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To:	aipartnership
Cc:	Rhonda Rhyne
Subject:	Comments on "Patent Issues Related to Artificial Intelligence Inventions"
Attachments:	Comments on Patent Issues Related to Artificial Intelligence Inventions.docx

Please find enclosed our comments on "Patent Issues Related to Artificial Intelligence Inventions"

Best regards,

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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.
   a. Important elements are:
      i. Methods for creation
      ii. Structures for modification by developer, the program itself and the user
      iii. The outputs
      iv. Intended use of the outputs
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.
   a. Simple restructuring, running the algorithm and data base construction that involves no novel art should not be considered for eligibility of inventorship
   b. Algorithm design, defining new intended uses, variable inclusion and justification of use, are examples of novel art.
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?
   a. Since the base structure always has a natural person at its core, whether by design or inclusion properties inventorship should continue to flow to the natural person.
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?
   a. Again as proposed above: Since the base structure always has a natural person at its core, whether by design or inclusion properties inventorship should continue to flow to the natural person.

5. Are there any patent eligibility considerations unique to AI inventions?
   a. Secondary discoveries can be obtained by the output of the AI inventions, however the comments made in questions 4 and 5 still hold
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?

     a. Probably the most complicated of the issues raised. How can proper disclosure be completed when the exact nature of the discovery is potentially unknown or too complex to be readily defined? There is no easy answer to this question and substantially more discussion will be required as the patentability of more than output is required.

7. How can patent applications for AI inventions best comply with the enablement requirement, particularly given the degree of unpredictability of certain AI systems?
     a. As AI systems increase in their complexity eventually outstripping human comprehension enablement will increasingly approach human impracticality.

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?
     a. As comprehended above AI tools with ordinary skill in the art maybe required.

9. Are there any prior art considerations unique to AI inventions?
     a. Basic core software tools that enable certain AI capabilities maybe complicated to define as prior art.

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?