supra* note 15, at 1070.

¹³⁴ Sunray, *supra* note 131, at 8.

¹³⁵ See Michael Justus, *Five Takeaways from Bellwether AI Copyright Case*, LAW360 (Oct. 2, 2023), <https://www.law360.com/articles/1727143/5-takeaways-from-bellwether-ai-copyright-case> (noting that some commentators believe that intermediate copying will drive analysis of AI copyright infringement claims).

¹³⁶ *Sega Enters. v. Accolade, Inc.*, 977 F.2d 1510, 1514–15 (9th Cir. 1992).

¹³⁷ See *id.* at 1517-1519 (rejecting an argument that “intermediate copying does not infringe . . . unless the end product of the copying is substantially similar to the copyrighted work.”).

¹³⁸ *Id.* at 1518.

¹³⁹ See Terril Lewis, *Reverse Engineering of Software: An Assessment of the Legality of Intermediate Copying*, 20 LOY. L.A. ENT. L. REV. 561, 569 (2000) (describing the different rights contained in 17 U.S.C. § 106).

¹⁴⁰ Sunray, *supra* note 131, at 8.

If courts analyze AI-generated music through the lens of intermediate copying, then the de minimis defense will not be available even if the final work is entirely distinct from any input. The Ninth Circuit in *Bell v. Wilmott Storage Services, LLC* clarified that the de minimis doctrine is to be applied to “the amount or substantiality of the copying—and not the extent of the defendant's use of the infringing work”¹⁴¹ Thus, the de minimis defense is unavailable to the defendant who copies significant portions of a copyrighted work, even where their final product makes little use of the work.¹⁴²

Intermediate copying presents a clear obstacle for the availability of the de minimis defense. Should plaintiffs successfully establish that defendants reproduced significant portions of their music during the training process, courts such as the Ninth Circuit may decline to apply the *VMG Saksoul* test. Under the reasoning of *Bell* and *Accolade*, the intermediate reproduction of significant portions of music possibly renders the uniqueness of a defendant’s final product legally irrelevant when examining infringement.

It is not clear, however, that courts will analyze AI-generated music through the intermediate copying lens. The doctrine is typically applied to software cases, with some district courts questioning its applicability in other contexts where the final work is dissimilar from the intermediately copied work.¹⁴³ While the doctrine has been applied outside of software cases,¹⁴⁴ the overall trend has been to confine the concept to software.¹⁴⁵ The Ninth Circuit itself has held that intermediate copying at some stage of production will not automatically lead to a finding of infringement for a final product that is ultimately unique.¹⁴⁶

In *See v. Durang*, the court dealt with alleged literary copying and explicitly stated that “[c]opying deleted or so disguised as to be unrecognizable is not copying.”¹⁴⁷ *See* does not limit the availability for bringing claims specifically

¹⁴¹ *Bell v. Wilmott Storage Servs., LLC*, 12 F.4th 1065, 1076 (9th Cir. 2021).

¹⁴² *See id.* (stating that the de minimis defense is unavailable once infringement has been established by showing substantial copying).

¹⁴³ *See Esplanade Prods., Inc. v. Walt Disney Co.*, No. CV 17-02185-MWF(JCx), 2017 WL 5636027, at *18 (C.D. Cal. Nov. 8, 2017) (“The Court is unable to locate a single case in which the *Sega* ‘intermediate copying’ theory has been extended to . . . the copying of non-software-related work . . . in . . . creating a new work that is ultimately dissimilar to the plaintiff’s work.”).

¹⁴⁴ *See Walt Disney Prods. v. Filmation Assocs.*, 628 F. Supp. 871, 876 (C.D. Cal. 1986) (holding that reproduction of copyrighted materials as an intermediate step in producing a film is actionable).

¹⁴⁵ *See Cline v. Reetz-Laiolo*, 329 F. Supp. 3d 1000, 1036 (N.D. Cal. 2018) (“[I]ntermediate copying is generally limited to cases involving software.”).

¹⁴⁶ *See v. Durang*, 711 F.2d 141, 142 (9th Cir. 1983).

¹⁴⁷ *Id.*

alleging copying at an intermediate stage, but it does articulate a standard that is arguably better suited for music copyright.¹⁴⁸

The Wyoming district court in *Madrid v. Chronicle Books* similarly refused to entertain a claim of potential intermediate copying of literature where there was no substantial similarity between the final works.¹⁴⁹ There, the plaintiff alleged that their poem had been misappropriated and used in the development of a film despite no showing of substantial similarity.¹⁵⁰ In granting summary judgment to the defendants, the court declined to allow the plaintiff access to discovery to show intermediate copying where the two final works plainly lacked substantial similarity.¹⁵¹ Intermediate copying, the court held, does not obviate the basic requirement of a showing of substantial similarity in order for a finding of infringement.¹⁵² While the court did not explicitly limit the concept to the realm of software, it noted that the nature of software makes intermediate copying uniquely relevant in that context.¹⁵³

Contrary to what some commentators have suggested,¹⁵⁴ it is not clear that courts will extend the intermediate copying framework beyond the software context to disputes over musical works. Indeed, traditional digital sampling itself involves the production of intermediate copies¹⁵⁵ yet the concept does not appear to have played any significant role in digital sampling cases even in the Ninth Circuit. As a question of policy, it is not obvious why AI should be treated differently than existing samplers. Samplers also capture and store existing audio recordings as a step in the creation of something new.¹⁵⁶ While plaintiffs would be wise to specifically allege copying at the intermediate stage, courts should decline to stymie creative uses of AI by applying intermediate copying outside its usual software context.

Whatever the ultimate significance of intermediate copying will be in AI-related litigation, the concept has already appeared in some pending cases. In a case currently before the Delaware district court, defendants who utilized AI to construct a legal research platform have argued that intermediate copying

¹⁴⁸ *Sega Enters. Ltd. v. Accolade*, 977 F.2d 1510, 1519 (9th Cir. 1992) (noting that cases such as *See* do not limit the intermediate copying doctrine where infringement is alleged at the intermediate stage as opposed to the final stage).

¹⁴⁹ *Madrid v. Chronicle Books*, 209 F. Supp. 2d 1227, 1236 (D. Wyo. 2002).

¹⁵⁰ *Id.* at 1234–36.

¹⁵¹ *Id.* at 1244.

¹⁵² *Id.* at 1236.

¹⁵³ *Id.* (“In the computer program cases, bits of code can be found within [infringing programs]. This is copying.”)

¹⁵⁴ Sunray, *supra* note 131.

¹⁵⁵ Szymanski, *supra* note 5, at 274.

¹⁵⁶ See *The Sampler – A Guide to Sampling in Music*, SOUNDTRAP (Mar. 29, 2023), <https://www.soundtrap.com/content/blog/sampler-guide-to-sampling> (describing how audio samplers capture existing sound recordings to make new music).

caselaw sanctions their actions as fair use.¹⁵⁷ The court has noted that “verbatim intermediate copying has consistently been upheld as fair use if the copy is ‘not reveal[ed] . . . to the public.’”¹⁵⁸ Should courts analyze AI-generated music at the intermediate stage, fair use will thus be the most obvious defense available.

B. FAIR USE & AI

Fair use claims must be evaluated on an individualized basis, and whether AI-generated music constitutes fair use of copyrighted material will depend on the unique facts of each case.¹⁵⁹ Nevertheless, most instances of AI will likely struggle to satisfy key fair use factors. Courts may hold that using existing music to create new music is not sufficiently transformative and that any output merely supplants the original in the marketplace.

The first fair use factor, the purpose and nature of the use, presents clear problems for AI-generated music’s fair use claim in the wake of *Andy Warhol*. Mere artistic and aesthetic alterations were held to not be transformative and a heavy emphasis was placed on whether the secondary work serves some *further purpose* that the original does not.¹⁶⁰ Two songs—even when aesthetically and musically disparate—would appear to serve the same purpose under the *Andy Warhol* standard.¹⁶¹ A successful invocation of fair use may hinge on whether defendants can point to some transformation beyond artistic alterations, at least as far as the first factor is concerned.

One potential argument for the first factor weighing in favor of fair use is to analogize AI-generated music to Google’s use of copyrighted books in *Authors Guild v. Google*. There, Google had copied entire books to create a literary search database.¹⁶² Despite copying entire books to do so, the Second Circuit found Google’s use to be transformative as it involved the creation of a search function.¹⁶³

AI music generators may argue that while the AI is ultimately used for making music, the actual training process at issue is transformative in that it is done to create a database of sounds from which new music can be created.¹⁶⁴ Rather

¹⁵⁷ Thomson Reuters Enter. Ctr. GmbH v. Ross Intel. Inc., No. 1:20-cv-613-SB, 2023 U.S. Dist. LEXIS 170155, at *22–25 (D. Del. Sept. 25, 2023).

¹⁵⁸ *Id.* at *22 (quoting *Authors Guild v. Google, Inc.*, 804 F.3d 202, 221 (2d Cir. 2015)).

¹⁵⁹ *Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569, 577 (1994) (stating that fair use analysis “calls for [a] case-by-case analysis”).

¹⁶⁰ See *Andy Warhol Found. for the Visual Arts v. Goldsmith*, 143 S. Ct. 1258, 1275–1277 (2023).

¹⁶¹ *Id.* at 1275 (discussing how aesthetic and musical differences were not enough for a finding of transformativity in *Campbell*).

¹⁶² *Authors Guild*, 804 F.3d at 217.

¹⁶³ *Id.* at 216.

¹⁶⁴ See Hunter, *supra* note 56 (arguing that training AI is fair use as “the purpose and character of the use is to teach the AI to perform a particular task.”).

than focusing on the music itself, defendants can try and argue that they are really creating a tool for use in composing future music much in the way that Google copied books to create a search tool. Any commercial purpose would not be dispositive should a court decide to extend this reasoning to AI-generated music.¹⁶⁵ This argument, however, is likely weak because the final product would still be music with the potential to supplant the original in the marketplace.

AI-generated music's impact on the market will likely be an important factor. The vast majority of music generated by AI likely will not have much of a direct impact on the market for original works when considered individually. Large swaths of the music now available languish in obscurity with no real impact on the broader market.¹⁶⁶ In 2021, Spotify reported that only 1.73 million of the 8 million artists on its platform had more than fifty listeners per month.¹⁶⁷

One of the primary benefits touted in support of AI-generated music is its potential for democratizing the music-making process, allowing people to produce sophisticated music without traditional training.¹⁶⁸ Given the realities of the market for music, it is probable that a significant portion of the music created by these layman composers will fail to catch the attention of any sizable portion of music listeners. Music today is primarily consumed through streaming,¹⁶⁹ and the top one percent of artists are responsible for ninety percent of streams.¹⁷⁰ It is thus unlikely that most AI-generated music, when considered individually, will have a significant market impact.

However small the impact of the individual AI musician may be on the broader market though, courts are not to confine their assessment only to the individual's use.¹⁷¹ Instead, courts must consider the potential effect on the market should the copying at issue become widespread.¹⁷² This will be an individualized review,¹⁷³ with the outcome possibly being dependent on how

¹⁶⁵ See *Authors Guild*, 804 F.3d at 218 (describing commercial use as “not conclusive” but merely another factor to be considered (quoting *Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569, 585 (1994))).

¹⁶⁶ Ingham, *supra* note 86.

¹⁶⁷ *Id.*

¹⁶⁸ See Andrew R. Chow, ‘There’s a Wide-Open Horizon of Possibility.’ *Musicians are Using AI to Create Otherwise Impossible New Songs*, TIME (Feb. 5, 2020, 2:02 PM), <https://time.com/5774723/ai-music/> (describing the use of AI to help non-musicians create music).

¹⁶⁹ Athul Alexander, *Infographic: How Does the World Consume Music?*, WORLD ECON. FORUM, (Feb. 9, 2023) <https://www.weforum.org/agenda/2023/02/world-consume-music-infographic/>.

¹⁷⁰ Emily Blake, *Data Shows 90 Percent of Streams Go to the Top 1 Percent of Artists*, ROLLING STONE (Sept. 9, 2020), <https://www.rollingstone.com/pro/news/top-1-percent-streaming-1055005/>.

¹⁷¹ *Campbell v. Acuff-Rose Music, Inc.* 510 U.S. 569, 590 (1994).

¹⁷² *Id.*

¹⁷³ See *id.* at 577 (describing the process of fair use review and how it “calls for case-by-case analysis.”).

successful the artist is. Courts may take a harsher view when sophisticated musicians with an appreciable audience make use of copyrighted works through AI than when novices with minimal reach do so.

As courts will need to look at not only the individual defendant's use but also the impact of the defendant's conduct should it become widespread, factor four may also weigh against fair use. The music market's deep saturation and the failure of most music released to make any identifiable impact on the market, however, makes the actual impact of even widespread copying unclear.¹⁷⁴ Nevertheless, for music that is even remotely commercially successful, the requirement that courts examine market impact in the aggregate will pose a challenge for fair use claims.

Whether the third fair use factor weighs in favor of a fair use finding for AI-generated music may hinge on which level of copying the court focuses on. Should courts decide to analyze the final product rather than any intermediate copying, the third fair use factor alone could very well be enough for a fair use finding despite the other factors.¹⁷⁵ If the intermediate copying framework is applied, then the third factor may weigh heavily in favor of a finding of no fair use as AI-generated music could be understood to mean copying the entire sound recording.¹⁷⁶

On the other hand, in *Authors Guild v. Google Books*, the Second Circuit found that the third fair use factor could successfully be claimed by Google despite complete copying of books.¹⁷⁷ This was because “[w]hile Google makes an unauthorized digital copy of the entire book, it does not reveal that digital copy to the public.”¹⁷⁸ For the Second Circuit, the relevant inquiry in some cases is not so much the amount used in copying, but the “amount and substantiality” made accessible to the public.¹⁷⁹ The court noted the close interplay between the third and fourth factors, with copying that does not reveal the competing work to the public being less likely to be viewed as a substitute for the original.¹⁸⁰ Should courts apply this reasoning in the context of AI-generated music, it could defeat an intermediate copying claim. Where AI-generated music ultimately sounds distinct from any of its individual training inputs, it does not reveal those inputs to the market.

¹⁷⁴ Ingham, *supra* note 86.

¹⁷⁵ See Leval, *supra* note 32, at 1110 (noting that fair use factors are not scorecards where the winner of the most factors will win the case).

¹⁷⁶ Sunray, *supra* note 131, at 28 (“AI music generators require large corpora of training data to produce compelling outputs. This means that entire sound recordings are generally copied to capture the largest possible data distribution.”).

¹⁷⁷ *Authors Guild v. Google, Inc.*, 804 F.3d 202, 221 (2d Cir. 2015).

¹⁷⁸ *Id.*

¹⁷⁹ See *id.* at 222 (“What matters in such cases is . . . the amount and substantiality of *what is thereby made accessible to a public . . .*” (citing *Authors Guild v. HathiTrust*, 755 F.3d 87 (2d Cir. 2014))).

¹⁸⁰ *Id.*

Yet the situation in *Authors Guild*—where Google reproduced copyrighted books to create a search engine¹⁸¹—arguably differs from the context of the music market. Google produced a search tool rather than competing books, while AI-generated music directly competes with its inputs for listeners' attention. Further, the case in *Authors Guild* involved transformative use likely not present here.¹⁸² Nevertheless, *Authors Guild* shows that complete copying at some intermediate stage does not automatically rule out a finding of fair use under the third factor.

AI-generated music's fair use viability under the four statutory fair use factors is thus uncertain. Factors one, three and four all present potential difficulties. While the third factor may provide the strongest fair use justification when a generator's output does not reveal its inputs, there is the potential for the intermediate copying doctrine to complicate things.¹⁸³ A court focusing on intermediate copying may also find the third factor to be entirely inconsequential, undermining its potential to shift the scale.¹⁸⁴

Fair use is not, however, to be thought of as rigid applications of formalistic legal rules. Rather, the doctrine must be construed in view of the basic “public policy underlying the Copyright Act.”¹⁸⁵ Further, fair use adjudication is not strictly limited by the text of the statute and is intended to evolve with developments in art and technology.¹⁸⁶ AI-generated music has potential in some cases to promote creativity and art, and courts must consider this both when determining fair use and in how they choose to evaluate the basic technology.

C. AI MUSIC & THE GOALS OF COPYRIGHT LAW

Courts addressing the issue of AI-generated music and copyright infringement will be venturing into uncharted legal territories. While prior case law regarding analogous practices will be instructive, courts will be tasked with establishing the legal rules and parameters of this new technology. Copyright law must address new technologies “in light of [its] basic purpose” of “stimulat[ing] artistic creativity for the general public good.”¹⁸⁷

¹⁸¹ *Id.* at 208.

¹⁸² *Id.* at 216-217 (describing Google's use as “highly transformative”).

¹⁸³ Sunray, *supra* note 131, at 28 (arguing that the third factor weighs against fair use as entire songs are copied).

¹⁸⁴ *See* *Sega Enters. v. Accolade, Inc.*, 977 F.2d 1510, 1526–27 (9th Cir. 1992) (“[W]here the ultimate (as opposed to direct) use is as limited as it was here, [factor three] is of very little weight.”).

¹⁸⁵ *Id.* at 1527.

¹⁸⁶ 4 NIMMER & NIMMER, *supra* note 59, § 13F.03[A] (describing fair use and noting that it is not “fix[ed] . . . within the four corners of the statute” but instead “continues to evolve” with developments).

¹⁸⁷ *Twentieth Century Music Corp. v. Aiken*, 422 U.S. 151, 156 (1975).

While there is understandably concern that AI-generated music will undermine human creativity, there is also reason to be optimistic about the technology's potential for expanding the boundaries of what is possible in art and music. Many musicians have expressed excitement about AI, using it as a tool to experiment and explore new artistic directions.¹⁸⁸ Prominent producer Arca has called AI a source of “relief and excitement that not everything has been done” musically.¹⁸⁹ The experimental band YACHT has released an entire album of AI-generated material, training AI on both their own back catalogue of songs as well as the music of their influences.¹⁹⁰ One poll shows that a considerable number of musicians are already incorporating AI into different aspects of the creative process.¹⁹¹

While AI may build off the back of the works of prior artists, all music—and indeed all art—inevitably does this to some degree. As the classic copyright case of *Emerson v. Davies* famously articulated:

In truth, in literature, in science and in art, there are, and can be, few, if any, things, which, in an abstract sense, are strictly new and original throughout. Every book in literature, science and art, borrows, and must necessarily borrow, and use much which was well known and used before.¹⁹²

In a sense, what AI does is not considerably different from what human artists and musicians do daily. Studying existing music, learning how its constituent components come together to form the whole, and drawing from that music (consciously or subconsciously) to create something new is how musicians operate. While the literal use of copyrighted material through machine learning obviously invokes serious copyright concerns absent in typical human songwriting, the qualitative difference may not be as stark as it initially seems. So long as general provisions against creating substantially similar works are enforced, AI-generated music may positively contribute to the goals of copyright law as a tool in the creative process.

¹⁸⁸ See Chow, *supra* note 168 (“Over the past several years, several prominent artists, like Arca, Holly Herndon and Toro y Moi have worked with AI in order to push their music in new and unexpected directions.”).

¹⁸⁹ *Id.*

¹⁹⁰ Amy Ta, *How YACHT Used A.I. to Make Their Album ‘Chain Tripping’*, KCRW (Sept. 9, 2019), <https://www.kcrw.com/news/shows/press-play-with-madeleine-brand/using-a-i-to-make-a-music-album/how-yacht-used-a-i-to-make-their-album-chain-tripping>.

¹⁹¹ See Lee Parsons & Jordan Hetherington, *60% of Musicians are Already Using AI to Make Music*, DITTO, <https://press.dittomusic.com/60-of-musicians-are-already-using-ai-to-make-music#> (last visited Oct. 18, 2023) (finding that a 59.5% of musicians surveyed incorporate AI into their current music projects and that large amounts of musicians are open to using AI in future music projects).

¹⁹² *Emerson v. Davies*, 8 F. Cas. 615, 619 (C.C.D. Mass. 1845) (No. 4,436).

As mentioned above, AI is frequently touted as a way to democratize the music industry.¹⁹³ AI generators can allow for people of limited means or a lack of formal training to express their creativity and create elaborate compositions. In this sense, AI-generated music is reminiscent of the rise of digital sampling in hip-hop.¹⁹⁴ Digital sampling of older music is the foundation upon which hip hop is built on, yet the practice was widely decried and dismissed as uncreative during the genre's early years.¹⁹⁵ Today, there are few who would seriously claim that human creativity suffered because of the rise of sampling. Instead, artists like Dr. Dre and J Dilla have used the medium to bring about exciting advancements in music.¹⁹⁶

Similarly, it would be presumptuous to assume that AI cannot be used in a way that produces genuinely creative and innovative new music. We may not fully appreciate how artists will use the technology or how exactly AI will change music at this present point, but there is clearly some potential for AI to be a boon rather than a blight for creativity. So long as the law continues to protect against blatant rip-offs through substantial similarity rules, AI need not be viewed as the threat some fear it to be.

AI-generated music will undoubtedly change the musical landscape and there is a risk that it could disincentivize human creators from making music, but these fears appear to be overblown. The facts seem to indicate that musicians will not be discouraged from making their own music but will rather use AI as a tool to explore new methods of songwriting. Further, the same arguments were raised against digital sampling in the early days of hip hop and yet none of the fears materialized.¹⁹⁷ These fears, while legitimate, should not lead to the legal system foreclosing AI music. Instead, the law should apply the same standards it has applied to digital sampling to strike the proper balance.

¹⁹³ Bernard Marr, *Generative AI is Revolutionizing Music: The Vision for Democratizing Creation*, FORBES (Oct. 5, 2023, 3:19 A.M.), <https://www.forbes.com/sites/bernardmarr/2023/10/05/generative-ai-is-revolutionizing-music-loudly-vision-for-democratizing-creation/?sh=48bf6984775b>.

¹⁹⁴ See Oliver Payne, "Sampling Led to Hip Hop . . . AI Music has the Potential to do Something Similar" Says Holly Herndon, MUSICTECH (Sept. 15, 2023), <https://musictech.com/news/gear/holly-herndon-ai-in-music/> (quoting music producer Holly Herndon, who notes that "[s]ampling old records" led to hip hop and that "AI music has the potential to do something very similar").

¹⁹⁵ See Marcus Collins, *What Hip-Hop can Teach Us About the Impact of AI on Creativity*, FORBES (June 27, 2023, 6:00 A.M.), <https://www.forbes.com/sites/marcuscollins/2023/06/27/what-hip-hop-can-teach-us-about-the-impact-of-ai-on-creativity/>.

¹⁹⁶ See *id.* ("Would anyone ever argue that Q-Tip, Dr. Dre, or Jay Dilla were not creatives because of their reliance on sampling . . . ? Of course not, that would be preposterous.")

¹⁹⁷ Nettrice Gaskins, *Hip-Hop Sampling vs. Scraping Data for Art*, MEDIUM (Sept. 29, 2022), <https://nettricegaskins.medium.com/hip-hop-sampling-vs-scraping-data-for-art-dcf571062438>.

Provided that the final product is not recognizably the same as any of its inputs, there are few policy justifications for treating AI-generated music any differently than courts have treated sampling. It makes little policy sense to find that the AI generator is infringing where the digital sampler is not when the end result is entirely the same. Courts will ideally be willing to recognize this, either declining to rigidly apply intermediate copying in the music context or otherwise sanctioning creative instances of AI-music as fair use. While the artistic merits of AI-music may be debated, there is no need for copyright law to foreclose the exploration of this new technology.

IV. CONCLUSION

As AI continues to grow in prevalence, courts will need to address the issue of generative AI and copyright. This is especially true with music, where the concerns surrounding AI-generated music resemble earlier debates over sampling and raise many of the same questions.

There is considerable uncertainty regarding how courts will choose to analyze AI-generated music. It is likely that many artists using AI as a compositional tool will produce final works that easily pass the *de minimis* standard articulated by the Ninth Circuit. Machine learning arguably involves rampant intermediate copying that is itself actionable, however. Should courts focus on intermediate copying rather than final outputs, then liability will likely hinge on whether the AI composer can successfully claim fair use. Due to the inherently individualized nature of fair use assessment, broad predictions are not possible. Nonetheless, recent case law raises serious doubts about AI-generated music's viability under at least some statutory factors.

AI has potential to further the goals of copyright law by allowing for an expansion of human creativity. As discussed above, many artists are already beginning to experiment with this new technology, and the law should not preemptively stifle new art unnecessarily. Still, the interests of human artists and the rights of copyright holders must be considered. AI music should only be found non-infringing where any copying is *de minimis* and the final product is aurally distinct from all inputs. This strikes a balance between protecting copyrighted holders and allowing creativity to flourish. Blatant imitation of existing works must be prevented, but room should be left open for the use of AI as a tool in the creative process.

Ultimately, how AI-generated music will fair in court will depend on which doctrines courts choose to apply. If a court rejects the *de minimis* defense for sound recordings or strictly applies the intermediate copying doctrine, AI-generated music may struggle to withstand infringement claims.

Still, courts addressing AI will have some leniency in how to address this novel phenomenon. Given the potential of AI to promote rather than hinder the flourishing of music, courts will ideally choose to apply traditional *de minimis*

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principles. Under such a standard, a balance can be struck between allowing this new technology to be used as a creative tool and protecting artist rights. Only those uses that do not contain recognizable elements from other works will be found non-infringing, and blatant theft of copyrighted works will remain unlawful. This is the balance that the law should strike, neither stifling a new potential source of creativity nor allowing for blatant reproduction.