Human Authorship and Inventorship in the AI Era: Legal Boundaries and Guidance

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Artificial intelligence (AI) is transforming the landscape of creativity and innovation, raising complex questions under U.S. intellectual property (IP) law. From generating digital artwork to contributing to inventive processes, AI systems increasingly participate in functions traditionally reserved for humans. Yet, recent judicial decisions and administrative guidance make clear that, under current law, only natural persons may qualify as authors or inventors.[1] Central to this framework is the principle of meaningful human involvement, which forms a threshold for determining whether works or inventions incorporating AI are eligible for protection.[2]

In *Thaler v. Perlmutter*, the D.C. Circuit held that an artwork generated solely by an AI system could not receive copyright protection. The court emphasized that copyright exists to reward "the fruits of human creativity," concluding that the absence of human authorship precludes protection.[3] Similarly, in *Thaler v. Vidal*, the Federal Circuit rejected the notion that an AI system could be named as a patent inventor.[4] The court reaffirmed that inventorship requires conception by a natural person, emphasizing the human-centered foundation of patent law.[5]

These rulings reflect a core principle of copyright and patent protections: fostering human ingenuity while ensuring public access to creative and technological advancements. However, these rulings also highlight emerging tensions as AI assumes a more active role in generating works and inventions. The question is no longer whether AI can contribute but rather how the law defines and measures human contribution in AI-assisted processes.

Administrative guidance further clarifies these boundaries. The U.S. Patent and Trademark Office's recent guidance on AI-assisted inventions specifies that inventions incorporating AI may qualify for patent protection only if a human made a substantial inventive contribution.[6] Similarly, the U.S. Copyright Office's recent report indicates that works produced with AI may be registrable if humans exercise sufficient creative control through selection, arrangement, or modification of the AI-generated output.[7]

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[1] See *infra* notes 2 and 3.
[2] See *infra* notes 6 and 7.
[3] Thaler v. Perlmutter, 130 F.4th 1039, 1044 (D.C. Cir. 2025) (holding that copyright protection does not extend to works created solely by AI because copyright law protects "the fruits of human creativity").
[4] Thaler v. Vidal, 43 F.4th 1207, 1210–11 (Fed. Cir. 2022) (rejecting AI as a patent inventor and emphasizing that inventorship requires conception by a natural person).
[5] *Id*.
[6] U.S. Patent & Trademark Office, *Inventorship Guidance for AI-Assisted Inventions* 2–3 (Mar. 5, 2024), https://www.uspto.gov/sites/default/files/documents/inventorship-guidance-for-ai-assisted-inventions.pdf (explaining that inventions assisted by AI may be patented only if a human makes a substantial inventive contribution).
[7] U.S. Copyright Office, *Copyrightability of AI-Generated Works* (Apr. 2, 2025), https://www.reuters.com/legal/legalindustry/us-copyright-office-issues-highly-anticipated-report-copyrightability-ai-2025-04-02/ [https://perma.cc/54FW-N5NM] (noting that works generated with AI may be registrable if a human exerts sufficient creative control).

These developments suggest that meaningful human involvement is a critical standard for IP protection in the age of AI. Courts and agencies are not categorically excluding AI-assisted works or inventions; instead, they are ensuring that the human element of creativity and innovation remains legally recognized. This approach seeks to preserve the incentive structures that may support U.S. IP law while accommodating emerging technologies.

Looking forward, there are questions yet to be answered: how much human direction suffices to claim authorship or inventorship? Does providing prompts to AI constitute a creative contribution, or is that just a routine step? As AI systems evolve, these legal ambiguities will likely prompt further litigation and regulatory clarification. For now, the law consistently affirms that AI may serve as a tool or collaborator, but the legal recognition of authorship and inventorship remains reserved for natural persons.