

Artificial Intelligence Involvement in the Invention Process

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It is well known that artificial intelligence (AI) has taken the world by storm in recent years. There are claims that people have obtained patents for inventions generated by AI since the 1980s, but no one ever disclosed AI's role.¹ As patents are aimed at protecting the rights of human inventors,² inventions in which AI played a role are a more recent phenomenon. This blog will address how the legal field has adapted to the use of AI in the invention process.

AI problem solving capabilities can be used in the inventive process through analysis, generation and evaluation of ideas, decision making, and assessing risks.³ AI systems can help to pinpoint ideas that seem likely to be successful.⁴ They can identify patterns and form new ideas based on new configurations.⁵ AI can analyze large amounts of data with less risk of human error.⁶ AI can also identify potential risks to help people make informed decisions.⁷ With so many capabilities, it is not shocking that inventors have started to utilize AI systems throughout the invention process. However, this utilization has led to conflict in the patent system.

Some believe that patent protection for AI generated work would help to incentivize innovation.⁸ AI itself would not be motivated by the prospect of a patent, but allowing patent protection for AI generated work could further promote development of inventive AI.⁹ In addition to promoting innovation, the failure to protect AI generated inventions could mean that AI would not be used to invent things in the future, even if it was a more efficient and effective option than human innovation.¹⁰ Further, listing AI as a co-inventor on patents would protect human inventors. Unless AI is recognized for its contribution to the invention, allowing for patents to list only the human inventors “would put the work of someone who merely asks an AI to solve a problem on an equal footing with someone who is legitimately inventing something new.”¹¹

While there are many arguments for AI generated inventions to be protected by patents, it is not generally argued that AI should be able to own a patent.¹² AI is unable to own property, and there would be no evident benefit to allowing a system of artificial intelligence to own a patent.¹³

¹ Ryan Abbott, *The Artificial Inventor Project*, WIPO MAG. (Dec. 2019)

https://www.wipo.int/wipo_magazine/en/2019/06/article_0002.html [<https://perma.cc/6EHN-QKN8>].

² *Id.*

³ Indre Kulakauskaite, *How AI is Accelerating Innovation*, HYPE (Jan. 19, 2024)

<https://www.hypeinnovation.com/blog/how-ai-is-accelerating-innovation#:~:text=In%20simplest%20terms%2C%20artificial%20intelligence,3D%20models%2C%20and%20generate%20simulations> [<https://perma.cc/LZ3D-9V69>].

⁴ *Id.*

⁵ *Id.*

⁶ *Id.*

⁷ *Id.*

⁸ Abbott, *supra* note 1.

⁹ *Id.*

¹⁰ *Id.*

¹¹ *Id.*

¹² *Id.*

¹³ *Id.*

Despite these arguments, the United States Patent and Trademark Office (USPTO), as of February 2024, declared in their “Inventorship Guidance for AI-Assisted Inventions” “that ‘while AI-assisted inventions are not categorically unpatentable, the inventorship analysis should focus on human contributions, as patents function to incentivize and reward human ingenuity.’”¹⁴ This means that, even if an AI system was used throughout the process, the USPTO will focus on whether there was a natural person providing significant contribution.¹⁵

Invention assistance by AI became a problem for determining patent eligibility. In a 2022 case, *Thaler v. Vidal*, the Federal Circuit held that only a natural person could be an inventor.¹⁶ In this case, Stephen Thaler’s patent application was denied for failure to list a human inventor.¹⁷ They reasoned “35 U.S.C. 100(f) defines ‘inventor’ as ‘the *individual* or, if a joint invention, the *individuals* collectively who invented or discovered the subject matter of the invention.’”¹⁸ In *Thaler*, the Supreme Court cited to *Mohamed v. Palestinian Auth.*, as precedent holding that an “individual” is a human being barring some indication from Congress that they did not intend for that to be so,¹⁹ which was not the case here. This established the idea that an AI system cannot be listed as an inventor in the United States patent system.

AI could still play a major role in the invention process, and the USPTO had to address what would constitute a “significant contribution” from the human inventor. A case from 1998, *Pannu v. Iolab Corp.*, provided factors for assessing human inventorship.²⁰ This test stated that all inventors on the patent must:

- (1) contribute in some significant manner to the conception or reduction to practice of the invention, (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.²¹

The USPTO published a notice in the Federal Register, “Inventorship Guidance for AI-Assisted Inventions,” and it was stated that if a natural person utilizes AI assistance during the process of their invention, they must meet the factors laid out in *Pannu*.²² This meant that human

¹⁴ Leslie A. Demers et al., *New Developments Help Clarify Intersection of Patent Law and Artificial Intelligence*, SKADDEN (Mar. 25, 2025) <https://www.skadden.com/insights/publications/2024/03/new-developments-help-clarify-intersection-of-patent-law-and-ai> [<https://perma.cc/SA23-A6H8>]. See also Inventorship Guidance for AI-Assisted Inventions, 89 Fed. Reg. 10043 (Feb. 13, 2024).

¹⁵ Demers et al., *supra* note 14.

¹⁶ *Id.* See also *Thaler v. Vidal*, 43 F.4th 1207 (2022).

¹⁷ *Thaler v. Vidal*, 43 F.4th 1207, 1209 (2022).

¹⁸ Demers et al., *supra* note 14; *Thaler v. Vidal*, 43 F.4th 1207, 1211 (2022).

¹⁹ Demers et al., *supra* note 14; *Thaler v. Vidal*, 43 F.4th 1207, 1211 (2022).

²⁰ Demers et al., *supra* note 14.

²¹ *Pannu v. Iolab*, 155 F.3d 1344, 1351 (1998); Demers et al., *supra* note 14.

²² Demers et al., *supra* note 14; Regina Sam Penti et al., *Can AI Inventions Be Patented? The USPTO Speaks.*, ROPES & GRAY (Feb. 14, 2024) <https://www.ropesgray.com/en/insights/alerts/2024/02/can-ai-inventions-be-patented-the-uspto-speaks> [<https://perma.cc/FL9L-Q9CB>].

inventors were required to satisfy the “significant contribution” test from *Pannu* as it was applied to each claim in the patent.²³

The USPTO listed five guiding principles for patent applicants to apply when determining if the inventor’s contribution qualifies as a “significant contribution.”²⁴ The first was that, generally, the use of AI throughout the invention process would not “automatically preclude patent protection.”²⁵ Second, “significant contribution” can be found in the construction of the prompt used to generate the AI solution.²⁶ Third, simply reducing the output of an AI system to practice is insufficient.²⁷ The person must also significantly contribute to the output of the AI system in order to be considered an inventor.²⁸ Fourth, contributing “‘an essential building block from which the claimed invention is derived’ may have provided a ‘significant contribution’ even if they do not participate in each step of the invention.”²⁹ Last, just owning or overseeing the AI system used will not qualify the person to be an inventor.³⁰ The USPTO’s approach to prohibiting AI from being listed as an inventor is similar to approaches used in the United Kingdom Intellectual Property Office and the European Patent Office.³¹

As AI has developed further and become a more utilized tool in the inventorship process, the legal field has had to forge a path for how to handle new and unprecedented situations. AI has the potential to significantly impact the cost and efficiency of the inventorship process.³² Moving forward, it seems likely that the world may have to further adapt to account for the changing landscape of AI and the impact that it has on innovation.

²³ Demers et al., *supra* note 14.

²⁴ *Id.*

²⁵ *Id.*

²⁶ *Id.*

²⁷ *Id.*

²⁸ *Id.*

²⁹ *Id.*

³⁰ *Id.*

³¹ Penti et al., *supra* note 22.

³² Toby Walsh & Alexandra George, *Can machines invent things without human help? These AI examples show the answer is ‘yes’*, UNSW (Dec. 9, 2022) <https://www.unsw.edu.au/newsroom/news/2022/12/can-machines-invent-things-without-human-help--these-ai-examples#:~:text=Just%20as%20AI%20is%20transforming,the%20technical%20depth%20of%20inventions> [<https://perma.cc/DL6C-NJAH>].