

THE DAILY RECORD

Friday, October 18, 2019 / Volume III / Number 202 / \$2.00 • Western New York's trusted source for legal and real estate news

IP FRONTIERS

The future is now: Patenting inventions independently invented by an AI system

The idea that machines, rather than humans, could invent something on their own is a concept that was once thought to be a futuristic fantasy. However, the U.S. patent office is now being confronted with patent applications listing an artificial intelligence (AI) system as the inventor. Existing U.S. patent laws seem inadequate to accommodate this new reality.

On July 31, 2019, Martin Coulter of the Financial Times reported that a team led by Ryan Abbot, a professor of law and health sciences at the University of Surrey, recently submitted two patent applications listing an AI system called Dabus ("Device for the Autonomous Bootstrapping of Unified Sentience") as the inventor for each of the inventions. Abbot's team credits Dabus for inventing — without human input — a fractal-based food container and a lamp built to flicker in a pattern to attract attention.

Dabus is described as being distinct from typical AI systems that are designed to merely assist humans. Nancy Cohen of Tech Xplore reports that Dabus is a machine learning system that generates ideas by (1) altering interconnections of neural networks, (2) detecting consequences of the ideas, and (3) predicting novelty and salience of the ideas. Dabus can generate novel ideas by comparing ideas in a pre-existing database of existing technologies.

Shortly after Abbot's team filed patents listing Dabus as an inventor, the U.S. patent office released a Request for Comments (Due Date: Nov. 8, 2019)



By Lloyd J. Wilson

Daily Record
Columnist

regarding the subject of patenting "AI inventions," the term being given to inventions invented by AI systems. 84 Fed. Reg. 166 (Aug. 27, 2019); 84 Fed. Reg. 189 (Sept. 30, 2019) The request includes 12 questions regarding the implications of AI inventions in the patent

realm.

One question to resolve is this: Assuming an AI machine (e.g., Dabus) can invent something without human intervention, what patent protections are available, if any, for AI inventions? Existing U.S. patent law only allows an inventor or assignee of the inventor to apply for a patent.

The term "inventor" is statutorily defined under 35 U.S.C. § 100(f) as "the individual, or if a joint invention, the individuals collectively who invented or discovered the subject matter of the invention." The term "individual" is interpreted as a natural person (i.e., human being) under existing U.S. patent law. Thus, under existing U.S. law, an AI machine would not be recognized as an inventor, would not be eligible to apply for a patent, and AI inventions would not be eligible for patent protection.

A follow-up question is whether, from

a policy perspective, U.S. laws should be changed to address this scenario. A close examination of the purposes and rationales forming the foundation of current U.S. patent policy might be the most informative in determining whether a change is needed.

The U.S. patent system is based on the U.S. Constitution, and is intended "... to promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries." Patents are thought to encourage innovation by granting patent owners a right to exclude others from making, using, offering for sale, or selling their invention.

However, if an AI machine is already trained and programmed to invent, the AI machine itself would need no incentive or additional motivation to invent anything; it would just perform its programmed function and continue to invent.

Conversely, if incentivizing technological advancement and promoting the progress of science are the purposes of granting patent rights, granting patent rights for AI inventions would likely incentivize companies and/or inventors to invest in AI machines like Dabus to expedite advances in technology.

Assuming that modifying U.S. patent laws to grant patent rights for AI inventions was determined to be necessary to incentivize technological advancement, giving credit for an invention to individuals who design the algorithms and train the AI machines seems like a

logical approach. Companies could require employees who design and train the AI machines to sign contractual agreements assigning patent rights to any AI invention invented by these AI machines to the company that owns the AI machines. This would create an incentive to invest in AI machines to create AI inventions. At first, this approach seems simple.

However, this change to U.S. patent law would reward those who merely design and discover (rather than invent) algorithms for the AI machines, algorithms being a manipulated form of math rather than a physical invention. Currently, algorithms are not considered patent eligible subject matter and such a change to U.S. patent law could have far reaching implications. Under this approach, a patent for an algorithm could, theoretically, be obtained for discovering a use for an equation

existing in nature such as, for example, $E = MC^2$. This could lead to unintended consequences of people committing patent infringement just for doing everyday tasks, which would, on its face, be unjust.

Perhaps a viable approach is to allow algorithms to be patentable only if they are computer-implemented. Existing U.S. patent law would require that a claim for a computer-implemented algorithm is sufficiently enabled and described. However, that may be insufficient, and granting someone a patent for a computer-implemented method to use $E = MC^2$ to perform functions A, B and C seems overly broad. Safeguards, some of which may already exist to some extent in U.S. patent law, might need to be further defined to narrow what would be a patent-eligible computer-implemented algorithm. Drafting patent laws to clarify what

computer-implemented algorithms are acceptable and which ones are not would be a difficult balancing act, but at least it would provide some level of patent protection for AI inventions.

If the purpose of patent law is truly “to promote the progress of science,” then granting patent rights to designers of algorithms for AI machines may be a viable option to incentivize investment in AI machines, but care needs to be taken to avoid unintended consequences and balance fundamental principles of justice.

Lloyd J. Wilson is an associate with the law firm of Heslin Rothenberg Farley & Mesiti P.C. specializing in patent preparation and prosecution. He has experience in developing and managing patent portfolios for businesses ranging in size from solo inventors to large corporations. Lloyd can be reached at (518) 452-5600 or at Lloyd.Wilson@hrfmlaw.com.