

# *Patenting Artificial Intelligence*

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Short-term AI investment had skyrocketed to \$15.2 billion globally (2017), and AI is increasingly used in a variety of sectors as a core technology infrastructure, often as a market differentiator. However, organizations will likely face challenges if they hope to recoup substantial AI investments by retaining limited monopolies on AI-enabled inventions. Since the U.S. Supreme Court's decisions in *Bilski v. Kappos* (2010) and *Alice Corp. v. CLS Bank International* (2014), the likelihood of enforcing AI system and methods patents has decreased dramatically. If the U.S. Patent and Trademark Office is reluctant to grant patents based on *Alice* and patents may not be enforceable, organizations may pursue trade secrecy as an alternative model.

Trade secrecy, however, may be an undesirable alternative for AI applications against a backdrop of concerns regarding how AI makes decisions. As algorithms have become more complex, privacy and ethics scholars have argued for AI transparency and algorithmic explainability for purposes of enhancing safety, protecting privacy, and preventing discrimination. The General Data Protection Regulation (GDPR) in the European Union, for example, mandates that organizations using certain types of algorithms provide information to users about how decisions, such as employment, were made, and permit these users to completely “opt out” of automated processing and profiling.

Unfortunately, modern AI technology does not operate like traditional, human-designed algorithms. Algorithms created by AI are often too complex to explain and continuously adapt and change as they learn; they are dynamically inscrutable. By function, it may be tremendously difficult, expensive, and potentially impossible to make AI algorithms usefully transparent or explainable. Despite this challenge, it may still be possible to satisfy safety, privacy, and anti-discrimination goals by instead focusing on disclosure regarding the AI system, the AI application method of creation, and the live AI application itself.

This paper will explain how AI differs from historically defined software and computer code, then explores the dominant scholarship calling for opening the “black box” and reciprocal push-back from organizations likely to rely on trade secret protection. Then, using a social benefit framework for intellectual property (rather than a purely economic benefits framework), I explore alternatives for promoting disclosure while balancing organizational interests: 1) an interpretation of the *Alice* holding that permits patent protection for aspects of AI technologies (such as methods or systems patents) and subsequent USPTO examination guidelines coupled with a deposit requirement for AI systems, 2) a statutory patent protection similar to the Plant Patents Act with alternative monopoly length and other limitations, or 3) the potential for sectoral or technology-specific regulatory exclusivity.