Striking a Chord with Innovation

Navigating the Patent Eligibility of AI Music Generation Tools

By Jayla E. Harvey

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The New Sound of Innovation

The music industry is undergoing a digital renaissance, driven largely by the proliferation of artificial intelligence tools capable of composing, arranging, and producing complex sonic landscapes.[1] From generating high-energy beats for hip-hop artists like French Montana[2] to producing full orchestral scores, AI music generators like Suno and Soundraw[3] are becoming mainstream, offering artists and consumers new ways to interact with sound. Viral tracks, such as "Heart on My Sleeve" which mimics the voices of Drake and The Weeknd, have showcased the potential for AI to captivate mass audiences.[4]

As AI adoption accelerates, a complex set of intellectual property (IP) challenges arise.[5] While much public discussion has focused on whether the outputs of the AI tools can be copyrighted,[6] the greater challenge for innovators lies in patenting the technology that powers these tools. Patent law determines who will ultimately profit from these innovations, and a strong patent portfolio may often be worth more than the songs these tools produce.[7] Understanding the eligibility landscape for these generative AI tools is crucial to protecting their underlying technology.[8]

Behind the Beats: How AI Music Generators Work

Modern AI music generation systems rely primarily on machine learning algorithms that analyze vast musical datasets.[9] These systems, which typically use deep learning models, identify patterns in melody, rhythm, harmony, and production style. The systems then use those identified patterns to generate new compositions in diverse styles.[10] Users typically initiate the process by entering natural language prompts that specify the desired genre, mood, instrumentation, or tempo.[11]

While most AI music generators rely on conventional computing, emerging tools are trending toward incorporating quantum machine learning. For instance, Moth's platform Archaeo uses Quantum Reservoir Computing (QRC).[12] Unlike standard generative AI tools, which may generate songs from scratch, Archaeo learns from small samples from a specific artist, whom it then helps to make a new song.[13] This advanced method uses the unique properties of quantum computers to learn subtle, complex patterns in music faster with fewer examples than traditional AI systems.[14] The incorporation of quantum machine learning illustrates that the tools for generating music are evolving as rapidly as the music they produce. [15]

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Rights and Rhythms: Distinguishing Copyright vs. Patent

Before examining patent eligibility of the generative AI tools, it is essential to distinguish ownership over the music output by the tools, which is governed by copyright,[16] and ownership of the AI tools that created it, which is governed by patent law.[17]

The U.S. Copyright Office and a recent court decision[18] have established a clear legal boundary: works created *entirely* by AI, without direct human authorship, are ineligible for copyright protection.[19] As copyright exists to protect and reward human creativity, purely AI-generated tracks are often placed in the public domain.[20]

However, if a human musician provides meaningful creative input, such as editing melodies, writing lyrics, or arranging structure, that human contribution may qualify for copyright protection.[21] For musicians leveraging these generative AI tools, the legal focus has shifted toward documenting the creative process and demonstrating human-AI collaboration to secure copyright rights over the resulting composition.[22]

Setting the Legal Tempo: The Alice/Mayo Framework

For the developers of AI music tools, the focus shifts from ownership of music output by the tools to protection of invention, which are the algorithms and systems behind the music.[23] Patent law governs this protection, and patent practitioners must navigate complex subject matter eligibility challenges under 35 U.S.C. § 101.[24]

The specific statements that define the scope of the invention and what aspects are legally protected and enforceable are called the claims.[25] The claims are reviewed to decide whether the invention qualifies for patent protection.[26]

The United States Patent and Trademark Office's (USPTO) Subject Matter Eligibility guidance is used to analyze claims involving AI and other computer-implemented inventions, applying the Supreme Court's two-part *Alice/Mayo* framework.[27] The framework focuses on two core questions:

1. First, is the subject matter the type of subject matter that Congress has designated as patentable?[28]
2. Second, if the answer to the first question is yes, do the claims amount to more than just an excluded idea?[29]

Excluded ideas include abstract concepts, mental steps, and mathematical concepts.

To be eligible for a patent, the invention, as defined by the claims, must apply the excluded idea in a practical, concrete, and technological way, such as by improving how a computer functions or by solving a recognized technical problem.[30]

The Discord: Why AI Music Tools Face Eligibility Challenges

AI music tools frequently involve concepts that courts deem abstract, such as mental processes, mathematical concepts, and certain methods of organizing human activity.[31] Generative AI often touches on all three, making the second question the critical battleground.[32]

Generative music AI tools are designed to automate tasks traditionally performed by a human composer, such

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as arrangement, melody creation, and orchestration—all inherently complex cognitive tasks.[33] If patent claims are drafted too broadly, they risk being deemed an ineligible as "mental processes" that could be performed in the human mind, or "mathematical concepts" that merely calculate relationships between notes.[34]

Consider a hypothetical claim for a method of generating a musical composition using an AI music tool:

> A method for generating a musical composition, comprising:
> - receiving a user input defining a desired mood and genre;
> - automatically calculating and selecting a sequence of notes and rhythms based on said input using a neural network; and
> - outputting an audio file.

The step of "automatically calculating and selecting a sequence of notes..." could be characterized as an abstract mental process of "composition" or a "mathematical concept" (*e.g.*, calculating relationships).[35] Merely using AI tools to generate the composition faster or more accurately is typically seen as improving the abstract idea of composition itself, not the underlying technology.[36] The Federal Circuit has found claims ineligible when they describe a methodology that is fundamentally an improved mathematical process rather than an improved technological process.[37]

Finding Harmony: Integration into a Practical Application

If a claim is deemed an abstract idea, to be patent eligible the claimed invention must integrate that abstract idea into a practical application by imposing a meaningful limit on the abstract idea.[38] The most powerful way to demonstrate this integration is by showing that the claimed invention provides an improvement in the functioning of a computer or an improvement to another technology or technical field.[39] This is often interpreted as providing a "technological solution to a technological problem."[40]

A central challenge is ensuring the patent claims focus on a specific asserted improvement in computer capabilities rather than merely using a computer as a tool for an abstract idea.[41] Claims that rely on generic computer components—for example, a standard processor or memory—without explaining *how* those components are improved are usually considered ineligible for patent protection.[42] Making a mathematical calculation more accurate, for example, still only improves the math, not the machine.[43]

To qualify, the invention must demonstrate a technological improvement, not just an improvement in the abstract idea itself.[44] An eligible claim must show how the AI system's unique structure provides concrete technical benefits, such as reducing computational load, improving resource efficiency, improving memory requirements or database functionality, such as a logical structure for storing and retrieving model data, or solving a specific, non-generic technological problem.[45] If a claim connects the abstract idea to a specific, tangible technical improvement, it moves beyond simply applying AI and becomes a genuine innovation that advances technology itself.[46]

For AI music generators, this means claims must detail how the AI's structure or process improves the technology itself, rather than simply claiming the musical output it creates.[47] For example, a hypothetical claim that defines an AI tool specifically configured to analyze and separate desired speech signals from background noise would likely be eligible because it claims an improvement in the technical field of audio signal processing.[48] This mirrors the case *McRO, Inc. v. Bandai Namco Games America Inc.*, where claims related to a rule-based system for animating lip synchronization were deemed eligible because the particular rules enabled the automation of specific animation tasks that previously could not be automated, thereby improving the existing technological process of computer animation.[49] Based on this reasoning, the eligibility of the hypothetical claim directed to analyzing and separating speech signals from background noise likely hinges on the ability to demonstrate an improvement in the underlying *hardware* or *signal processing* would be more likely eligible.[50]

Conclusion: Composing a Patentable Future

It is important to keep in mind that

subject matter eligibility is just one of several hurdles to patentability. The invention must still satisfy the other requirements for patentability, such as utility, novelty, inventorship and double patenting, before protection is be granted.[51]

For professionals advising clients in the rapidly evolving music technology sphere, the IP landscape begins with a careful segmentation: copyright for protecting the song[52] and patent law for protecting the system that made it.[53] To strike the right note with the USPTO, developers must claim how their AI advances the art of computing, not just how it generates art. ■

Endnotes

1. VideoTranslator Support, The Rise of AI-Generated Music: Viral Hits and the Ongoing Debate, VideoTranslatorAI (Aug. 18, 2024) (hereinafter "VideoTranslator")
2. SOUNDRAW Blog, *Top 8 AI-Generated Songs You Need to Hear in 2025* (Jan. 8, 2025).
3. VideoTranslator, *supra* note 1.
4. *Id.* The track was later removed from streaming platforms due to copyright issues.
5. Executive Order 14110, 88 FR 75191 (November 1, 2023); Kevin J. Hickey & Christopher T. Zirpoli, *Artificial Intelligence and Patent Law*, CRS Legal Sidebar LSB11251 (Cong. Research Serv. Dec. 12, 2024);
6. U.S. House Judiciary Subcommittee on Courts, Intellectual Property, and the Internet, hearing on Artificial Intelligence and Intellectual Property: Part I, Interoperability of AI and Copyright Law, May 17, 2023a; U.S. House Judiciary Subcommittee on Courts, Intellectual Property, and the Internet, hearing on Artificial Intelligence and Intellectual Property: Part II, Copyright, July 12, 2023b; U.S. House Judiciary Subcommittee on Courts, Intellectual Property, and the Internet, hearing on Artificial Intelligence and Intellectual Property: Part II, Identity in the Age of AI, February 2, 2024a; U.S. House Judiciary Subcommittee on Courts, Intellectual Property, and the Internet, hearing on Artificial Intelligence and Intellectual Property: Part III, IP Protection for AI-Assisted Inventions and Creative Works, April 10, 2024b. Also see Christopher T. Zirpoli, *Generative Artificial Intelligence and Copyright Law*, Congressional Research Service, LSB10922, September 29, 2023.
7. Alex Huffstutter & Ryan Letson, *Patent Basics for Tech Companies: Effectively Protecting Your Tech*, JD Supra (Sept. 23, 2025).
8. Sourabh Pateriya, *US Court Bans Copyright for AI Art—What Musicians & Creators Must Know in 2025*, Soundverse (Mar. 26, 2025).
9. VideoTranslator Support, *supra* note 1.
10. *Id.*
11. *Id.*
12. Siôn Geschwindt, *Listen to the 'world's first' song made by a quantum computer and AI*, TNW (May 7, 2025).
13. *Id.*
14. *Id.*
15. *Id.*
16. U.S. COPYRIGHT OFFICE, COPYRIGHT AND ARTIFICIAL INTELLIGENCE, PART 2: COPYRIGHTABILITY, p. ii (Jan. 2025) (hereinafter COPYRIGHT AND ARTIFICIAL INTELLIGENCE).
17. 35 U.S.C. § 154 (a)(1).
18. *Thaler v. Perlmutter,* 687 F. Supp. 3d 140, 142 (D.D.C 2023) (aff'd by *Thaler v. Perlmutter,* 130 F.4th 1039 (D.C. Cir. 2025))
19. *Id.*; U.S. COPYRIGHT OFFICE *supra* note 16 at p. 2; Similarly, the Federal Circuit has upheld that inventorship for patent purposes is limited to natural persons only. *Thaler* v. *Vidal,* 43 F.4th 1207, 1211 (Fed. Cir. 2022), *cert denied,* 143 S. Ct. 1783 (2023).
20. COPYRIGHT AND ARTIFICIAL INTELLIGENCE *supra* note 16 at p. 2.
21. *Id.*; *see also* Jada Bromberg, *Music That Is Entirely AI-Generated Cannot Be Copyrighted, but Who Owns an AI-Assisted Song?*, AVIXA Xchange (June 24, 2024).
22. Pateriya, *supra* note 8.
23. U.S. Patent & Trademark Office, *2024 Guidance Update on Patent Subject Matter Eligibility, Including on Artificial Intelligence*, 89 Fed. Reg. 58128, 58129 (July 17, 2024) (hereinafter 2024 *AI-SME Update*).
24. Charles Kim, Deputy Comm'r for Patents, U.S. Pat. & Trademark Off., *Memorandum: Reminders on evaluating subject matter eligibility of claims under 35 U.S.C. 101* (Aug. 4, 2025) (hereinafter *2025 USPTO Memo).*
25. Sudhanshu C. Pathak, Pro Se Assistance Program Coordinator Office of Patents Stakeholder Experience, *Basics of claim drafting for utility patent applications* (U.S. Pat. & Trademark Off., Presentation at InventionCon 2021).
26. *Id.*
27. 2024 *AI-SME Update* at 58131–32; *Alice Corp.* v. *CLS Bank Int'l,* 573 U.S. 208 (2014); Mayo Collaborative Servs. v. Prometheus Labs., Inc., 566 U.S. 66, 132 S. Ct. 1289, 1293, 182 L. Ed. 2d 321 (2012). The formal steps of the framework include:

    Step 1: Determine whether the claimed invention falls within one of the statutory categories (process, machine, manufacture, composition of matter).
    Step 2: If the answer to step 1 is yes, assess whether the claims are directed to a judicial exception (abstract idea, law of nature, or natural phe-

nomenon). Judicial exceptions categories defined by case law that do not inherently contain patent eligible subject matter.

Step 2A, Prong One: Does the claim recite a judicial exception (e.g., a mathematical concept, method of organizing human activity, or mental process)?

Step 2A, Prong Two: If so, does the claim integrate the exception into a "practical application," such as improving computer functionality or another technology?

Step 2B: If still directed to an exception, do the additional elements amount to "significantly more" than the exception itself, i.e., more than well-understood, routine, or conventional activity?

Manual for Patent Examining Procedure § 2106, Sect. III (Fed. Reg. ed. 2024) (*hereinafter* MPEP §2106).

28. 2024 *AI-SME Update* at 58131–32.
29. *Id.*
30. *Id.*; 2019 Revised Patent Subject Matter Eligibility Guidance, 84 FR 50 (January 7, 2019); October 2019 Patent Eligibility Guidance Update, 84 FR 55942 (October 18, 2019).
31. 2019 Revised Patent Subject Matter Eligibility *supra* note 30.
32. *Id.*
33. VideoTranslator, *supra* note 1.
34. *2025 USPTO Memo* at p. 2.
35. 2019 Revised Patent Subject Matter Eligibility *supra* note 30.
36. *Id.*
37. *Recentive Analytics, Inc. v. Fox Corp.*, Case No. 2023-2437 (Fed. Cir. 2025); *Koninklijke KPN N.V. v. Gemalto M2m GmbH*, 942 F.3d 1143, 1150 (Fed. Cir. 2019); *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1339 (Fed. Cir. 2016).
38. MPEP §2106.
39. 2019 Revised Patent Subject Matter Eligibility *supra* note 30.
40. *2025 USPTO Memo* at p. 4.
41. *Id.*
42. 2019 Revised Patent Subject Matter Eligibility *supra* note 30.
43. *In re Bd. of Trs. of the Leland Stanford Junior Univ.*, 989 F.3d 1367, 1372-1373 (Fed. Cir. 2021).
44. *Id.;* 2019 Revised Patent Subject Matter Eligibility *supra* note 30.
45. *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1312-1313 (Fed. Cir. 2016) (e.g., implementing particular rules to automate a specific process that previously could not be automated).
46. 2019 Revised Patent Subject Matter Eligibility *supra* note 30.
47. *Id.*
48. *Id.*
49. *McRO, Inc. v. Bandai Namco Games America Inc.* at 1302-1303; *see also* the recent decision in *Ex parte Desjardins* (Application 16/319,040), which related to sequentially training machine learning models, exemplified a successful approach. The claims were eligible because they reflected an improvement to how the machine learning model itself operates, allowing it to "effectively learn new tasks in succession whilst protecting knowledge about previous tasks" ("catastrophic forgetting"), thereby reducing storage capacity and system complexity.
50. *McRO, Inc. v. Bandai Namco Games America Inc.* at 1302-1303.
51. MPEP § 2106.
52. COPYRIGHT AND ARTIFICIAL INTELLIGENCE *supra* note 16.
53. 35 U.S.C. § 154 (a)(1).

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