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Generative Artificial Intelligence Asks Questions of Innovation in Patent Law

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Introduction

Generative artificial intelligence (GenAI) has dominated headlines for nearly all of 2023 and demonstrated that it has the potential to disrupt the economic landscape by displacing jobs and creating remarkable efficiencies for business operations. Even more alarming, GenAI tools have shown that they possess awesome creative power, and, by simulating human cognitive thinking, GenAI can produce new types of text, imagery, audio, and synthetic data by using patterns and informational elements obtained from prior works.

Not surprisingly, commentary and criticism of GenAI tools have centered around the intellectual property that governs the validity and enforceability of creative works of authorship – copyrights. But as public discourse has been occupied by GenAI's impact on copyrights, many have disregarded, or paid little attention to, GenAI's potential to challenge another fundamental form of intellectual property – patents. Just as GenAI has shown that it has the capacity to act as an author of a creative work, there is no reason to believe that GenAI cannot, or will not, seek to innovate patentable subject matter.

This article briefly explores prevailing issues presented by GenAI in the context of patent law, with GenAI having the power to create (and to undermine) patented technologies. While there remain questions surrounding the patentability of the neural engines underlying the GenAI tools, or the GenAI tools themselves, this topic is one to be explored in a future article.

GenAI as the Innovator

Researchers at Carnegie Mellon University recently reported that they had developed an improved process for making electric vehicle (EV) batteries using AI. Beyond the EV industry, many other sectors believe that AI will save millions of dollars and create many profitable improvements. For example, the pharmaceutical industry believes that AI may shave a number of years off of research related to drug development and drug-delivery methodologies, warranting an incredible investment of around \$50 billion for major pharmaceutical companies.

Unbeknownst to these researchers, they may have likely created a situation that falls within a gray area of patent law. Administrative agencies and federal courts have wrestled with inventorship and GenAI. Namely, each of these bodies has asked whether a GenAI tool is worthy of recognition as a named "inventor" on patent applications and issued patents.

Under current patent law, an inventor must be a human inventor. This issue was put to rest – for now – in a decision by the Court of Appeals for the Federal Circuit, which is the appellate court that has exclusive jurisdiction over patent-related appeals. In July 2019, Dr. Stephen Thaler filed two patent applications with the U.S. Patent and Trademark Office (USPTO), one to a "Neural Flame" and the other to a "Fractal Container." Dr. Thaler listed a "Device for the Autonomous Bootstrapping of Unified Science," or "DABUS," as the sole inventor. DABUS was described merely as a "collection of source code or programming and a software program." In short, DABUS leverages generative artificial intelligence and neural mapping.

After the USPTO rejected Thaler's applications on the ground that an inventor must be a human inventor, rather than a computer, the rejection was appealed all the way through to the Federal Circuit. The Federal Circuit sided with the USPTO, affirming that the Patent Act expressly contemplates that inventors must be "individuals."

In view of this decision, the USPTO has twice requested public comments with respect to the intersection of AI, patentability, and inventorship. While the USPTO's position remains that an inventor must be "human," further questions will continue to be asked in those circumstances in which a GenAI tool acts more like a collaborator. While current law makes clear that a computer program, like DABUS, may not be listed as the sole inventor, the USPTO and the courts have not fully appreciated those circumstances in which a human scientist or engineer leverages a GenAI tool to sharpen, refine, or suggest patentable innovations over the universe of art published or disclosed before a filing date of a patent application.

GenAI as a Tool to Attack the Validity of Patented Technology

Putting the issue of inventorship aside, GenAI also presents itself as a means of rendering obvious anything and everything that the GenAI tool can invent, in view of the prior art before it.

In order to be patentable, an invention must pass several statutory criteria. An invention must be, among other things, subject-matter eligible (35 U.S.C. § 101), novel or non-anticipated (35 U.S.C. § 102), and not obvious (35 U.S.C. § 103). Obviousness is perhaps the most esoteric of the aforementioned criteria, asking an examiner at the USPTO (or a federal district court) to evaluate whether an invention is "obvious" through the eyes of a person having ordinary skill in the art of the claimed invention (often referred to as a POSITA). The POSITA is typically regarded as a mythical person who is presumed to have, at its fingertips, all known and relevant art at the time a patent application was filed with the USPTO. In many ways, GenAI embodies the mythical POSITA, in that it has the ability to crawl and scrape all information made publicly available on the internet, such as research articles, white papers, scientific-conference presentations, and all internationally issued patents and published patent applications. By leveraging the power of GenAI in a particular field, GenAI's innovative outputs could serve as bars to claimed inventions. If GenAI can arrive at the claimed invention with the knowledge available to it, then a human inventor should not be worthy of obtaining patented recognition.

Another consideration is that GenAI will most certainly become a tool in patent litigation, whether it is used to locate and/or evaluate potential prior art, to narrow the prior art references to be reviewed, or even to explain how multiple references might be combined to demonstrate obviousness (the flipside of the coin discussed above). For example, GenAI could provide different examples of combinations of prior art that an expert can choose from and adopt as their own. It is also possible that the Federal Rules of Civil Procedure (and often the Court's protective order for a given patent infringement case) may need to be revised to allow for discovery into any expert reports prepared using AI-based tools – a topic often regarded as off-limits.

It is not hard to imagine that the use of GenAI, without guardrails in the patent context, could result in significant shifts, potentially away from patent validity, due to the ability to obtain and sift like never before large amounts of information.

Looking Ahead

For the time being, a GenAI tool should likely be regarded as another developmental tool at the disposal of an innovator, or a team of collaborators. Whether it is to be used to assist in computations or simulations, or to facilitate optimizations, GenAI may move you ahead to a certain point, allowing all other inventive conceptions to be completed by humans.

Use of GenAI or not, what is true is that companies must still exercise sound intellectual property hygiene. Companies, on an early and often basis, must review their technological innovations and invention disclosures, clarify how potentially patentable subject matter is being generated (e.g., through the use of AI programs or not), and file patent applications in connection with this patentable subject matter. Further, just as companies are performing such internal reviews, they must also remain vigilant about disclosing their undisclosed inventions (or proprietary trade secrets) through the use of a public AI tool because any such disclosure could be deemed a "public disclosure" without the appropriate guardrails.

GenAI has the power to revolutionize the creative and technological landscape. But, as with any new technology, it must be used responsibly and evaluated in conjunction with alternative technologies that could deliver equal, if not better, inventive outcomes.

If you have questions or would like assistance reviewing your intellectual-property portfolio or policy for AI governance, reach out to [Adam Baldrige](#), [Edward D. Lanquist](#), [Dominic Rota](#), or any member of [Baker Donelson's Intellectual Property Team](#).