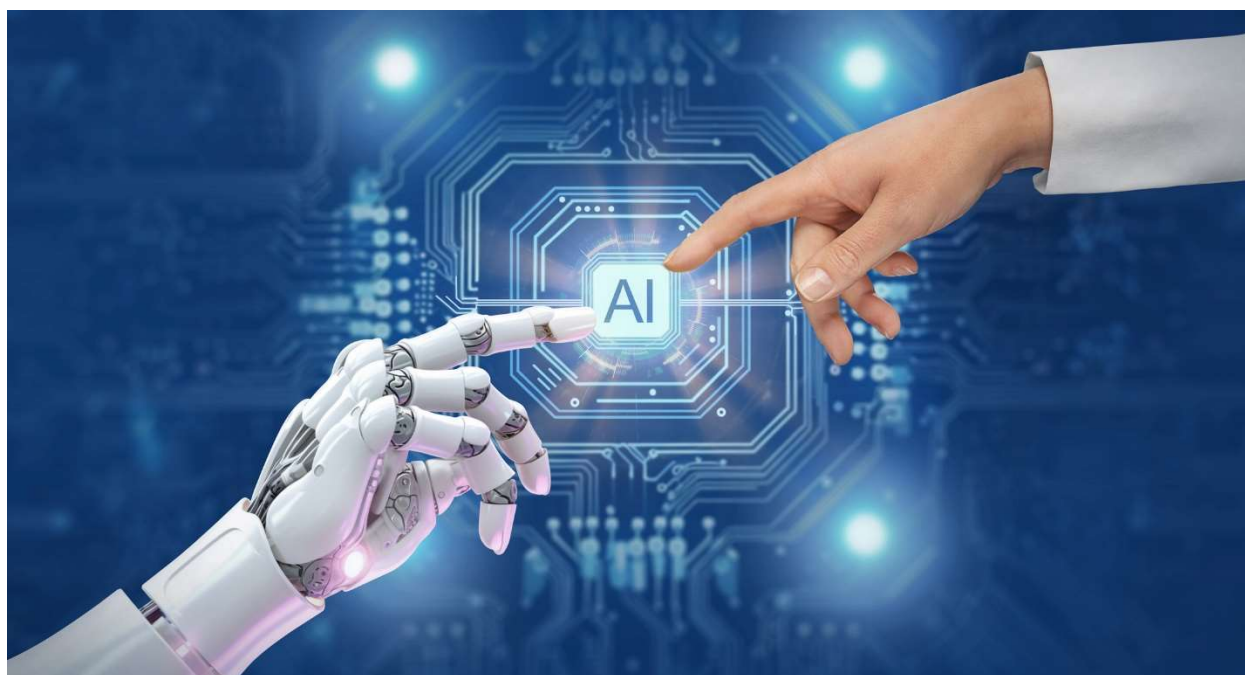


USPTO Guidance on AI-Assisted Inventions: You've Got Patentability Questions, We've Got Answers



Executive Summary

With the rapid advancement of artificial intelligence (AI), the existing legal framework of laws governing the US patent system has faced challenges as they were not originally crafted with AI considerations in mind. Consequently, court decisions and guidance from the United States Patent and Trademark Office (USPTO) have attempted to fill the void, offering interpretations and guidelines to navigate the complexities posed by AI-related inventions.

The recent *Thaler v. Vidal* case¹ stands as a notable example where the question of whether AI could be designated as an inventor on a patent application was addressed. In *Thayler*, the Federal Circuit affirmed the USPTO's decision that an AI system, known as Device for Autonomous Bootstrapping of Unified Sentence (DABUS), cannot be named as an inventor on a patent. The court upheld the principle that "only a natural person can be an inventor, so AI cannot be."²

¹ *Thaler v. Vidal*, 43 F.4th 1207 (Fed. Cir. 2022), *cert denied*, 143 S. Ct. 1783 (2023).

² *Id.* at 1213.

While this ruling definitively addressed the issue of AI systems as inventors, it left open the question of whether individuals using AI tools in the inventive process could be named as inventors. This ambiguity prompted the USPTO to provide additional guidance, particularly in light of President Biden’s October 30, 2023 Executive Order calling for clarity on inventorship and the nature of AI in the inventive process, which we previously discussed [here](#).

This article examines the USPTO’s recent guidance addressing whether inventions made by human beings with the *assistance* of AI are eligible for patent protection. To not leave readers in suspense, they are eligible (albeit, with important restrictions applying). The article also explores the implications of this guidance for innovators, patent applicants, and stakeholders in the AI ecosystem. A copy of the USPTO’s Inventorship Guidance for AI-Assisted Inventions (“Guidance”) can be found [here](#).

USPTO Guidance on AI-Assisted Inventions

The Guidance, effective as of February 13, 2024, emphasizes the importance of human contributions in AI-assisted inventions while acknowledging the role of AI tools in the inventive process. According to the Guidance, AI-assisted inventions are not categorically unpatentable, but human inventors must make “significant contributions” to qualify as inventors.

The Guidance reaffirms established principles of inventorship, stating that only a natural person (that is, a human being) and not AI can be an inventor. However, it clarifies that individuals utilizing AI tools in the inventive process can qualify as inventors if they make a significant contribution to the claimed invention.

What Constitutes “Significant Contribution”

While the USPTO acknowledges there is “no bright-line test” in determining whether a human “significantly contributed” to an invention, and that such a determination “may be difficult to ascertain,” the USPTO stated it will examine the issue based on the three-factor test set forth in *Pannu v. Iolab Corp.*, 155 F.3d 1344, 1351 (Fed. Cir. 1998) (historically applied to evaluate joint inventorship). These factors include:

- Whether the individual contributed in some significant manner to the conception or reduction to practice of the invention (that is, whether the person played a meaningful role in either coming up with the idea for the invention or putting that idea into practice).
- Whether the individual made a contribution to the claimed invention that is not insignificant in quality, when measured against the dimension of the full invention.
- Whether the individual did more than merely explain well-known concepts or the current state of the art.

“The patent system was developed to incentivize and protect human ingenuity and the investments needed to translate that ingenuity into marketable products and solution.... The guidance strikes a balance between awarding patent protection to promote human ingenuity and investment for AI-assisted inventions while not unnecessarily locking up innovation for future developments. The guidance does that by embracing the use of AI in innovation and focusing on the human contribution.” — Kathi Vidal, Under Secretary of Commerce for Intellectual Property and Director of the USPTO

Key Takeaways from the Guidance

- **Significant Contribution Requirement:** Each patent claim must have at least one named human inventor. Examiners should reject claims where a natural person did not significantly contribute. The determination of “significant contribution” to each utility, design or plant patent claim is to be made on a claim-by-claim basis applying the *Pannu* factors.
- **Role of AI in Invention:** While AI systems themselves cannot be inventors, the Guidance acknowledges that AI tools can assist natural persons in the inventive process. It states that “AI-assisted inventions are not categorically unpatentable,” but emphasizes the requirement for human inventors to play a central role and make significant contributions.
- **Guiding Principles for Determining Inventorship:** The Guidance provides five guiding principles for evaluating inventorship in the context of AI-assisted inventions:
 - **Natural person’s use of AI system:** The Guidance affirms that “a natural person’s use of an AI system in creating an AI-assisted invention does not negate the person’s contributions as an inventor.” A natural person can be listed as the inventor or joint inventor if the natural person contributes significantly to the AI-assisted invention.
 - **Conception requirement:** Merely recognizing a problem or presenting it to an AI system does not suffice for inventorship. Rather, a significant contribution may be demonstrated “by the way the person constructs the prompt in view of a specific problem to elicit a particular solution from the AI system.”
 - **Reduction to practice:** Merely reducing an invention to practice, such as building a prototype, is not sufficient for inventorship. Instead, a person who takes the output of an AI system and makes a significant contribution to it to create an invention may be considered an inventor.
 - **Development of essential building blocks:** A natural person who develops an essential building block from which the claimed invention is derived may be considered an inventor, even if they were not present for or a participant in every activity leading to the conception of the claimed invention. In some situations, a natural person “who designs, builds, or trains an AI system in view of a specific problem to elicit a particular solution could be an inventor, where the designing, building, or training of the AI system is a significant contribution to the invention created with the AI system.”
 - **Intellectual domination over AI system:** Merely owning or overseeing an AI system used in the creation of an invention does not confer inventorship. That is, maintaining “intellectual domination” over an AI system alone does not make a person an inventor of any inventions created by the AI system.

Illustrative Examples

To further elucidate the application of its Guidance, the USPTO provides illustrative examples where AI systems play distinct roles in the inventive process. These examples, covering scenarios such as the design of a transaxle for a remote-control car and the development of a therapeutic compound for treating cancer, demonstrate how inventorship issues should be analyzed in practice.³

Implications for Patent Applicants and Stakeholders

The Guidance has significant implications for patent applicants, stakeholders, and innovators in the AI ecosystem. Companies utilizing AI tools in the inventive process must ensure that human inventors make substantial contributions to each claim of a patent application. Moreover, patent filers should be mindful of their duty of disclosure obligations and incorporate safeguards to ensure proper inventorship attribution. In any disputes arising in litigation regarding inventorship, a patent may be found unenforceable because the AI contributions were not disclosed.

Given the nascent and incomplete state of the Guidance, laws, and judicial precedent concerning AI-assisted inventorship, how the USPTO and courts will enforce the limits of AI-assisted inventorship remains to be seen. Nevertheless, proactive measures can be adopted to reduce potential issues with AI-assisted inventorship. First, the human contributions made during the inventive process should be carefully documented, including the prompts outlining the specific problems to be solved or outcomes to be achieved, together with subsequent experimentation and refinements with respect to the AI outputs. Second, each invention should be independently verified by a human agent. Third, every patent application submitted should designate at least one human inventor, whether that be the AI user(s) who conceived the invention or the independent party who verified it. Finally, inventors should avoid using public AI platforms, such as ChatGPT, which do not safeguard data confidentiality. Interactions with these platforms constitute public disclosures, rendering any resulting inventions ineligible for patent protection.

Call for Feedback

The USPTO seeks feedback from practitioners and stakeholders on the Guidance, and invites written comments until May 13, 2024. Comments received during the 90-day comment period will inform future revisions and refinements to the Guidance, ensuring its continued relevance in a rapidly evolving technological landscape.

Looking Ahead

The advent of AI has revolutionized various industries, and the invention and innovation processes themselves. With AI systems increasingly contributing to the inventive process, questions regarding inventorship, patentability, and ownership have emerged. The USPTO's Guidance aims to provide clarity and direction for navigating the patent landscape in the realm of AI-assisted inventions.

³ See USPTO Guidance, Transaxle for Remote Control Car (Example 1) and Developing a Therapeutic Compound for Treating Cancer (Example 2), available [here](#) and [here](#), respectively.

In the USPTO’s view, AI use in the invention process does not forestall patentability. Rather, patents remain a viable means of protecting inventions that are created with AI provided a significant level of human contribution supported the AI-assisted invention.

By emphasizing the importance of human contributions while recognizing the role of AI tools, the Guidance seeks to strike a balance between “protecting and incentivizing AI-assisted inventions and not hindering future human innovation by locking up innovation created without human ingenuity.”

Moving forward, stakeholders should abide by the Guidance, remain vigilant in navigating the evolving patent landscape and continue to engage with the USPTO to shape policies that foster innovation and technological advancement.

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