

Philosophical Theory May Help Solve AI Inventorship Question

By **David Leibovitch** (May 25, 2023)

The inventor of the future will be cybernetic. Yet, the U.S. patent system does not currently recognize this possibility.

As an exercise in legal futurism, the following thought experiment might lead us to reconsider our perspective on present-day artificial intelligence inventorship, and allow future innovators to more easily benefit from the patent system.

AI inventorship is currently approached by first asking whether AI, as opposed to a human, performed an inventive act. In other words, AI inventorship and human inventorship are viewed as distinct.



David Leibovitch

But how should intellectual property practitioners tackle inventorship, in a perhaps-not-so-distant future, when inventors are equipped with brain-computer interface devices, merging their biological and digital thought processes?

The extended mind perspective, explored here, may provide a solution. Rather than taking refuge in framing AI as a mere tool in the reduction to practice of an invention, might patent practitioners consider boldly identifying AI as an integral part of the human inventor's so-called extended mind giving rise to the invention — namely, its conception?

A simple ontological shift may be sufficient to allow for human-AI inventorship, even under current law.

No Cybernetic Inventors

AI systems are not recognized as eligible patent inventors in the United States — as per the U.S. Court of Appeals for the Federal Circuit's precedential 2022 decision in *Thaler v. Vidal*, which the U.S. Supreme Court declined to hear in April.[1]

The inability to list all inventors on a patent application, as required, means that AI-generated inventions are presently ineligible for patent protection.

This appears to be the case whether AI is a sole inventor or a co-inventor alongside a human being. Sole AI inventorship was addressed in *Thaler*, where the patent application exclusively listed the software program DABUS as an inventor.

There may be other situations in which AI contributed to the conception of an invention. In both instances, since AI was inventive, no patent application may be filed in the United States with a complete listing of inventors.

U.S. courts have therefore seemingly closed the doors of patent protection to any invention conceived, even if only in part, by AI.[2]

Our hypothetical human cyborg inventor would likely face similar barriers to patent procurement in the present legal framework, as any of their inventions would be suspected to have been spurred by artificial means — and thus at the very least co-invented by AI.

As an aside, this imagined inventor would be equally disappointed in the copyright realm. Per recent U.S. Copyright Office guidance, content submitted in a copyright application is evaluated by weighing human input and creativity against contributions by AI.[3]

Copyright applicants are asked to identify author-created and AI-generated portions of the submitted material. Applicants may thus claim copyright protection only for their own contribution.[4] An AI-augmented human author may find it difficult to parse out what was generated solely by their native brain's biological functions.

Conventional models of inventorship — and authorship — thus appear to be ill-adapted for our cyberpunk future. A philosophical paradigm shift may be in order to escape this conundrum. Rather than pitting human inventorship against AI ingenuity, the extended mind perspective offers a potential way forward.

The Extended Mind

Twenty-five years ago in their essay "The Extended Mind," philosophers Andy Clark and David Chalmers pushed the boundaries of the mind and self beyond the skin and skull.[5]

Acknowledging the role of external environmental actors in driving cognitive processes, Clark and Chalmers defined the extended mind as a coupled system encompassing, for instance, the pen and paper used to perform long multiplication, the tray and letter tiles manipulated to generate Scrabble words, or the notebook maintained and consulted to remember addresses.

In other words, under the extended mind approach, dubbed "active externalism" by Clark and Chalmers, the human mind includes processes external to the individual which nonetheless play an active role in cognition.

In the Scrabble game example, the authors posit that it is needlessly cumbersome to explain a Scrabble player's choice of words as the result of internal cognition combined with a long series of inputs or actions. Active externalism provides a simpler and more elegant explanation for cognition, to include the physical rearrangement of tiles on the tray.

This approach exposes arbitrary notions of inner and outer cognitive processes, and deconstructs common preconceptions about cognition and mind, opening the door to an extended view of the self.

Is there a limit to the extended mind? Yes. Under active externalism, the extended mind reaches only so far as parts of the external world performing "a process which, were it done in the head, we would have no hesitation in recognizing as part of the cognitive process." Clark and Chalmers wrote.[6]

Foreshadowing the now simmering brain-computer interface industry, Clark and Chalmers imagined that, "[i]n the distant future we may be able to plug various modules into our brain to help us out," adding that, "[w]hen a module is plugged in, the processes involving it are just as cognitive as if they had been there all along."[7]

Under the extended mind approach, therefore, an individual's cybernetic brain apparatus is regarded as a mere extension of the human's own cognitive processing apparatus. It is no longer a separate cognitive entity.

The Extended Mind of the Inventor

Would the innovations of an AI-augmented inventor be eligible for patent protection?

As noted above, the Federal Circuit in *Thaler* maintained that the Patent Act requires inventors to be natural persons — i.e., human beings.

However, under the extended mind perspective, AI is an extension of the mind of a "natural person" or "human being." By considering that an inventor could conceive of an invention outside the human body, the brain/AI barrier can be breached, and AI-supplemented inventors can avail themselves of the patent system.

Could we accept generative AI as an extension of our mental faculties? Are users using their extended mind when querying ChatGPT to generate novel solutions? Is this process akin to other forms of computational or computer-assisted problem solving?

Today's readers might be reluctant to welcome smartphones and AI bots as rightful residents of their intellectual fiefdom. But what of tomorrow's inventors equipped with brain implants?

Looking to the Future

Clark and Chalmers' philosophical contributions have not yet percolated from academia to patent law. Yet, their extended mind perspective offers valuable insight on the role of technology in supplementing human cognition.

AI is on the verge of blending with human cognition. We can expect further advances in brain-computer interface devices and other technologies not yet contemplated. The extended mind perspective might offer the paradigm shift needed to reconcile patent law with our evolving cognitive apparatus.

Consider: If brain-computer interface-wearing human innovators of the future are granted inventor status, why should it matter that today's AI resides outside the human body?

David Leibovitch is counsel at Robinson & Cole LLP.

The opinions expressed are those of the author(s) and do not necessarily reflect the views of their employer, its clients, or Portfolio Media Inc., or any of its or their respective affiliates. This article is for general information purposes and is not intended to be and should not be taken as legal advice.

[1] See *Thaler v. Vidal*, 43 F.4th 1207, 1210 (Fed. Cir. 2022), cert. denied, No. 22-919 (U.S. Apr. 24, 2023) ("[T]here is no ambiguity: the Patent Act requires that inventors must be natural persons; that is, human beings").

[2] Although the Federal Circuit deliberately did not address "the question of whether inventions made by human beings with the assistance of AI are eligible for patent protection." *Id.* at 1213 (emphasis in original).

[3] See Copyright Registration Guidance: Works Containing Material Generated by Artificial Intelligence, 88 Fed. Reg. 16191–93 (Mar. 16, 2023).

[4] Id.

[5] See Andy Clark & David Chalmers, *The Extended Mind*, 58 *Analysis* 7 (1998).

[6] Id.

[7] Id.