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USPTO's Guidance on Inventorship of AI-Assisted Inventions Remains True to Fundamental Principles, But May Not Be the Right Test

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The U.S. Patent and Trademark Office (USPTO) recently issued guidance on inventorship determinations for inventions developed with the assistance of artificial intelligence (AI-assisted inventions). Inventorship of AI-assisted inventions has been a hot topic recently with the increased use of generative artificial intelligence (AI). Traditional AI focuses on computers analyzing historical data and making future numeric predictions using rule-based decision-making. Generative AI operates by allowing computer systems to analyze data to identify patterns and develop new outputs and original content using those patterns that are often indistinguishable from human-generated content. Thus, the way generative AI operates looks a lot like the way a natural person conceives an invention.

Because natural persons can be inventors under U.S. patent law and generative AI can use a similar process as natural persons to innovate, it became a critical question to determine whether AI, and generative AI in particular, could be "an inventor" under U.S. patent law. The Federal Circuit answered this question in the negative in *Thaler v. Vidal*, 43 F.4th 1207 (Fed. Cir. 2022). If AI is used in the development of an invention but AI cannot be an inventor under existing patent law, that begets the question: can AI-assisted inventions be patented? And, if so, what level of contribution must a natural person provide to qualify as an inventor of an AI-assisted invention? The USPTO's recently issued guidance answers these questions, as discussed below.

The guidance states that AI-assisted inventions may be patented; and they are not ineligible for improper inventorship. The guidance recognizes that AI is a powerful tool that can be used to help solve some of the world's most challenging problems. But, it also recognizes that the purpose of patent law is to reward and encourage *human* ingenuity, and that allowing patents on inventions for which there is no human inventor may "hinder future natural person innovation by locking up innovation created without natural person ingenuity." In an effort to remedy this apparent conflict, the guidance offers a compromise — AI-assisted inventions for which there is no natural person inventor are not eligible for patent protection, but AI-assisted inventions for which there is at least one natural person inventor are not unpatentable for improper inventorship.

Turning to the next question, what level of contribution must a natural person provide to qualify as an inventor of an AI-assisted Invention? The answer is — a natural person is an inventor of an AI-assisted invention if that natural person would qualify as a joint inventor had he/she/they developed the invention with another natural person instead of the AI. In order to determine whether someone qualifies as a joint inventor, the Pannu factors are analyzed. Under the Pannu factors, each joint inventor must, "(1) contribute in some significant manner to the conception … , (2) make a contribution to the claimed invention that is not insignificant in quality, when that

contribution is measured against the dimension of the full invention, and (3) do more than merely explain to the real inventors well-known concepts and/or the current state of the art." *Pannu v. Iolab Corp.*, 155 F.3d 1344, 1351 (Fed. Cir. 1998).

This guidance does not alter or disrupt the fundamental principles of inventorship determinations: inventorship continues to turn on a person's contributions to the conception of the invention, and use of a tool, regardless of whether that tool is AI or not, does not diminish a person's contribution to the inventive process. However, for sole inventors of AI-assisted inventions, it arguably raises the standard of contribution required for a person to qualify as an inventor. Prior to this rule, a person could be a sole inventor of an AI-assisted invention if he/she/they only contributed to the conception of the invention. Now, not only must the person conceive the invention, his/she/their contributions must also be significant enough to satisfy the Pannu factors.

While this guidance is helpful to determining inventorship for AI-assisted inventions, in the end, it may not prove to be the right test. For instance, the Pannu factors have not (until now) been used to determine inventorship when other tools (other than AI) are used in the inventive process, and there is no indication from the USPTO in this guidance that they will be. The guidance does not explain why the Pannu factors should be applied for AI-assisted inventions but not other tool-assisted inventions. There may be good reasons to apply the Pannu factors for generative AI-assisted inventions, which can operate more similar to humans, but it is not clear if there are good arguments to apply the Pannu factors for non-generative AI-assisted inventions, which operate more similar to traditional tools. Despite the foregoing distinctions, the Pannu factors apply to all AI-assisted inventions, generative or not.

In addition, the Pannu factors are for determining joint inventorship, and there is no joint inventorship when one person invents something with the assistance of AI. The guidance spends a significant amount of time explaining that an inventor must be a natural person. This is both because the patent statute refers to an "individual," which is ordinarily understood to mean a human, and because AI is understood as not being able to "conceive," as required for inventorship. Thus, because AI cannot be an inventor, a human who invents something with the assistance of AI is a sole inventor, not a joint inventor.

The USPTO is seeking comments on this guidance by May 13, and intends for its development of guidelines for AI-assisted inventions to be an iterative process. Practically speaking, this means that all of the above could change in the near future. In the meantime, the USPTO has a webpage with helpful materials for practitioners handling AI-assisted inventions. The webpage includes a copy of this guidance document, links to relevant sections of the Manual of Patent Examining Procedure, and examples of inventions determinations, similar to the example the USPTO provides with respect to subject matter eligibility.

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