3510-16-P

DEPARTMENT OF COMMERCE

Patent and Trademark Office

[Docket No. PTO-P-2022-0045]

Request for Comments Regarding Artificial Intelligence and Inventorship

AGENCY: United States Patent and Trademark Office, Department of Commerce.

ACTION: Request for comments.

SUMMARY: The United States Patent and Trademark Office (USPTO) plays an important role in incentivizing and protecting innovation, including innovation enabled by artificial intelligence (AI), to ensure continued U.S. leadership in AI and other emerging technologies (ET). In June 2022, the USPTO announced the formation of the AI/ET Partnership, which provides an opportunity to bring stakeholders together through a series of engagements to share ideas, feedback, experiences, and insights on the intersection of intellectual property and AI/ET. To build on the AI/ET Partnership efforts, the USPTO is seeking stakeholder input on the current state of AI technologies and inventorship issues that may arise in view of the advancement of such technologies, especially as AI plays a greater role in the innovation process. As outlined in sections II to IV below, the USPTO is pursuing three main avenues of engagement with stakeholders to inform its future efforts on inventorship and promoting AI-enabled innovation: a series of stakeholder engagement sessions; collaboration with academia through scholarly research; and a request for written comments to the questions identified in section IV. The USPTO encourages stakeholder engagement through one or more of these avenues.

DATES: Submissions to the special issue of the "Journal of the Patent and Trademark Office Society" may be made directly to the journal at editor@jptos.org by July 1, 2023. Comments, in general, and responses to the questions identified in section IV must be received by [**INSERT**

DATE 90 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER] to ensure consideration.

ADDRESSES: For reasons of Government efficiency, comments must be submitted through the Federal eRulemaking Portal at www.regulations.gov. To submit comments via the portal, enter docket number PTO-P-2022-0045 on the homepage and click "Search." The site will provide a search results page listing all documents associated with this docket. Find a reference to this notice and click on the "Comment Now!" icon, complete the required fields, and enter or attach your comments. Attachments to electronic comments will be accepted in ADOBE® portable document format or MICROSOFT WORD® format. Because comments will be made available for public inspection, information that the submitter does not desire to make public, such as an address or phone number, should not be included in the comments.

Visit the Federal eRulemaking Portal website (www.regulations.gov) for additional instructions on providing comments via the portal. If electronic submission of comments is not feasible due to a lack of access to a computer and/or the internet, please contact the USPTO using the contact information below for special instructions.

FOR FURTHER INFORMATION CONTACT: Matthew Sked, Senior Legal Advisor, Office of Patent Legal Administration, at 571-272-7627. Inquiries can also be sent to AIPartnership@uspto.gov.

SUPPLEMENTARY INFORMATION:

I. Background

In August 2019, the USPTO issued a request for public comments on patenting AI inventions. Among the various policy questions raised in the notice, the USPTO requested comments on several issues involving inventorship, such as the different ways a natural person can contribute to the conception of an AI invention and whether current laws and regulations

involving inventorship need to be revised to consider contributions from entities other than natural persons. *See* Request for Comments on Patenting Artificial Intelligence Inventions, 84 FR 44889 (August 27, 2019). In October 2020, the USPTO published a report titled "Public Views on Artificial Intelligence and Intellectual Property Policy," which took a comprehensive look at the stakeholder feedback received in response to the questions posed in the August 2019 notice.[1] With respect to inventorship, some commenters took the position that current AI could not invent without human intervention and that current inventorship law is equipped to handle inventorship that involves AI technologies. However, other commenters indicated that AI can potentially contribute to the creation of inventions in a variety of ways, including generating patentable inventions to which no human has made an inventive contribution.[2]

Subsequently, in June 2022, the USPTO held its inaugural AI/ET Partnership meeting. During a panel discussion on "Inventorship and the Advent of Machine Generated Inventions," there was a discussion among the panelists about AI's increasing role in innovation. Although there was consensus that AI cannot "conceive" of inventions, some panelists contended that AI is merely a tool like any other tool used in the inventive process, while others pointed to situations in which AI systems can output patentable inventions or contribute at the level of a joint inventor. Details and a recording of the inaugural AI/ET Partnership event are available at https://www.uspto.gov/about-us/events/aiet-partnership-series-1-kickoff-uspto-aiet-activities-and-patent-policy.

While the USPTO was exploring the contours of inventorship law with respect to AI generated inventions, the USPTO received applications asserting that an AI machine was the inventor. On April 22, 2020, the USPTO issued a pair of decisions denying petitions to name Device for Autonomous Bootstrapping of Unified Sentience (DABUS), an AI system, as the inventor. The USPTO's decision explained that under current U.S. patent laws, inventorship is

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[1] The full report is available at www.uspto.gov/sites/default/files/documents/USPTO_AI-Report_2020-10-07.pdf.
[2] *See, e.g.*, Response from Ryan Abbott (November 5, 2019) at 3-4, www.uspto.gov/sites/default/files/documents/Ryan-Abbott_RFC-84-FR-44889.pdf.

limited to a natural person(s). The USPTO's decision was upheld on September 2, 2021 in a decision from the United States District Court for the Eastern District of Virginia. *Thaler v. Hirshfeld*, 558 F.Supp.3d 238 (E.D. Va. 2021). On appeal, the Court of Appeals for the Federal Circuit (Federal Circuit) affirmed the holding that an inventor must be a natural person. *Thaler v. Vidal*, 43 F.4th 1207, 1210 (Fed. Cir. 2022). Specifically, the Federal Circuit held that 35 U.S.C. § 100(f) defines an inventor as "the individual or, if a joint invention, the individuals collectively who invented or discovered the subject matter of the invention." The court found that based on Supreme Court precedent, an "individual" ordinarily means a human being unless Congress provided some indication that a different meaning was intended. *Id.* at 1211 (citing *Mohamad v. Palestinian Auth.* 566 U.S. 449, 454 (2012)). Based on the finding that there is nothing in the Patent Act to indicate Congress intended a different meaning, and that the Act includes other language to support the conclusion that an "individual" in the Act refers to a natural person, the court concluded that an inventor must be a natural person. *Id*. The court explained, however, that it was not confronted with "the question of whether inventions made by human beings with the *assistance* of AI are eligible for patent protection." *Thaler v. Vidal*, 43 F.4th at 1213.

In addition, there is a growing consensus that AI is playing a greater role in the innovation process (i.e., AI is being used to drive innovation in other technologies). For example, at the AI/ET Partnership meetings, the USPTO heard that new AI models are being used in drug discovery, personalized medicine, and chip design. As noted above, some stakeholders have indicated that technologies using machine learning may be able to contribute at the level of a joint inventor in some inventions today. Further, Congress has taken note of the increased role that AI plays in innovation. On October 27, 2022, Senators Thom Tillis and Chris Coons called on the USPTO and the U.S. Copyright Office to jointly create a national commission on AI to consider changes to existing law to incentivize future AI-related innovations and creations.

In the wake of the *Thaler* decision and in view of the current state of AI and machine learning, there remains uncertainty around AI inventorship. This uncertainty is becoming more

immediate as AI, particularly machine learning, systems make greater contributions to innovation, as noted above. If these technologies are in fact capable of significantly contributing to the creation of an invention, the question arises whether the current state of the law provides patent protection for these inventions. Accordingly, in order to foster and promote AI-enabled innovation, the USPTO requests further stakeholder feedback on the current state of AI technology in the invention creation process and on how to address inventions created with significant AI contributions.

II. Stakeholder Engagement Sessions

The USPTO will hold stakeholder engagement sessions regarding inventorship and AI-enabled innovation. Information about these sessions will be announced in the Federal Register and posted on the AI/ET Partnership webpage at www.uspto.gov/aipartnership.

III. Collaboration with Academia

The USPTO also seeks to foster increased academic engagement on inventorship and AI-enabled innovation. Universities and academic researchers play a multifaceted role in illuminating AI's role in innovation. Many of the technical breakthroughs that underpin AI's potential ability to contribute to the inventive process are inspired by work in university research labs. Legal and policy scholars from those same institutions can help explore the resulting implications from an intellectual property perspective. The USPTO encourages universities to support research and related academic initiatives—particularly those that foster interdisciplinary collaboration between AI technical researchers, legal scholars, and other contributors—that can help address open questions in this area, such as the ones posed in section IV of this notice, from a scholarly perspective. When appropriate, the USPTO will consider opportunities to engage and collaborate with such academic initiatives via the AI/ET Partnership.

The USPTO welcomes novel scholarship that can inform its future efforts as to inventorship and AI-enabled innovation. Recognizing the value of a diversity of perspectives, the USPTO invites both descriptive and normative contributions from a variety of disciplines,

including but not limited to computer science, law, public policy, economics, applied mathematics, and cognitive science. The "Journal of the Patent and Trademark Office Society" plans to publish a special issue focused on inventorship and AI-enabled innovation. Submissions for this special issue may be made directly to the journal at editor@jptos.org by July 1, 2023.[3] The USPTO will closely monitor scholarship published in this and other venues for helpful insights that advance our understanding of current inventorship doctrine, the present and future capabilities of AI systems relevant to the inventive process, and considerations about whether the U.S. patent system should be modified.

IV. Questions for Public Comment

The USPTO invites written responses from the public to the following questions:

1. How is AI, including machine learning, currently being used in the invention creation process? Please provide specific examples. Are any of these contributions significant enough to rise to the level of a joint inventor if they were contributed by a human?
2. How does the use of an AI system in the invention creation process differ from the use of other technical tools?
3. If an AI system contributes to an invention at the same level as a human who would be considered a joint inventor, is the invention patentable under current patent laws? For example:
    a. Could 35 U.S.C. §§ 101 and 115 be interpreted such that the Patent Act only requires the listing of the natural person(s) who invent(s), such that inventions with additional inventive contributions from an AI system can be patented as long as the AI system is not listed as an inventor?

[3] The "Journal of the Patent and Trademark Office Society" is independently edited and published under the direction of a Board of Governors appointed by the Patent and Trademark Office Society. Although members of the Board of Governors and the publication staff are employees of the USPTO, their involvement with the journal is in a strictly personal capacity. Note that due to the limited space available in the print volume, submission to the journal does not guarantee publication. Selected articles must comply with the journal's publication standards, including, but not limited to, being an original work and substantially not duplicative of recent or upcoming articles. The terms and conditions of the journal's article publication process are available at www.jptos.org/authorcontract.

b. Does the current jurisprudence on inventorship and joint inventorship, including the requirement of conception, support the position that only the listing of the natural person(s) who invent(s) is required, such that inventions with additional inventive contributions from an AI system can be patented as long as the AI system is not listed as an inventor?

c. Does the number of human inventors impact the answer to the questions above?

4. Do inventions in which an AI system contributed at the same level as a joint inventor raise any significant ownership issues? For example:

    a. Do ownership rights vest solely in the natural person(s) who invented or do those who create, train, maintain, or own the AI system have ownership rights as well? What about those whose information was used to train the AI system?

    b. Are there situations in which AI-generated contributions are not owned by any entity and therefore part of the public domain?

5. Is there a need for the USPTO to expand its current guidance on inventorship to address situations in which AI significantly contributes to an invention? How should the significance of a contribution be assessed?

6. Should the USPTO require applicants to provide an explanation of contributions AI systems made to inventions claimed in patent applications? If so, how should that be implemented, and what level of contributions should be disclosed? Should contributions to inventions made by AI systems be treated differently from contributions made by other (i.e., non-AI) computer systems?

7. What additional steps, if any, should the USPTO take to further incentivize AI-enabled innovation (i.e., innovation in which machine learning or other computational techniques play a significant role in the invention creation process)?

8. What additional steps, if any, should the USPTO take to mitigate harms and risks from AI-enabled innovation? In what ways could the USPTO promote the best practices

outlined in the *Blueprint for an AI Bill of Rights*[4] and the *AI Risk Management Framework*[5] within the innovation ecosystem?

9. What statutory changes, if any, should be considered as to U.S. inventorship law, and what consequences do you foresee for those statutory changes? For example:
    a. Should AI systems be made eligible to be listed as an inventor? Does allowing AI systems to be listed as an inventor promote and incentivize innovation?
    b. Should listing an inventor remain a requirement for a U.S. patent?
10. Are there any laws or practices in other countries that effectively address inventorship for inventions with significant contributions from AI systems?
11. The USPTO plans to continue engaging with stakeholders on the intersection of AI and intellectual property. What areas of focus (e.g., obviousness, disclosure, data protection) should the USPTO prioritize in future engagements?

Katherine K. Vidal,
Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and Trademark Office.

[FR Doc. 2023-03066 Filed: 2/13/2023 8:45 am; Publication Date: 2/14/2023]

[4] *See* https://www.whitehouse.gov/ostp/ai-bill-of-rights/
[5] *See* https://www.nist.gov/itl/ai-risk-management-framework