

Bloom and Sivinski in Law360: Are Works Generated by AI Subject to IP Protection?

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When Philip Dick wrote the 1968 novel “Do Androids Dream of Electric Sheep?,” the inspiration for the 1982 film “Blade Runner,” artificial intelligence was more fiction than science. Fifty years later, the *Harvard Business Review* predicts that AI will be the single biggest technological development of our era, as transformative as the steam engine or electricity.[1] AI’s hallmark is machine learning, a machine’s ability to improve its performance on a given task without additional human instruction. While businesses have yet to harness AI’s full potential, many have incorporated AI capabilities in customer service chat bots and online ad optimization. Cutting-edge uses include analysis of medical images to improve diagnostics and financial data to prevent money laundering. AI has also crept into our daily lives. Everything from digital assistants like Amazon’s Alexa to Facebook’s facial recognition technology to Google Translate use AI. And, it is not hard to imagine computers being programmed to generate all forms of copyrightable content with no direct human interaction, from software code to movie scripts, to photographs. Much of this is already happening.

As businesses invest more heavily in AI, they will increasingly turn to intellectual property law to protect their investment. Copyright and patent law are currently equipped to protect the AI itself — the software and sensors used to perform machine learning. But there are many questions about whether intellectual property protections are available for AI’s output. Take for example The Next Rembrandt project, a machine-generated 3D print in the style of the Dutch artist Rembrandt, created after AI analyzed Rembrandt’s real body of work.[2] The result is remarkable — but is it copyrightable? And if so, who owns the copyright? Businesses will also look to limit their liability for AI’s infringement of others’ intellectual property rights. For example, if AI optimizes software code by copying someone else’s protected material, who is liable for that infringement? These are important questions that courts and Congress will have to address as AI becomes more prolific.

What Protections are Available for AI-Generated Work?

Under U.S. law, something created without any human input is ineligible for copyright and patent protection. The U.S. Copyright Office will only register works “created by a human being.”[3] And, in what little precedent exists, courts have agreed. The monkey selfie case — *Naruto v. Slater*[4]— is perhaps the most notorious and analogous decision. Naruto, a crested macaque, took selfies with photographer David Slater’s camera. When Slater published the photographs, Naruto, through People for the Ethical Treatment of Animals, sued Slater for infringing Naruto’s copyrights in the photos. The Northern District of California dismissed the case, finding that Naruto was not an “author” under the Copyright Act and therefore lacked standing to sue.

The same is true in the patent context. The Patent Act defines “inventor” as “the individual” or “individuals” who invented or discovered the invention.[5] In interpreting the scope of patentable subject matter, the Supreme Court said Congress intended to make “anything under the sun that is made by man” patent eligible.[6]

But human involvement in the creative process is not “all or nothing.” The Next Rembrandt was created by AI, but assisted by the team who developed the underlying software and machinery, conceived of the project and input the data. And the underlying data was itself created by man, having been painted by Rembrandt in the mid-1600s. Should those individuals be permitted to obtain intellectual property rights in the final product, even if the AI itself is not entitled to those rights?

In 1884, the Supreme Court grappled with a similar question about photographs. In *Burrow Giles Lithographic Co. v. Sarony*, the court heard arguments that photographs should not be entitled to copyright protection because they were merely mechanical reproductions of pre-existing objects.[7] The court ultimately found that protection was warranted because the composition and lighting of the photograph were the product of “original mental conception.” In other words, the camera did not create the work. It was merely a tool with which the photographer himself created the work. The same framework may be applied to AI, though the question of where to draw the line between creator and tool remains.[8]

The work-for-hire doctrine may also provide guidance as courts begin to review these issues. Under that doctrine, an employer is considered the “author” — and therefore the owner of the copyright — in works made by an employee within the scope of his employment.[9] An employment relationship is defined by how much control the employer has over his employee and the employee’s work. If AI is sufficiently analogous to an employee, the business who owns the AI could argue it also owns copyrights in works the AI generates. Until these questions are answered, business may prefer to keep their AI-assisted creations secret and pursue trade secret protections instead.

Who is Liable When AI Infringes?

While AI cannot own intellectual property rights, AI may be able to infringe others’ rights. For obvious reasons, it is not feasible to sue a machine. But under U.S. copyright and patent law, the AI’s owner might be liable for the AI’s infringing conduct. If the AI’s owner takes sufficient action to cause the AI’s infringement — through programming, data inputs or otherwise — the owner could directly infringe. Such infringement is analogous to using a copy machine to reproduce a protected work, which can constitute direct infringement.[10] Alternatively, if AI becomes more autonomous, it is conceivable that an AI owner might be vicariously liable for the AI’s copyright infringement when the owner possesses the right and ability to supervise the infringing conduct and a financial interest in the infringement.[11] Further, one who provides an infringer copyrighted materials and the means of copying those materials may be liable for contributory copyright infringement in some circumstances.[12]

Similar concepts exist in patent law. One can be liable for inducing another’s infringement when he knows of the patent and knowingly induces the other to infringe.[13] Courts have not examined when and how these doctrines of secondary liability might be applied in the AI context. And even more questions arise when the AI’s creator differs from the AI’s end user. Public policy may favor expanding existing doctrines to apply to AI infringement, particularly if the alternative is leaving intellectual property owners without an infringement remedy.

Ultimately, liability questions may largely turn on what role humans play after AI generates an infringing work. If AI copies a work and a human distributes it, it will be easier to attach liability to the human for violating the distribution rights, regardless of who is liable for creating the infringing work. Conversely, if AI creates an infringing work and the work is kept in a private file, the copyright owner will likely never discover the infringement, and no claim will likely be brought. As with previous developments in technology, the law — either as enacted by Congress or interpreted by courts — will need to evolve in the near future to accommodate AI’s transformation.

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[1] Erik Brynjolfsson and Andrew McAfee, *The Business of Artificial Intelligence*, *Harvard Business Review*, <https://hbr.org/cover-story/2017/07/the-business-of-artificial-intelligence>.

[2] More information about The Next Rembrandt can be found at <https://www.nextrembrandt.com/>

[3] U.S. Copyright Office, Compendium of U.S. Copyright Office Practices, § 306 (3d ed. 2017).

[4] *Naruto v. Slater*, No. 15-cv-4324-WHO, 2016 WL 362231 (N.D. Cal. Jan. 28, 2016).

[5] 35 U.S.C. § 100(f).

[6] *Diamond v. Chakrabarty*, 447 U.S. 303 (1980).

[7] 111 U.S. 53, 58-59 (1884).

[8] AI, of course, plays a role in modern digital photography, as well. With little human input, cameras can adjust lighting, eliminate red-eye and add filters. With the introduction of augmented reality, they can even add or change images, requiring a human to do nothing more than simply press a button to capture a largely computer-generated work.

[9] 17 U.S.C. § 101 (defining “work for hire”).

[10] It is worth noting that AI’s infringement potential is not limited to mere copying of protected works. AI could also cause copyrighted works to be distributed or publicly performed or displayed, all of which could independently lead to infringement liability.

[11] See *A&M Records Inc. v. Napster Inc.*, 239 F.3d 1004 (9th Cir. 2001).

[12] *Sony Corp. v. Universal City Studios*, 464 U.S. 417, 442 (1984).

[13] *Vita-Mix Corp. v. Basic Holding Inc.*, 581 F.3d 1317, 1328 (Fed. Cir. 2009).