

Dated: August 22, 2019.

**Tracey L. Thompson,**

*Acting Deputy Director, Office of Sustainable Fisheries, National Marine Fisheries Service.*

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## DEPARTMENT OF COMMERCE

### Patent and Trademark Office

[Docket No. PTO-C-2019-0029]

#### Request for Comments on Patenting Artificial Intelligence Inventions

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

**ACTION:** Request for comments.

**SUMMARY:** The United States Patent and Trademark Office (USPTO) is interested in gathering information on patent-related issues regarding artificial intelligence inventions for purposes of evaluating whether further examination guidance is needed to promote the reliability and predictability of patenting artificial intelligence inventions. To assist in gathering this information, the USPTO is publishing questions on artificial intelligence inventions to obtain written comments from the public. The questions are designed to cover a variety of topics from patent examination policy to whether new forms of intellectual property protection are needed.

**DATES:** Written comments must be received on or before October 11, 2019.

**ADDRESSES:** Written comments should be sent by email to [AIPartnership@uspto.gov](mailto:AIPartnership@uspto.gov). Comments may also be submitted by postal mail addressed to the Director of the U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria VA 22313-1450. Although comments may be submitted by postal mail, the USPTO prefers to receive comments via email.

Because written comments and testimony will be made available for public inspection, information that a respondent does not desire to be made public, such as a phone number, should not be included in the testimony or written comments.

**FOR FURTHER INFORMATION CONTACT:** Office of the Under Secretary and Director of the USPTO, (571) 272-8600.

**SUPPLEMENTARY INFORMATION:** Artificial Intelligence (AI) is increasingly becoming important across a diverse spectrum of technologies and businesses. Because execution of AI invariably requires some form of computer implementation, many of the

patentability issues relating to computer-implemented inventions (*e.g.*, software) are germane to discussions of AI inventions.<sup>1</sup> AI methods and systems vary in their technical implementation, but rely on a substantial level of development and training by inventors, developers, and system users.

The USPTO has been examining AI inventions for decades and has issued guidance in many areas that necessarily relate to AI inventions. Going forward, the USPTO would like to engage with the innovation community and experts in AI to determine whether further guidance is needed to promote the predictability and reliability of patenting such inventions and to ensure that appropriate patent protection incentives are in place to encourage further innovation in and around this critical area.

*Issues for Comment:* The USPTO seeks comments on patenting artificial intelligence inventions. The questions enumerated below are a preliminary guide to aid the USPTO in collecting relevant information to evaluate whether further guidance is needed and assist in the development of any such guidance with respect to patenting artificial intelligence inventions. The questions should not be taken as an indication that the USPTO has taken a position or is predisposed to any particular views. USPTO welcomes comments from the public on any issues that they believe are relevant to this topic, and is particularly interested in answers to the following questions:

1. Inventions that utilize AI, as well as inventions that are developed by AI, have commonly been referred to as “AI inventions.” What are elements of an AI invention? For example: The problem to be addressed (*e.g.*, application of AI); the structure of the database on which the AI will be trained and will act; the training of the algorithm on the data; the algorithm itself; the results of the AI invention through an automated process; the policies/weights to be applied to the data that affects the outcome of the results; and/or other elements.

2. What are the different ways that a natural person can contribute to conception of an AI invention and be eligible to be a named inventor? For example: Designing the algorithm and/or weighting adaptations; structuring the data on which the algorithm runs;

running the AI algorithm on the data and obtaining the results.

3. Do current patent laws and regulations regarding inventorship need to be revised to take into account inventions where an entity or entities other than a natural person contributed to the conception of an invention?

4. Should an entity or entities other than a natural person, or company to which a natural person assigns an invention, be able to own a patent on the AI invention? For example: Should a company who trains the artificial intelligence process that creates the invention be able to be an owner?

5. Are there any patent eligibility considerations unique to AI inventions?

6. Are there any disclosure-related considerations unique to AI inventions? For example, under current practice, written description support for computer-implemented inventions generally require sufficient disclosure of an algorithm to perform a claimed function, such that a person of ordinary skill in the art can reasonably conclude that the inventor had possession of the claimed invention. Does there need to be a change in the level of detail an applicant must provide in order to comply with the written description requirement, particularly for deep-learning systems that may have a large number of hidden layers with weights that evolve during the learning/training process without human intervention or knowledge?

7. How can patent applications for AI inventions best comply with the enablement requirement, particularly given the degree of unpredictability of certain AI systems?

8. Does AI impact the level of a person of ordinary skill in the art? If so, how? For example: Should assessment of the level of ordinary skill in the art reflect the capability possessed by AI?

9. Are there any prior art considerations unique to AI inventions?

10. Are there any new forms of intellectual property protections that are needed for AI inventions, such as data protection?

11. Are there any other issues pertinent to patenting AI inventions that we should examine?

12. Are there any relevant policies or practices from other major patent agencies that may help inform USPTO's policies and practices regarding patenting of AI inventions?

Dated: August 21, 2019.

**Andrei Iancu,**

*Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and Trademark Office.*

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<sup>1</sup> For a discussion of the issues unique to software patents, see Request for Comments and Notice of Roundtable Events for Partnership for Enhancement of Quality of Software-Related Patents, 78 FR 292, 294 (Jan. 3, 2013) (reviewing unique challenges of software patents).