

# 2024

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## **AI Intellectual Property Year in Review**

ANALYSIS & TRENDS | 1ST EDITION

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## **Introduction from the Editors**

Artificial intelligence (AI) is reshaping industries, including the legal profession, with a significant impact on patent law. In 2024, the U.S. Patent and Trademark Office (USPTO) and the courts continued to address emerging legal issues at the intersection of AI and intellectual property (IP). In particular, the USPTO released updated guidance on AI-related patent issues and through the AI/Emerging Technologies (ET) Partnership, facilitated stakeholder discussions to exchange ideas, share experiences, and foster opportunities to collaborate on the intersection of IP and AI.

In this inaugural issue of the AI Intellectual Property Year in Review, we present a comprehensive overview of important legal decisions and policy updates in 2024. Key highlights include the USPTO's guidance on the use of AI tools in patent proceedings, new perspectives on inventorship for AI-assisted inventions, and updated criteria on patent subject matter eligibility, specifically in relation to AI. Additionally, we will examine the U.S. Copyright Office's evolving stance on the copyrightability of works generated with the assistance of generative AI as well as provide insights from recent Congressional hearings on AI-assisted inventions and creative works.

The information provided in this review is the result of a collaborative process. We would like to extend our thanks to our contributing authors—Dohm Chankong, Richard Crudo, Ivy Estoesta, Roozbeh Gorgin, Paige Cloud, Ethan Goldschen, Todd Thurheimer, and Emily Tkac—whose efforts have enriched this publication.

We appreciate your interest in this report, and we encourage you to see our firm's other publications, including our "2024 Design Patents Year in Review: Analysis and Trends," "2024 PTAB Year in Review: Analysis & Trends," "Federal Circuit IP Appeals: Summaries of Key 2024 Decisions," and "2024 ITC Year in Review: Analysis and Trends," which are available at [sterneckessler.com](https://www.sterneckessler.com) or by request. Please contact us if you have questions about this report or would like to discuss AI and IP issues.

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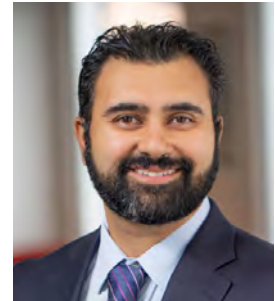
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# Patent Law and Generative AI 101

BY TODD HOPFINGER, LESTIN KENTON JR., ETHAN GOLDSCHEN

While Artificial Intelligence (AI) solutions, such as predictive AI, have been around for decades, generative AI systems are recent innovations with far reaching implications for patent law. Generative AI, such as ChatGPT, DALL-E, and LLaMa, uses machine learning models to learn patterns from human-created content and generate new content based on those patterns.

Because generative AI focuses on creating new content, it introduces various challenges when used in the patenting process. This article addresses four points related to the utilization of generative AI in the patenting process: (i) patent inventorship; (ii) AI-generated prior art; (iii) eligibility under 35 U.S.C. § 101; and (iv) statutory and regulatory hurdles.

## Patent Inventorship

First, generative AI may present unique and intriguing issues regarding patent inventorship. According to the Federal Circuit, only human beings qualify as inventors, but in many cases, it is unclear whether a human's contribution to the inventive process in the context of generative AI systems qualifies them as an inventor of an invention. For example, a human inventor might use or rely on a generative AI system to develop an invention. These types of situations can introduce ambiguity about inventorship because it can be difficult to determine whether a human actually conceived of the invention. This may lead to increased litigation to determine inventorship when inventors use generative AI tools.<sup>1</sup>

The United States Patent and Trademark Office (USPTO) has recently published regulations regarding inventorship and the use of AI tools.<sup>2</sup> The regulations suggest helpful guidance, such as applying the *Pannu* factors, which are currently used to determine whether an individual qualifies as an inventor when multiple individuals contributed to the patent.

The regulations also suggest helpful guiding principles such as: (1) use of an AI system doesn't negate the ability to be an inventor; (2) conception requires more than recognizing a problem or having a plan; (3) significant contribution for inventorship requires more than reduction to practice; (4) creating "an essential building block" used to derive the

invention may constitute significant contribution for inventorship; and (5) ownership of an AI system doesn't make the owner an inventor of the AI system's creations.<sup>3</sup>

While these principles are helpful, many questions remain unanswered and additional rulemaking is likely needed. For example, what constitutes a "significant contribution" or an "essential building block" when a generative AI tool is used by the inventor? Patent practitioners, inventors, and companies will need to carefully consider these open questions and the various potential answers they may raise.

## AI-Generated Prior Art

Second, generative AI may raise significant issues when used to create prior art to reject a patent application or invalidate an existing patent.

Notably, generative AI can produce vast amounts of prior art, leading to increased costs during both patent prosecution and litigation due to the additional art that may need to be considered. Additionally, there is a risk that the generated prior art may be technically inaccurate, resulting in increased time and costs associated with evaluating these references.

Given these concerns, it's possible that courts may introduce additional guardrails around the use of AI generated prior art. As one example, prior art publications are presumed to be enabling absent contrary evidence, and therefore places the burden on applicants, who have to prove that a reference fails to enable a person of ordinary skill in the art to practice the subject matter.<sup>4</sup> However, this may not be a safe assumption with AI generated prior art, as generative AI technologies might be unable to identify a use for an invention. Consequently, such AI generated prior art may not be enabling, as it fails to instruct a person of ordinary skill in the art on how to make and use the invention. To address this concern, a possible guardrail that could be introduced is that AI generated prior art is not automatically considered enabling.

A further guardrail that could be introduced is a conception requirement for AI generated references to qualify as prior art.<sup>5</sup> Conception requires recognition and appreciation of the invention.<sup>6</sup> For AI generated references, conception

# Patent Law and Generative AI 101

*continued*

could require: (1) human review, recognition, and appreciation of the invention; or (2) evidence that the AI system recognized and appreciated the invention.<sup>7</sup> Qualifying evidence may include the AI system performing a simulation of the invention.<sup>8</sup> This requirement may reduce the number of references qualifying as prior art. In turn, this would likely increase incentives for inventors to file patent applications in view of the additional requirements for AI generated references to qualify as prior art.<sup>9</sup>

## Eligibility Under 35 U.S.C. 101

Third, generative AI may introduce unique issues regarding 35 U.S.C. § 101. Specifically, an invention that uses or relies on generative AI might be considered non-patent-eligible subject matter. This is often because AI/ML innovations are related to algorithms and computational processes, which are often viewed under the lens of abstract ideas and, therefore, not eligible for patenting.

Under current USPTO guidance, abstract ideas may be patent-eligible when integrated into practical application of the abstract idea or when the claimed invention amounts to significantly more than the abstract idea.<sup>10</sup> This can often be demonstrated by showing that the claimed invention improves the functioning of the computer itself or improves another technological field.<sup>11</sup>

Given these considerations, there may be subject matter eligibility concerns when a patent applicant merely applies an AI system to an existing problem, especially a non-technical problem. On the other hand, patent applications that involve unique data preparation for an AI model, improvements to the AI model itself, or unique environment adaptations of an AI model, may face fewer subject matter eligibility issues.

For example, the PTAB reversed a § 101 rejection of a patent for a “kernel-based machine learning classifier” because improved memory usage and classifier accuracy led to an improvement of machine learning technology, specifically improved kernel-based classifiers.<sup>12</sup> Therefore, the type of AI invention and how that invention is presented in the claims may affect whether that invention is patent subject matter eligible.

## Statutory and Regulatory Hurdles

Lastly, generative AI may raise complex issues during patent prosecution. Generative AI tools may introduce at least three statutory and regulatory hurdles for practitioners (e.g., attorneys, agents) and inventors at the USPTO.

First, USPTO regulations require natural persons (e.g., human beings) to sign submissions.<sup>13</sup> Therefore, practitioners and inventors should be aware of AI tools that automatically sign submissions.

Second, there may be confidentiality and public disclosure issues surrounding use of generative AI tools. For example, inputting patent-eligible subject matter into an online generative AI system may trigger the one-year grace period under 35 U.S.C. § 102(b)(1), and potentially implicate client confidentiality requirements.<sup>14</sup>

Finally, by presenting a submission to the USPTO, the submitting party is certifying that included statements are true and that a reasonable inquiry under the circumstances has been made.<sup>15</sup> This requirement may be implicated by practitioners who use generative AI tools to identify prior art and case law, given practitioners who use such tools may find it challenging to verify the accuracy of the outputted results, and therefore comply with the reasonable inquiry standard.

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As AI evolves, the law and stakeholders will inevitably need to similarly evolve to address not only the issues discussed herein, but many more issues of first impression.

<sup>1</sup> *Thaler v. Vidal*, 43 F.4th 1207, 1210 (Fed. Cir. 2022).

<sup>2</sup> Inventorship Guidance for AI-Assisted Inventions, 89 Fed. Reg. 10043 (February 13, 2024).

<sup>3</sup> *Id.*

<sup>4</sup> *In re Antor Media Corp.*, 689 F.3d 1282, 1287 (Fed. Cir. 2012).

<sup>5</sup> Lucar R. Yordy, *The Library of Babel for Prior Art: Using Artificial Intelligence to Mass Produce Prior Art in Patent Law*, 74 VANDERBILT LAW REV. 521, 554 (March 2021).

<sup>6</sup> Manual of Patent Examining Procedure (MPEP) § 2138.04.

<sup>7</sup> *Id.* at 555.

<sup>8</sup> *Id.* at 556.

<sup>9</sup> *Id.*

<sup>10</sup> MPEP § 2106.04(d).

<sup>11</sup> MPEP § 2106.04(d)(1).

<sup>12</sup> *Ex Parte Holtmann-Rice* (Appeal No. 2024-000046, March 27, 2024).

<sup>13</sup> [Guidance on Use of Artificial Intelligence-Based Tools in Practice Before the United States Patent and Trademark Office](#), 89 Fed. Reg. 25609 (April 11, 2024).

<sup>14</sup> [Representation Of Others Before The United States Patent And Trademark Office](#), 86 Fed. Reg. 28466 (May 26, 2021).

<sup>15</sup> 37 CFR § 11.18(b).

# AI Developments at the USPTO

In 2024, we followed key developments from the United States Patent and Trademark Office (USPTO) related to subject matter eligibility of AI innovations and inventorship issues.

## Navigating Inventorship of AI-Assisted Inventions: USPTO's Guidance and Implications

BY EMILY TKAC

The USPTO issued [guidance on AI-assisted inventions](#) on February 13, 2024. This guidance is part of the USPTO's ongoing efforts to address the intersection of artificial intelligence (AI) and patent law. We focus on three main considerations regarding inventorship when AI systems are involved in the creation of inventions.

First, the USPTO clarifies that while AI-assisted inventions are patentable, AI systems themselves cannot be designated as inventors. Only natural persons can be inventors, which is in line with the Federal Circuit's holding in *Thaler v. Vidal*, 43 F.4th 1207, 1213 (Fed. Cir. 2022).

Second, a person must make a "significant contribution" to the invention to qualify as an inventor of an AI-assisted invention. This contribution could involve designing or training the AI system, formulating prompts that lead to particular solutions, or enhancing the AI's output through experimentation. However, merely recognizing a problem or appreci-

ating the AI's output does not qualify as inventorship. The *Pannu*<sup>1</sup> factors are the standard for determining whether a person has made a significant contribution to the invention. The *Pannu* factors assess the person's role in conception, the quality of their contribution, and whether their input goes beyond explaining known concepts and the state of the art. Each inventor must satisfy each *Pannu* factor for each claim.

Third, the guidance reiterates that the duty of disclosure and reasonable inquiry still applies to AI-assisted inventions. Applicants must disclose all relevant information that might impact the patentability of the invention, including details about inventorship and contributions made by AI systems.

Overall, the USPTO's guidance provides critical insights into how AI-assisted inventions will be treated under patent law, influencing both inventors and legal practitioners as AI technology continues to advance.

<sup>1</sup> *Pannu v. Iolab Corp.*, 155 F.3d 1344, 1351 (Fed. Cir. 1998).

## Update on USPTO Guidance for AI Subject Matter Eligibility

BY TODD HOPFINGER, LESTIN KENTON JR.

On July 16, 2024, the USPTO released [updated guidance on patent subject matter eligibility](#) for AI inventions. We focus on four main aspects of the updated guidance.

First, the updated guidance builds on previous guidance from 2019 and provides additional clarity on applying 35 U.S.C. § 101 to AI-related claims. It aims to ensure consistency in evaluating patent applications and patents involving AI.

Second, the updated guidance provides additional clarity around Step 2A of the USPTO's eligibility analysis, focusing on whether a claim is directed to a judicial exception, such as abstract ideas, and if it integrates the exception into a practical application. On this front, the updated guidance incorporates stakeholder feedback and introduces three

examples to demonstrate the application of the updated guidance to hypothetical AI-related claims.

Third, the updated guidance emphasizes that the framework for subject matter eligibility remains unchanged, and reassures stakeholders that AI inventions can be patented but that they should be carefully evaluated to avoid being dismissed as directed to a judicial exception under Step 2A of the USPTO's eligibility analysis.

Finally, the updated guidance suggests that companies should be aware that while the USPTO recognizes the significance of AI technology and that AI inventions may be patented, the subject matter eligibility analysis framework for evaluating AI technology will likely continue to evolve both at the USPTO and in the courts.

## USPTO Seeks Public Comment on the Impact of Artificial Intelligence on Patentability

BY ROOZBEH GORGIN, IVY ESTOESTA

In early 2024, the USPTO issued a Request for Comments (RFC) seeking public input on the potential impact of AI on prior art, the knowledge of a person having ordinary skill in the art (PHOSITA), and determinations of patentability. See 89 FR 34217, p. 34217, [available here](#) (last visited June 10, 2024). The RFC is part of an ongoing initiative by the USPTO to explore the impact of AI technologies for patent applications, patent owners, patent practitioners, and the future of IP law.

The RFC sought input on 15 key questions, examining whether AI-generated disclosures should be treated as operable prior art, how AI impacts the skill level attributed to a PHOSITA, and whether current patent law accommodates AI's complexities. The questions highlight concerns about AI's ability to create vast disclosures without human oversight and AI's potentially levelling effect on the "level of ordinary skill in the art," potentially complicating determinations of novelty and nonobviousness.

Stakeholders' comments, which were due by July 29, 2024, can now be viewed on the Regulations.gov [website](#).

The USPTO has not yet issued guidance on how it will treat AI-generated prior art. However, that guidance (or lack thereof) has the potential to impact various stakeholders. For example, patent applicants and practitioners may face challenges in overcoming AI-generated prior art if their applications lack robust experimental data, resulting in longer prosecution times. Patent owners could see increased risks of invalidation due to the proliferation of AI-created references.

The USPTO's inquiry underscores the evolving relationship between AI and patent law, signaling potential regulatory updates. Stakeholders are urged to engage actively, as the agency shapes a future that balances AI's innovation potential with a resilient IP system.

## Subject Matter Eligibility of AI Innovations—Updated Examples

BY TODD THURHEIMER

In July 2024, the USPTO [issued guidance](#) regarding the subject matter eligibility of patent claims involving AI. The guidance: (1) reaffirmed that the existing patent eligibility guidance framework applies to AI, (2) emphasized the potential for "practical applications" of AI, and (3) provided new Examples 47-49.

First, the guidance reaffirmed that the existing PEG framework will continue to be used to analyze claims across all technologies, including AI. The USPTO has published past examination guidance for subject matter eligibility to the MPEP (§ 2103-2106.07) and issued Examples 1-46<sup>1</sup> as resources for practitioners and examiners. These resources may remain highly relevant, useful tools for patent practitioners seeking protection of AI inventions.

Second, the guidance advised that Prong Two of Step 2A is a focal point for AI inventions, emphasizing the potential for practical applications of AI. A subject matter eligible

claim should "cover a particular way to achieve a desired outcome, as opposed to merely claiming the idea of a solution or outcome."

Third, the guidance was accompanied by new examples 47-49. Each example provides background information about the nature of the invention and the technology in place of a full specification, figures, etc. that would comprise an actual patent application. Each example includes a claim that is subject matter eligible and, as a point of contrast, a claim that is not.

The guidance is a part of ongoing efforts by the USPTO to clarify issues related to AI and provide guidance on subject matter eligibility. The intersection of these areas will continue to be a focal point of the USPTO in effectively promoting innovation, competition, and collaboration in burgeoning AI-based technologies and industries.

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<sup>1</sup> The examples are available at [www.uspto.gov/PatentEligibility](http://www.uspto.gov/PatentEligibility). Many of the examples are based upon past Federal Circuit decisions given the USPTO's ongoing efforts to monitor developments in the courts.



# The U.S. Copyright Office's Position on the Copyrightability of Works Made with the Assistance of Generative AI

BY IVY ESTOESTA

Since platforms like Midjourney and DALL-E became popular, using text-to-image models to generate "AI art" has surged, making it increasingly difficult to distinguish between AI-generated art and human-created works. This rapid evolution in art generation challenges global intellectual property law. Recognizing these challenges, the Copyright Office issued "Copyright Registration Guidance: Works Containing Material Generated by Artificial Intelligence" ("Guidance") in March 2023, clarifying copyrightability requirements for works that contain AI-generated content. Despite its recent issuance, the Guidance reflects a longstanding principle of U.S. copyright law: some human involvement is necessary for a work to be eligible for copyright protection.

## I. Foundations of U.S. Copyright Law's Human Authorship Requirement

### Congress and the Human Authorship Requirement

Human creativity has always been central to U.S. copyright law. The Constitution<sup>1</sup> bases copyright on the premise that exclusive rights will incentivize individuals to create. The Copyright Act of 1909 explicitly required that a "person" secure copyright for "his work."<sup>2</sup> This understanding carried forward into the current 1976 Copyright Act.<sup>3</sup>

### Courts and the Human Authorship Requirement

The landmark 1884 Supreme Court case *Burrow-Giles Lithographic Co. v. Sarony* considered whether the Copyright Act could extend protection to photographs, even though such works were not expressly listed as a work of authorship in the Act. The Court upheld the copyrightability of the photograph *Oscar Wilde, No. 18*, emphasizing that its creator demonstrated originality through choices in posing, lighting, and setting.<sup>4</sup> By contrast, the Court clarified that works produced by "mere mechanical reproduction...involves no originality of thought" is not copyrightable.<sup>5</sup>

Later cases reinforced this principle. In *Urantia Foundation v. Maaherra*, the Ninth Circuit ruled that the human selection and arrangement of divine revelations in the *Urantia Book* met the low creativity threshold for copyright protection.<sup>6</sup> Conversely, courts have denied protection to works created

solely by non-human entities or natural forces. For instance, in *Naruto v. Slater*, a Ninth Circuit district court deemed a selfie taken by a monkey ineligible for copyright. The court reasoned that the "Copyright Act does not 'plainly' extend the concept of authorship or statutory standing to animals" and "[t]he Supreme Court and Ninth Circuit have repeatedly referred to 'persons' or 'human beings' when analyzing authorship under the Act."<sup>7</sup> Additionally, another Ninth Circuit district court found that a book containing divine revelations that were attributed to "a spirit" could not be copyrighted.<sup>8</sup> Similarly, the Seventh Circuit in *Kelley v. Chicago Park District* found that a garden "designed and planted by an artist," was not copyrightable because the garden "owes most of its form and appearance to the natural forces."<sup>9</sup>

## The U.S. Copyright Office and the Human Authorship Requirement

Aligning with court rulings, the U.S. Copyright Office has long required human authorship for copyrightability. The first edition of the *Compendium of U.S. Copyright Office Practices (Compendium I)*, published in 1967, states that "[s]ince the specific outlines and contours of the patterns and shapes formed by the liquid petroleum do not owe their origin to a human agent, it is not possible to claim copyright in such patterns and shapes."<sup>10</sup> Subsequent editions reiterated this stance, maintaining that authorship requires human origin.<sup>11</sup> The second edition of the *Compendium (Compendium II)*, published in 1984, followed suit, providing that "[t]he term 'authorship' implies that, for a work to be copyrightable, it must owe its origin to a human being. Materials produced solely by nature, by plants, or by animals are not copyrightable."<sup>12</sup> However, none of the editions, including the current edition explicitly addresses how works containing AI-generated content should be evaluated.

## II. Application of the Human Authorship Requirement to Works Including AI-Generated Content (Before the Guidance)

### "A Recent Entrance to Paradise"

In February 2022, the Copyright Office Review Board issued its first publicly available decision involving an AI-generated work, "A Recent Entrance to Paradise."

# The U.S. Copyright Office’s Position on the Copyrightability of Works Made with the Assistance of Generative AI *continued*

Steven Thaler, who owned the work, identified its author as the “Creativity Machine,” an algorithm he created. The Copyright Office denied registering the work, citing the absence of a “nexus between the human mind and creative expression” required for copyright protection.<sup>13</sup> The District Court of D.C. upheld this decision, and the case is currently on appeal.<sup>14</sup>



## “Zarya of the Dawn”

The Copyright Office faced another work involving AI-generated content in 2023. Kristina Kashtanova’s graphic novel “Zarya of the Dawn” initially received copyright protection.

However, after learning that the AI platform Midjourney generated all the images, the Copyright Office canceled the registration. It then issued a registration confirming a limited copyright in the novel’s text and the creative arrangement of the text and (AI-generated) images. The Office found that Kashtanova’s iterative process of prompting Midjourney did not constitute the same level of authorship as in the human-directed photograph in *Burrow-Giles* because “Midjourney’s specific output cannot be predicted by users.”<sup>15</sup> However, the Board noted that substantive edits to AI-generated images could qualify as human authorship.<sup>16</sup>



## III. The Copyright Registration Guidance Human Authorship Requirement

The Guidance reaffirms the long-standing requirement of human authorship for copyrightability. However, works created with the help of technology—including AI—may still qualify for copyright protection if a “human had creative control over the work’s expression.”<sup>17</sup> The Guidance clarifies that when “the AI technology determines the expressive elements of its output, the generated material is not the product of human authorship . . . [and therefore] not protected by copyright.” However,

if a human “select[s] or arrange[s] AI-generated material” or “modif[ies] material originally generated by AI technology,” those human-authored aspects may qualify for copyright protection. Determinations of copyrightability and registrability of AI-assisted works are made on a case-by-case basis.<sup>18</sup>

## Submitting Applications for Works Including AI-Generated Content

Applicants seeking to register works containing AI-generated content must specify which aspects are human-generated and disclaim AI-generated aspects. For example, in a graphic novel with human-authored text and AI-generated illustrations, the applicant may claim authorship of the text but must disclaim the illustrations in the “Limitations of the Claim” section of the application. Additionally, AI tools or their creators may not be listed as authors or co-authors.

## Correcting Pending or Registered Applications for Works Including AI-Generated Content

For pending copyright applications involving AI-generated content, the Guidance instructs applicants to inform the Copyright Office’s Public Information Office (1-877-476-0778) about the AI-generated aspects of the works. For already registered works, applicants should submit a supplementary registration application to amend the original record. The supplementary registration application should clarify which parts of the works are human-authored and disclaim the AI-generated portions.

## IV. Implications of the Guidance on Copyrightability and Registrability of AI-Generated Content

Following the issuance of the Guidance, the Board rendered decisions on two works containing AI-generated content: “Théâtre D’opéra Spatial” and “SURYAST.”

### “Théâtre D’opéra Spatial”

Jason Allen attempted to register “Théâtre D’opéra Spatial,” an image created through an iterative process using Midjourney. After revising his prompts over 624 times to create the image pictured on the left below, he used Adobe Photoshop to modify the AI-generated output into a final image pictured on the right on the following page.<sup>19</sup>

# The U.S. Copyright Office's Position on the Copyrightability of Works Made with the Assistance of Generative AI *continued*



Midjourney Image



The Work

The Copyright Office denied registration, and the Board affirmed. The Board explained that refining prompts fed to AI does not constitute copyrightable authorship of the resulting image because the “traditional elements of authorship are determined and executed by the technology—not the human user.”<sup>20</sup> While acknowledging that Allen’s subsequent modifications could qualify for copyright protection, his refusal to disclaim AI-generated elements prevented the Board from determining whether the elements attributable to Allen were copyrightable.<sup>21</sup>

## “SURYAST”

Photographer Ankit Sahni used the AI tool RAGHAV to create “SURYAST.” Sahni inputted Van Gogh’s *Starry Night* painting as a “style image” and his original photo as the base image, with a “variable value determining the amount of style transfer.”<sup>22</sup> Sahni applied to register the resulting image shown below, listing himself as the author of “photograph, 2-D artwork” and RAGHAV as the author of “2-D artwork.”<sup>23</sup>

The Copyright Office denied registration, and the Board affirmed. The Board found that the expressive elements of the work were determined by RAGHAV, not Sahni, as “Sahni did not control where [certain] elements would be placed, whether they would appear in the output, and what colors would be applied to them—RAGHAV did.”<sup>24</sup> The Board noted, however, that Sahni could apply to register his original photo with the Copyright Office.



## Broader Implications

The Guidance and recent Board decisions emphasize the necessity of human contribution to the expressive elements of

a work for copyright protection. Works listing AI as an author or co-author are not registrable in the U.S., contrasting with the Indian Copyright Office, which recognized RAGHAV as a co-author of “SURYAST.”<sup>25</sup> To improve the copyrightability of AI-assisted works in the U.S., creators should incorporate and document substantial human-originated expressive elements while disclaiming AI-generated content.

The evolution of AI-generated works highlights the growing tension between technological advancements and copyright law’s longstanding human authorship requirement. As cases exemplify the challenges in applying traditional copyright principles to new forms of creativity, legal and policy developments will be necessary to clarify AI’s place in copyright law.

- 1 Congress has the authority to “promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries.” U.S. CONST. art. 1, § 8, c. 8.
- 2 Copyright Act of 1909, ch. 320, § 9, 35 Stat. 1075, 1077 (1909) (repealed 1976).
- 3 H.R. Rep. No. 94-1476, 51 (1976).
- 4 *Burrow-Giles Lithographic Co. v. Saronoy*, 111 U.S. 53, 60 (1884).
- 5 *Id.* at 59.
- 6 *Urantia Found. Maaherra*, 114 F.3d 955, 959 (9th Cir. 1997).
- 7 *Naruto v. Slater*, No. 15-cv-04324-WHO, 2016 WL 362231, at \*3 (N.D. Cal. Jan. 28, 2016), *aff’d*, 888 F.3d 418 (9th Cir. 2018).
- 8 *Oliver v. Saint Germain Foundation*, 41 F.Supp. 296 (S.D. Cal. 1941).
- 9 *Kelley v. Chicago Park Dist.*, 635 F.3d 290, 304 (7th Cir. 2011).
- 10 U.S. COPYRIGHT OFF., COMPENDIUM OF COPYRIGHT OFFICE PRACTICES, FIRST EDITION, 2.8.3.1.a.1.(b) (rev. 1973) <https://copyright.gov/history/comp/compendium-one.pdf>
- 11 See U.S. Copyright Off., *Compendium of Copyright Office Practices, Second Edition*, 202.02(b) (1984) <https://www.copyright.gov/history/comp/compendium-two.pdf> (“The term ‘authorship’ implies that, for a work to be copyrightable, it must owe its origin to a human being. Materials produced solely by nature, by plants, or by animals are not copyrightable.”)
- 12 *Id.*
- 13 Second Request for Reconsideration for Refusal to Register A Recent Entrance to Paradise (Correspondence ID 1-3ZPC6C3; SR #1-7100387071), at 4 (U.S. Copyright Off. Rev. Bd. Feb. 14, 2022) (refusal affirmed), <https://www.copyright.gov/rulings-filings/review-board/docs/a-recent-entrance-to-paradise.pdf>
- 14 *Thaler v. Perlmutter*, 687 F.Supp.3d 140 (D.D.C. 2023).
- 15 *Zarya of the Dawn* (Registration # VAu001480196), at 9 (U.S. Copyright Off. Rev. Bd. Feb. 21, 2023), <https://www.copyright.gov/docs/zarya-of-the-dawn.pdf>
- 16 See *id.* at 12.
- 17 Copyright Registration Guidance: Works Containing Material Generated by Artificial Intelligence, 88 Fed. Reg. 16190, 16193 (Mar. 16, 2023) [hereinafter Guidance].
- 18 Guidance at 16192.
- 19 Second Request for Reconsideration for Refusal to Register Théâtre D’opéra Spatial (SR # 1-11743923581; Correspondence ID: 1-5T5320R), at 6 (U.S. Copyright Off. Rev. Bd. Sept. 5, 2023) (refusal affirmed), <https://www.copyright.gov/rulings-filings/review-board/docs/Theatre-Dopera-Spatial.pdf>
- 20 *Id.* at 7 (quoting Guidance at 16192).
- 21 *Id.* at 8 (“[T]he Office cannot register Mr. Allen’s human contributions if he does not limit his claim with respect to the AI-generated material.”)
- 22 Second Request for Reconsideration for Refusal to Register SURYAST (SR # 1-11016599571; Correspondence ID: 1-5PR2XKJ), at 2 (U.S. Copyright Off. Rev. Bd. Dec. 11, 2023) (refusal affirmed), <https://www.copyright.gov/rulings-filings/review-board/docs/SURYAST.pdf>
- 23 *Id.*
- 24 *Id.* at 7.
- 25 Sukanya Sarkar, *Exclusive: India recognizes AI as co-author of copyrighted artwork*, MANAGINGIP, (Aug. 5, 2021), <https://www.managingip.com/article/2a5c2mpwixj23wvqctlc/exclusive-india-recognises-ai-as-co-author-of-copyrighted-artwork>

# AI Inventorship: Navigating Patent Rights Around the Globe

BY PAIGE CLOUD, DOHM CHANKONG, TODD HOPFINGER

The USPTO released proposed guidelines addressing the complex issue of AI inventorship. The USPTO is not the only agency attempting to tackle this issue; jurisdictions across the globe have been grappling with whether AI-generated inventions are patentable without any human intervention.

Through a group called The Artificial Inventor Project, pro bono attorneys have been attempting to explore the various legal contours of AI inventorship by prosecuting patent applications of AI-generated inventions through various global patent offices and documenting the hurdles they go through to protect these inventions.<sup>1</sup> Each of the inventions were created solely by the AI-system (called “DABUS,” short for “Device for the Autonomous Bootstrapping of Unified Sentience”). DABUS is a patented system developed to simulate a neural network.<sup>2</sup> The Artificial Inventor Project seeks to obtain patents on the inventions by naming only DABUS as the inventor. The Project has applied for patents across the world, and the results seem to be generally consistent: jurisdictions are unwilling to grant patent rights to AI-generated inventions where the sole named inventor is the AI-tool itself.

Out of nineteen jurisdictions, South Africa is the only patent office that has granted a patent on an AI-generated invention where the sole named inventor was the AI-tool itself.<sup>3</sup> All other jurisdictions rejected the patent application based on one universal reason: an inventor must be a natural person. However, the justifications for this requirement varies among the jurisdictions:

- In Europe, the Board of Appeal of the European Patent Office noted that an inventor must be “a natural person with legal capacity.”<sup>4</sup> While this requirement is not found in the language of the EU Patent Act itself, the Board noted that this definition is the ordinary meaning of the term “inventor.”<sup>5</sup>
- In the United States, the Federal Circuit noted that 35 U.S.C. § 100(f) defines the “inventor” as an “individual” or “individuals,” thus requiring the inventor be human.<sup>6</sup>
- While the term “individual” was not defined by the U.S. Patent Act, the court noted that the ordinary meaning of the term refers to a human being.<sup>7</sup>

- In Canada, the Canadian Patent Office noted that an inventor cannot be a machine because machines do not “have rights under Canadian law” nor is it possible for machines to “transfer those rights to a human.”<sup>8</sup>
- In Korea, the Seoul High Court noted that Article 33(1) of the Patent Act specifically states that patent rights can only be granted to a “*person* who makes an invention or a successor thereof.”<sup>9</sup>

Interestingly, some jurisdictions seem sympathetic to the plight of AI, while also agreeing that current laws do not allow for patents on AI-generated inventions. In May of 2024, a Tokyo District Court dismissed an appeal from Japan’s Patent Office rejection of a patent application for an AI-generated invention.<sup>10</sup> There, the laws of Japan defined “inventions” to mean “products of human activity,” foreclosing the possibility that the sole inventor on a patent could be AI.<sup>11</sup> However, presiding Judge Motoyuki Nakashima acknowledged that that this was something that parliament may need to address given that the current patent laws did not anticipate these new types of “inventors.”<sup>12</sup>

While the current climate for protecting solely AI-generated inventions via patent seems bleak, the question remains whether governing entities will begin to create legislation regarding patent protection of AI-generated inventions. The topic has already started to create a buzz, with the U.S. House of Representatives holding a panel on “Artificial Intelligence and Intellectual Property: IP Protection for AI-Assisted Inventions and Creative Works.”<sup>13</sup>

Further, the overall patent landscape for AI-generated inventions appears to be much more welcoming so long as the AI-tool is not the sole named inventor. For example, on February 13, 2024, the United States Patent and Trademark Office (“USPTO”) issued guidance on AI-Assisted Inventions.<sup>14</sup> In its guidance, the USPTO noted that, “AI-Assisted Inventions are not Categorically Unpatentable for Improper Inventorship” and provides that the individuals can name natural persons who made significant contributions to the invention in order to meet the inventor requirement.<sup>15</sup> In addition, in Germany, the Federal Patent Court allowed

## AI Inventorship: Navigating Patent Rights Around the Globe *continued*

an AI-generated invention when the natural person “who prompted the artificial intelligence DABUS to create the invention” was named as the inventor.<sup>16</sup> Thus, it appears

that, until legislation is enacted to address the patentability of AI-generated inventions, human involvement remains a requirement across the globe.

Country	Patent/Application No.	Status	Justification
South Africa	ZA2021/03242	Granted	
United Kingdom	GB1816909.4 and GB1818161.0	Denied and currently on appeal.	Inventorship can only be given to a natural person under section 7 and 13 of the Patents Act.
Europe	EP3564144	Denied and currently on appeal.	Article 81 of the EPC requires an inventor to be a person with legal capacity.
Europe	EP3563896	Denied and currently on appeal.	Article 81 of the EPC requires an inventor to be a person with legal capacity.
Germany	10 2019 128 120.2	Allowed due to the change of inventor to a natural person.	§ 37(1) of the Patent Act require the inventor to be a natural person.
Germany	10 2019 129 136.4	Denied.	§ 37(1) of the Patent Act require the inventor to be a natural person.
Korea	KR 10-2020-7007394	Denied and currently on appeal.	Article 33(1) states that a “Persons Entitled to a Patent” is “[a] person who makes an invention or a successor thereof has a right to a patent under this Act.”
Japan	JP 2020-543051	Denied and currently on appeal.	Denied because the Patent Act does not contemplate a non-natural person as the inventor.
New Zealand	776029	Denied and currently on appeal.	The Patent Act requires the inventor to be a natural person.
China	CN 2019800061580	Denied and currently on appeal.	Patent rights can only be given to “civil subjects” which is defined as “individuals or entities who hold civil rights, fulfil civil obligations and are affected by legal outcomes.”
United States	16/524,350	Denied. Appeals exhausted.	The inventor must be a natural person.
Australia	AU 2019363177	Denied. Appeals exhausted.	Precedent requires the invention to arise from the mind of a natural person.
Canada <sup>17</sup>	CA 3,137,161	Denied.	Machines do not have rights under Canadian law.
Saudi Arabia	521422019	Denied.	The inventor must be a natural person.
Taiwan	TW 108140133	Denied.	Patent Examination Guidelines state that the inventor must be a human.
Taiwan	TW 108137438	Denied.	Patent Examination Guidelines state that the inventor must be a human.

<sup>1</sup> Patent, [artificialinventor.com](https://artificialinventor.com/patent/) (2023), <https://artificialinventor.com/patent/> (last visited July 25, 2024).

<sup>2</sup> See U.S. Patent No. 10,423,875.

<sup>3</sup> Patents, 56 Pat. J. 255, No. 7, July 26, 2023, [https://iponline.cipc.co.za/Publications/PublishedJournals/E\\_Journal\\_July%202021%20Part%202.pdf](https://iponline.cipc.co.za/Publications/PublishedJournals/E_Journal_July%202021%20Part%202.pdf).

<sup>4</sup> Boards of Appeal of the European Patent Office, *Datasheet for the decision of 21 December 2021*, § 4.3.1 (Dec. 21, 2021), <https://www.epo.org/boards-of-appeal/decisions/pdf/j200008eu1.pdf>.

<sup>5</sup> *Id.*

<sup>6</sup> *Thaler v. Vidal*, 43 F.4th 1207 (Fed. Cir. 2022).

<sup>7</sup> *Id.*

<sup>8</sup> Canadian Patent Application 3,137,161 Office Letter (Nov. 8, 2021), [https://www.ic.gc.ca/opic-cipo/cpd/eng/patent/3137161/summary.html?type=number\\_search&tabs1Index=tabs1\\_1](https://www.ic.gc.ca/opic-cipo/cpd/eng/patent/3137161/summary.html?type=number_search&tabs1Index=tabs1_1).

<sup>9</sup> Seoul Administrative Court, *Thaler v. Commissioner of the Korean Intell. Prop. Office*, No. 2022 Guhap 89524 (June 30, 2023).

<sup>10</sup> Tokyo District Court (May 2024), [https://artificialinventor.com/wp-content/uploads/2024/05/092981\\_hanrei.pdf](https://artificialinventor.com/wp-content/uploads/2024/05/092981_hanrei.pdf).

<sup>11</sup> *Id.*

<sup>12</sup> *Id.*

<sup>13</sup> House of Representatives Judiciary Committee, *Artificial Intelligence and Intellectual Property: Part III – IP Protection for AI-Assisted Inventions and Creative Works* (Apr. 10, 2024, 10:00 AM), <https://judiciary.house.gov/committee-activity/hearings/artificial-intelligence-and-intellectual-property-part-iii-ip> (last visited July 25, 2024).

<sup>14</sup> Inventorship Guidance for AI-Assisted Inventions, 89 Fed. Reg. 10043 (Feb. 13, 2024), <https://www.federalregister.gov/documents/2024/02/13/2024-02623/inventorship-guidance-for-ai-assisted-inventions>.

<sup>15</sup> *Id.*

<sup>16</sup> The Technical Appeals Board of the Federal Patent Court, *Thaler v. President of the Ger. Patent & Trademark Office*, No. 11 W (pat) 5/21 (Nov. 11, 2021), <https://artificialinventor.com/wp-content/uploads/2022/12/DABUS-decision-BPatG-English-translation.pdf>.

<sup>17</sup> Canadian Patent Application 3,137,161 Office Letter (Nov. 8, 2021), [https://www.ic.gc.ca/opic-cipo/cpd/eng/patent/3137161/summary.html?type=number\\_search&tabs1Index=tabs1\\_1](https://www.ic.gc.ca/opic-cipo/cpd/eng/patent/3137161/summary.html?type=number_search&tabs1Index=tabs1_1).

# Five Key Takeaways from the 2024 House Judiciary Hearing on AI-Assisted Inventions and Creative Works

BY RICHARD CRUDO

As companies—and more recently, courts—have struggled to address the role of artificial intelligence (AI) in innovation, legislators are embroiled in a struggle of their own. Over the past two years, the Senate and House have held public hearings to address how, if at all, AI should be regulated and to what extent IP rights should inhere in AI-assisted inventions and creative works. Most recently, in April 2024, the House Judiciary Subcommittee on Courts, Intellectual Property, and the Internet held its third in a series of hearings addressing those very questions. Unsurprisingly, the witnesses and legislators expressed varying views.

This article summarizes those views and sets forth five key takeaways relevant for industry players who currently use AI to drive innovation or who are contemplating doing so.

## 1. New technology, old problems: our IP laws have always had to evolve to accommodate new technologies.

All seemed to agree that, although AI is groundbreaking technology, the problems that legislators now face are not unique to that technology. As Representative Jerry Nadler (D-NY) emphasized, AI is simply the most recent development in a centuries-long philosophical inquiry into the essence of human creativity, stemming all the way back to Descartes' first principle: "I think, therefore I am." The question for Congress, then, is whether existing IP law can effectively govern this new technology.

The answer from the witnesses seemed to be "yes." For example, Sandra Aistars, Clinical Professor at the George Mason University Antonin Scalia Law School, argued that the Supreme Court's test for copyright originality set forth in *Feist Publications, Inc. v. Rural Telephone Service Co.*, 499 U.S. 340 (1991), can easily be applied to AI and reflects an appropriately technology-neutral view of the law. That test asks whether a human author contributes a "minimal amount of creativity" to a work. If so, the author should be awarded a copyright. Any lesser degree of protection, Professor Aistars maintained, would "relegate" creative human input "to the category of synthetic data."

Echoing these views, Joshua Landau, Senior Counsel for the Innovation Policy, Computer and Communications

Industry Association, noted that the authorship questions facing Congress today are analogous to those raised decades earlier with the advent of computer technology. In that context, the Copyright Office provided guidance that applies with equal force to AI. The key inquiry is "whether the 'work' is basically one of human authorship, with the computer merely being an assisting instrument, or whether the traditional elements of authorship in the work were actually conceived and executed not by man but by a machine."

## 2. The subcommittee expressed the desire to be "forward leaning" with regard to granting IP protection for AI-assisted works.

The subcommittee expressed a strong desire to be "forward leaning" in granting IP protection to AI-assisted inventions and creations. Some legislators, moreover, feel that it is important for Congress, in particular, to do so. Ranking Member Hank Johnson (D-GA), for example, said that he felt a "little queasy" about ceding legislative authority to the courts or agencies to determine how the law should apply to AI.

Others expressed the view that strong legislation granting IP protection for AI-assisted innovation is critical for the United States to compete with other countries. Chairman Darrell Issa (R-CA), for example, asserted that a failure to extend such protection would threaten to dismantle the system that has "made the United States the most innovative and successful country in the history of mankind." The legislators agreed, moreover, that strong protections were needed to combat, for example, China's alleged IP theft. With that said, Mr. Landau raised concerns about potential policy implications of making AI outputs eligible for protection. As he noted, China has already flooded the United States with dubious trademark applications, and more than half of U.S. patents are issued to non-U.S. inventors, providing an avenue for non-U.S. actors to "weapon[ize] patents against the American economy."

## 3. Legislators are stumped about where to draw the line between AI-assisted innovation worthy of protection and AI-created innovation that ought not be protected.

## Five Key Takeaways from the 2024 House Judiciary Hearing on AI-Assisted Inventions and Creative Works *continued*

The question that eluded both legislators and witnesses alike is where to draw the line between AI-assisted innovation and AI-created innovation. Or, as Chairman Issa framed it: “[h]ow far can we go in protecting creations by man but assisted by machine?”

The witnesses expressed divergent views on this issue. For example, Kristelia Garcia, Professor of Law at Georgetown University, endorsed the view reflected in current Copyright Office guidance that works wholly or substantially generated by AI do not merit copyright protection. Thus, while a human-authored prompt ingested into an AI without further control or interaction would fall short of human authorship, repeatedly altering and editing the output of the AI could be viewed as the product of the human’s own creativity and intellectual conception. Rewarding this process with copyright protection would align with the policy goals of incentivizing creativity.

Professor Aistars, by contrast, criticized the Copyright Office’s guidance. In her view, the guidance inappropriately focuses on the user’s control over the AI even though the user had no role in programming or training it. Professor Aistars thus proposed a subjective test that asks whether the output of the AI stays true to the user’s authentic artistic voice. If so, copyright protection may be appropriate.

As for patents, Mr. Landau proposed simply extending the Copyright Office’s authorship inquiry to issues of inventorship. When a machine simply supports the process of human invention, patent protection should remain available. In contrast, Ms. Claire Laporte of Ginkgo Bioworks, Inc., suggested that an inquiry into the level of AI involvement is inappropriate, particularly given the Patent Act’s mandate that “patentability shall not be negated by the manner in which the invention was made.”

### **4. At least some legislators believe that liability for training AI models on copyrighted works should go hand-in-hand with copyrightability for the output of such models.**

Some legislators questioned the witnesses about the interplay between the fair-use doctrine for training AI and copy-

rightability of AI-generated output. For example, Chairman Issa expressed concern that, if fair use does *not* allow AI models to be trained on copyrighted works and copyright is not granted on the output of AI, then AI developers would not have a revenue stream to pay royalties to copyright owners whose works are used for training. In his view, fair use at the training stage and copyrightability at the output stage go hand-in-hand: if fair use applies, then the output of AI should be copyrightable; if the output is not copyrightable, fair use should not apply.

### **5. The witnesses all agree that the legislature should not take action at this time ... except perhaps to undo the PTO’s and Copyright Office’s guidance addressing AI.**

Finally, even though the witnesses disagreed about the appropriate tests for determining inventorship and authorship, they were unanimous in their pleas for Congress not to rush legislation. Professor Garcia urged Congress to wait and see how courts resolve these issues, thus reducing the risk that legislation spawns unintended (and undesirable) consequences.

Ms. Laporte echoed similar sentiments in the patent context. Patent litigation and prosecution are already complicated enough, she noted, and do not need the additional complexity and confusion that premature legislation would create. With that said, Ms. Laporte urged the Committee to undo the PTO’s guidance addressing AI. In her view, the guidance places too much weight on AI tools used during the innovation process. She noted that, at least in the biotech space, the patent laws should be concerned with the patentability of the end product, not on the tools used en route to that product. She also noted that the PTO guidance does not define AI and thus could be read to apply broadly to any computer modeling tool that researchers routinely use. Professor Aistars, as noted above, expressed similar views as to the Copyright Office’s guidance.

In the end, while legislators seem hesitant to take the “wait-and-see approach” advanced by the witnesses, all agree that the United States should take steps to protect its competitive edge in the global economy.

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