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Patent on AI generated inventions:

Question:

Should the law permit or require that the AI application be named as the inventor or should it be required that a human being be named as the inventor? In the event that a human inventor is required to be named, should the law give indications of the way in which the human inventor should be determined, or should this decision be left to private arrangements, such as corporate policy, with the possibility of judicial review by appeal in accordance with existing laws concerning disputes over inventorship?

Answer:

1. **Inventor**

The authors believe that the human(s) who actually created the AI system should be considered the inventors. It's the human machine and data scientists who build the system and then train it to learn through data and invent. The better question to be asked is why there is a need of knowing who is the inventor in the patent system? Generally speaking either the inventors are themselves the applicants or are the assignors of the invention to the assignee who is usually their employer or the eventual buyer of the patent rights. Where the inventors are themselves the applicants and the eventual proprietors there may not be too much controversy related to inventorship. However, in case of inventor being an employee or the

inventor selling the invention the concept of inventorship becomes assumes greater importance. Similarly, when there are more individuals, than one, are involved in the inventing process, the question of inventorship arise.

Inventors are the first owners of the invention and are entitled to file an application of a patent and own one. Hence, they have the right to exclude others from doing what they can do with regard to a patent as allowed under the relevant law. In the US, the patent law requires that a person who invents should be named as an inventor. Moreover, inventors are those who conceive a complete and permanent idea of the invention. Those who contributed to the research effort after the conception of the invention are not considered as inventors, even if they have a critical role in reducing the invention to practice. Conception is complete if the invention can be made with conventional techniques. On the other hand, where an invention needs novel techniques to be completed, the conception completes only when those techniques complete the invention. Additionally, the quality of the contribution to the invention (or at least one claim) is also important.

What does that mean for inventorship by an AI system. The AI system cannot conceive an invention by itself. It need human effort for its own creation and eventual enablement to invent. The AI system learns to learn by means of data it is initially trained on and then later on gathers the data by its own and keeps learning (and improving) till it invents. Nonetheless, what the system is and how it will learn from the data is coded/created by the humans. Someone who contributed the data may not be considered an inventor as many datasets are available to be used for training AI models/systems. Doing so would mean that every author of the book, every teacher and every mentor would be included in every invention ever made. On the other hand, at least those who conceived the idea of the eventual invention by the AI system and/or created the AI system itself should be considered inventors. More importantly, it may be assessed whether the eventual invention created by the AI system was foreseen, rather aimed at by the inventors of the AI system. If that's the case, it is clear that the AI system was merely a tool like any other computer program (that are assisting for decades in the inventive activity). If not, then it must be seen, how far off is the AI system's invention from what the inventors of the AI system were

expecting the AI system to invent.[1] Those who made no contribution to the conception of the inventive idea but only enabled the invention to be practiced or reduced it to practice by coding the model (or training it on the data) will have no right in inventorship.

There may still be questions regarding the contribution in the claims of the AI created invention. Could creators of the AI system conceive completely and permanently the claims of the eventual invention?

Similarly, a patent may be invalidated if inventors are incorrectly identified. Patents may also become unenforceable if an inventor is omitted. For bringing an action of infringement (and continuing it), all inventors have to be included as plaintiffs.

2. Person/AI having ordinary skill (capability) in the art

Having humans as inventors and focusing on conception of the eventual invention and quality of contribution also helps in deciding the PHOSITA for satisfying the inventive step requirement. If an AI system is considered an inventor how does an examiner or a judge (the adjudicator) decide upon the AI machine's average skill learned from the prior art? Not only it is difficult to determine the average skill of an AI system, it is equally difficult for a human to understand what an AI system is capable of doing either at present, or in a short time due to its faster learning as compared to human. The adjudicator would also have to know about many AI systems being built and operative at any given time to ascertain their average skills (capability).

3. Disclosure

The above point leads to the next issue of disclosure. Contemporaneously, the inventor need not necessarily reveal the data that is used to conceive the invention. If that will be the case, it will be impossible to collect such data (because in many cases it will not be identifiable or even easy to reduce to an objection determination. When humans create, they create on the basis of both formal and informal knowledge gained over may years. The knowledge to invent is not based on specialized or technical elements but also the contextual, social, cultural elements etc. Thus, will

[1] If they had no aim as such and they were simply experimenting with the different data and the model then it may be considered that the invention made by the AI system is not patentable simply because no human conceived it. One may keep the process of its invention secret but no patent could be granted for it.

it be important, even practicable to disclose the data used to train the AI system. More importantly, many AI systems are based on multiple, complex algorithms. Will the disclosure include all algorithms or simply the process through which the invention is made? Such disclosure is important for transparency of the AI systems and its algorithm. But does that contribute anything to the PHOSITA is still to be explored.

4. Conclusion

It is much better to still keep the human conceiver(s) of the AI system and the eventual invention as inventors. This will allow usage of the current patent laws and principles in the AI era and provide us some time, space and understanding as to whether we need to revisit about our think relating to the inventorship.

5. Corporate policy

Determination of inventorship mustn't be left to private arrangements. In such cases individuals, specially employees will be at a disadvantage. Hence the statute or case law should provide for it, expressly.