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USPTO Guidance on the Inventorship of AI-Assisted Inventions Highlights Need for Significant Human Contributions

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The US Patent and Trademark Office (USPTO) recently issued new [Inventorship Guidance for AI-Assisted Inventions](#) (“Guidance”), effective as of February 13, 2024.¹ The Guidance is a result of President Biden’s [Executive Order](#) on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence (AI) issued on October 30, 2023. The Guidance reiterates and adds more details to the current state of play.

The Guidance first addresses whether an AI system can be named an inventor or joint inventor for a U.S. patent application and points out that the USPTO and the courts previously considered the same question in the case of *Thaler v. Vidal*.² In that case, Mr. Thaler filed U.S. Patent Application No. 16/524,350 naming an AI model as the inventor and himself as assignee. The USPTO rejected the application in May 2020 on the basis that an inventor must be a natural person. The U.S. District Court for the Eastern District of Virginia and the U.S. Court of Appeals for the Federal Circuit agreed.

The position that an inventor must be a natural person is aligned with the definition of an inventor under 35 U.S.C. 100(f)--*individual(s)* who invented or discovered the subject matter of the invention. The Guidance explains that “the inventorship analysis should focus on human contributions, as patents function to incentivize and reward human ingenuity.” Thus, patent applications that name a machine or an AI system as an inventor or joint inventor will be rejected based on improper inventorship.

On the other hand, the Guidance clarifies that patent protection may be sought for inventions for which a natural person provided a significant contribution to the invention. AI-assisted inventions are “not categorically unpatentable for improper inventorship.” The Guidance considers the inventorship factors articulated in *Pannu v. Iolab Corp.*, which the USPTO summarizes as “each inventor must: (1) contribute in some significant manner to the conception or reduction to practice of the invention,³ (2) make a contribution to the claimed invention that is not insignificant in quality, when that contribution is measured against the dimension of the full invention, and (3) do more than merely explain to the real inventors well-known concepts and/or the current state of the art.”⁴

The Guidance instructs that inventorship of AI-assisted inventions must be determined on a claim-by-claim and case-by-case basis. At least one natural person must have made a significant contribution to each claim in a patent application. Admitting there is no bright-line test for the determination of significant contribution, the Guidance provides a non-exhaustive list of principles that can help inform the application of the *Pannu* factors for AI-assisted inventions.

- Merely presenting a problem to be solved to an AI system is insufficient. However, a significant contribution could be shown if a natural person constructs the prompts in view of a *specific problem to elicit a particular solution* from the AI system.
- Merely recognizing and appreciating the output of an AI system as being inventive is insufficient, particularly when the properties and utility of the output are apparent to those of ordinary skill in the art. However, inventorship by a natural person could be shown if the person takes the output of an AI system and makes a significant contribution to the output that results in an invention.
- Designing, building, or training an AI system in view of a *specific problem to elicit a particular solution* might justify inventorship if the designing, building, or training of the AI system is a significant contribution to the invention created using the AI system.



- Simply owning or overseeing an AI system does not, on its own, make a natural person an inventor.

In short, the Guidance provides a rough outline of a *significant contribution* test for determining inventorship for AI-assisted inventions. Although some example scenarios are provided and are generally helpful, there is much left unanswered. The law and the USPTO's views on these issues will surely evolve as courts inevitably get involved. One can easily foresee litigants dedicating significant discovery efforts into the role of AI in the conception of a claimed invention.

Going forward, it will therefore be important for inventors and their employers seeking patent protection to carefully document the use of AI in their innovation processes. Companies should consider adding questions to their invention disclosure forms requiring inventors to describe their use of AI, when applicable, in connection with the conception and/or reduction to practice of an invention. Practitioners should likewise get in the habit of asking inventors during invention disclosure meetings to provide information about their use of or reliance on AI for each invention.

It is also worth noting that the Guidance does not require disclosure to the USPTO of any AI contributions to an invention. However, practitioners and applicants should always bear in mind that the required inventor's oath or declaration must, among other things, *identify the inventor or joint inventor executing the oath or declaration by his or her legal name and include a statement that the person executing the oath or declaration believes the named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application for which the oath or declaration is being submitted. The inventor's oath or declaration "must be executed (i.e., signed) in accordance either with § 1.66 or with an acknowledgment that any willful false statement made in such declaration or statement is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both."*⁵

Lastly, it is worth noting that the USPTO is seeking public comments on the Guidance through May 13, 2024 and may subsequently modify the Guidance, issue further guidance, or issue additional examples. The USPTO will also be conducting a public webinar on March 5 from 1:00-2:00 pm ET to answer questions and concerns.⁶

To learn more about evolving issues regarding AI-assisted inventions, please contact Michael S. Pavento and Leo R. Wen.

Footnotes

¹ The USPTO uses the term “AI-assisted Inventions” to mean “inventions that utilize AI, as well as inventions that are developed by AI.” See, e.g., Request for Comments on Patenting Artificial Intelligence Inventions, [84 FR 44889](#) (August 27, 2019).


² *Thaler v. Vidal*, 43 F.4th 1207, 1213 (Fed. Cir. 2022), cert denied, 143 S. Ct. 1783 (2023).

³ The USPTO is careful to remind that “the main inquiry is who conceived of the invention. Reduction to practice, per se, is generally irrelevant to this inquiry. MPEP 2109(II) (citing *Fiers v. Revel*, 984 F.2d 1164, 1168 (Fed. Cir. 1993)).”


⁴ *Pannu v. Iolab Corp.*, 155 F.3d 1344, 1351 (Fed. Cir. 1998).

⁵ 37 CFR § 1.63


⁶ <https://www.uspto.gov/about-us/events/inventorship-guidance-ai-assisted-inventions-webinar>

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Registering a Copyright in a Work That Contains AI-Generated Material

The Copyright Office states that “to qualify as a work of ‘authorship’ a work must be created by a human being” and that it “will not register works produced by a machine or mere mechanical process that operates randomly or automatically without any creative input or intervention from a human author.”

The Copyright Office begins by asking “whether the ‘work’ is basically one of human authorship, with the computer [or other device] merely being an assisting instrument, or whether the traditional elements of authorship in the work (literary, artistic, or musical expression or elements of selection, arrangement, etc.) were actually conceived and executed not by man but by a machine.” In the case of works containing AI-generated material, the Office will consider whether the AI contributions are the result of “mechanical reproduction” or instead of an author’s “own original mental conception, to which [the author] gave visible form.” The answer will depend on the circumstances, particularly how the AI tool operates and how it was used to create the final work. This is necessarily a case-by-case inquiry.

If a work’s traditional elements of authorship were produced by a machine, the work lacks human authorship and the Office will not register it. For example, when an AI technology receives solely a prompt from a human and produces complex written, visual, or musical works in response, the “traditional elements of authorship” are determined and executed by the technology—not the human user. Based on the Office’s understanding of the generative AI technologies currently available, users do not exercise ultimate creative control over how such systems interpret prompts and generate material. Instead, these prompts function more like instructions to a commissioned artist—they identify what the prompter wishes to have depicted, but the machine determines how those instructions are implemented in its output.

As an example, if a user instructs a text-generating technology to “write a poem about copyright law in the style of William Shakespeare,” she can expect the system to generate text that is recognizable as a poem, mentions copyright, and resembles Shakespeare’s style. But the technology will decide the rhyming pattern, the words in each line, and the structure of the text.

When an AI technology determines the expressive elements of its output, the generated material is not the product of human authorship. As a result, that material is not protected by copyright and must be disclaimed in a registration application.

In other cases, however, a work containing AI-generated material will also contain sufficient human authorship to support a copyright claim. For example, a human may select or arrange AI-generated material in a sufficiently creative way that “the resulting work as a whole constitutes an original work of authorship.” Or an artist may modify material originally generated by AI technology to such a degree that the modifications meet the standard for copyright protection. In these cases, copyright will only protect the human-authored aspects of the work, which are “independent of” and do “not affect” the copyright status of the AI-generated material itself.

<https://www.federalregister.gov/documents/2023/03/16/2023-05321/copyright-registration-guidance-works-containing-material-generated-by-artificial-intelligence>