

## **Made By AI: Can AI-Generated Inventions Be Patentable?**

By Elena Ponte

My work aims to answer: can AI-generated inventions be patentable? My research is a conceptual analysis of legal tradition in patent law. The concepts that underpin the US patent system are ill-suited for today's deep learning programming paradigm. Fluid concepts need to be developed so that 'AI-inventors' will seek protection under the patent system and not recur to other legal solutions like trade secrets. A world of technology protected by trade secrets is a world of silos, killing the collaborative and cumulative nature of the open source environment.

I present two key obstacles to the patentability of AI-inventions in the US patent system: one, the nonobviousness threshold; and two, the qualifications for inventorship and, consequently, ownership. My work proposes a resolution to these obstacles by considering the requirements for patentability as they work under the patent systems in Europe (as under the European Patent Convention) and Canada:

To the first obstacle, the European system qualifies the nonobviousness requirement differently: to be patentable, an invention must demonstrate an 'inventive step.' Where the US nonobviousness threshold is about the mental state of the 'person skilled in the art' (that is, a potential inventor), the 'inventive step' speaks more to the relation between the invention and the 'prior art' (that is, the universe of existing inventions). Further, the European 'inventive step' is about the process as much as it is about the product. US patent law is biased towards products over process. The European framing of this patentability requirement allows for the reality that an AI-inventor will have its own inventive process.

To the second obstacle, in the Canadian system the inventor must show conception or discovery of the elements that give the invention patentable weight. This means that an invention must be the inventor's own discovery as opposed to mere verification by her of previous predictions. In this context, Canada has developed a client/assistant exception: assistants will not be granted status of inventor when they are just acting under instructions. This categorization of inventor and assistant could be instrumental in developing a specific solution to AI-inventors. The US patent system narrowly requires a human inventor to conceive an idea and reduce it to practice. The conceptualization of inventorship in the Canadian system is better suited for the AI-inventor paradigm. Where in the US patent system the patent always vests in the 'true inventor,' the European and Canadian systems allow for diversity and flexibility in the inventive process and in the ownership of a patent.

We need to bridge the programming paradigm of deep learning with an effective patent law that incentivizes disclosure and so maintains a cooperative inventive environment. If the US patent system does not reform, it will kill the open source reality that is the core of deep learning.