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The Transformative Impact of AI on Patent Prior Art Searches

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Artificial intelligence (“AI”) is rapidly transforming many aspects of the legal landscape in the United States, and patent law is no exception. As AI technologies continuously become more sophisticated in generating, analyzing, and searching vast amounts of information, their potential impact on the U.S. patent system—particularly prior art—is an increasingly important issue for patent practitioner and their clients to consider. In this article, we examine how AI may reshape our understanding and application of prior art, the challenges this presents, and strategies for navigating this evolving landscape.

The Changing Nature of Prior Art in the AI Era

Traditionally, in the United States, prior art has consisted of publicly available knowledge that is used to determine whether an invention is new (i.e., novel) and more than a trivial improvement for someone of ordinary skill in the art (i.e., non-obvious). Prior art, as defined in Section 102 of the Patent Act, includes published material (e.g., patents, articles, books, or product manuals) and certain publicly accessible knowledge and activities (e.g., sale or public use) before a certain date. However, the rise of AI is expanding and complicating the question of what constitutes prior art in several key ways:

1. *AI-Generated Disclosures*: AI systems can rapidly generate vast amounts of text, images, and even hypothetical inventions. Services such as “All Prior Art” and its sister company, “All The Claims,” use AI to churn out millions of computer-generated technical disclosures with the explicit goal of creating prior art to prevent future patents. Such a flood of AI-generated information raises questions over whether such disclosures should qualify as prior art, especially when humans have yet to review or validate them.
2. *Expanded Search Capabilities*: AI-powered search tools can scour enormous datasets of technical information, in various languages, far more quickly and thoroughly than human researchers. Such capabilities may uncover obscure prior art references that would have been impossible to find through traditional means.
3. *Predictive Capabilities and Cross-Domain Knowledge*: AI systems are increasingly being recognized for their predictive capabilities, as they can analyze existing data and trends to forecast future technological developments, sparking a debate as to whether such predictions should be considered prior art. Further, AI's ability to draw non-obvious connections across different fields of technology may influence the scope of what is considered analogous art, potentially broadening the interpretation of prior art, and affecting USPTO obviousness determinations.

Legal and Practical Challenges

The integration of AI into the prior art landscape presents several significant challenges for the patent system:

1. *Inventorship and Authorship*: Current patent laws in the United States generally require human inventorship. Following a 2022 Federal Circuit opinion in *Thaler v. Vidal*, the USPTO issued inventorship guidance explaining that AI-assisted inventions are not categorically unpatentable, and patent protection may be sought for inventions for which a natural person provided a significant contribution to the invention.¹ However, the issue remains as to whether an AI system's autonomously-generated disclosures (i.e., no contribution from a natural person) would qualify as prior art if publicly accessible before a patent's effective filing date.
2. *Information Overload and Verifiability*: The sheer volume of potential prior art created by AI systems may overwhelm patent examiners and practitioners, making it challenging to conduct thorough prior art searches and increasing the risk of overlooking relevant references. Additionally, the massive scale of AI-generated disclosures introduces the challenge of verifying whether a particular piece of prior art was actually publicly accessible on a particular date. Further, the speed at which AI can generate and publish information may create situations where relevant prior art is created and made public in the short window between invention and patent filing, complicating priority determinations.
3. *Quality and Relevance*: Not all AI-generated content will be of high quality or relevance. Distinguishing between meaningful prior art and “noise” in AI-generated disclosures may become a significant challenge. Although AI-generated disclosures may qualify as prior art under 35 U.S.C. 102 and benefit from the presumption of enablement, they are more likely to be “obscure, ambiguous, and technically deficient and do nothing to promote the progress of useful arts.”² The presumption of enablement, which has evolved over time, assumes that a document that qualifies as prior art provides enough information to enable a person skilled in the art to practice the subject matter disclosed. This presumption makes it challenging for patent applicants to contest the completeness or applicability of prior art, and the Federal Circuit has stated that the presumption can be rebutted with persuasive evidence—a difficult challenge.³

USPTO Request for Comments

Recognizing the potential impact of AI on prior art determinations, the USPTO issued a Request for Comments in April 2024, which closed on July 29th, 2024, seeking public input on this issue.⁴ In its Request for Comments, the USPTO presented fifteen questions to stakeholders, notably including:

1. Whether AI-generated disclosures qualify as prior art under 35 U.S.C. § 102, and whether such treatment should depend on the degree of human involvement or curation.
2. How to handle the potentially enormous volume of AI-generated prior art and its impact on patent examination.

3. Whether the presumption of enablement typically applied to prior art references should be modified for AI-generated disclosures.
4. How AI prior art affects the assessment of obviousness under 35 U.S.C. § 103 and the analysis of a person having ordinary skill in the art.
5. What new USPTO examination guidance or statutory changes may be required.

Although many of the current publicly available comments express hesitancy or concern regarding the use of AI technologies within the patent system, some commentators acknowledge the reality that AI technologies will be used extensively in the future and contend that no congressional amendment is needed to ensure the effectiveness of the patent system.⁵ They argue that the existing U.S. patent law framework is sufficiently flexible to adapt to the challenges posed by AI-generated prior art. However, other commentators caution that the sheer volume of AI-generated disclosures, especially those lacking human review, could create undue barriers to patentability if all are treated as presumptively enabled prior art.⁶ Despite these concerns, the efficiency gains offered by AI in automating laborious prior art searches are widely recognized, with benefits for both patent applicants and examiners.

Strategies for Patent Practitioners and Clients

Given the uncertainties surrounding AI and prior art, patent practitioners should consider the following strategies:

1. *Comprehensive Prior Art Searches*: Utilize AI-powered search tools to conduct more thorough prior art searches before filing patent applications. This can help identify potential obstacles to patentability early in the process.
2. *Detailed Invention Disclosures*: Encourage inventors to provide highly detailed disclosures of their inventions, including specific examples and alternative embodiments. This can help differentiate the invention from potentially vague or speculative AI-generated prior art.
3. *Prompt Filing*: Given the rapid pace of AI-generated disclosures, consider filing patent applications as quickly as possible after the conception of an invention to minimize the risk of intervening AI-generated prior art.
4. *Monitoring AI-Generated Content*: Keep abreast of AI systems and services generating technical disclosures in relevant fields. This can help anticipate potential prior art challenges.
5. *Documentation of Human Contribution*: Clearly document the human intellectual contribution to inventions, particularly when AI tools are used in the invention process. This can help establish inventorship and differentiate the invention from AI-generated prior art.
6. *Defensive Publications*: For innovations that may not warrant complete patent protection,

consider using AI tools to generate defensive publications that could prevent others from patenting similar ideas.

7. *Advising Stakeholders*: Inform stakeholders about the changing prior art landscape and the potential risks and opportunities presented by AI-generated disclosures.

Future Outlook

As AI technologies evolve, we can expect ongoing debates and potential legal challenges regarding the role of AI technologies in generating and identifying prior art. Some potential future developments include:

1. *Legislative Action & Court Interpretations*: Although the USPTO plans to issue guidance on how AI affects the prior art analysis, it is possible that lawmakers may amend current patent laws to specifically address AI-generated prior art and provide clarity on its legal status. It is important to note that with any new statutory amendment, the risk of litigation increases as stakeholders will likely litigate over its interpretation.
2. *USPTO Guidance*: Based on public comments and ongoing research into the potential affects of AI technologies, the USPTO plans to issue new examination guidance for handling AI-generated prior art. The USPTO has not officially disclosed when the guidance will be issued, but such guidance could potentially be issued in the next six to twelve months.
3. *AI-Assisted Examination*: The USPTO began incorporating AI into the patent evaluation process as recently as 2020 (e.g., use of AI-based tools for conducting more efficient prior art searches or assigning examiners that are best positioned to examine the application over the art), and it is likely that this trend will continue.⁷ As patent examiners in the USPTO increasingly rely on AI tools to assist in prior art searches, there is potential that it could alter the dynamics of patent prosecution and initial patentability assessments. Although further integration of AI technologies to conduct prior art searches may lead to a higher number of patent rejections, the Patent Public Advisory Committee (“PPAC”) has said these technologies directly impact patent quality and the efficiency of the USPTO and are critical to ensure that it issues quality patents that can stand up to scrutiny when challenged.⁸

Conclusion

The rise of AI is poised to significantly impact how we understand and apply the concept of prior art in the United States patent law system. While this presents challenges, it also offers opportunities for more comprehensive prior art searches and potentially higher-quality patents. Patent practitioners and their clients should stay informed about these developments and adapt their strategies accordingly. By embracing AI tools while remaining mindful of their limitations and legal uncertainties, stakeholders can navigate this new landscape and continue to protect and leverage valuable innovations effectively. As this area of patent law continues to evolve rapidly, it will be crucial for stakeholders to stay abreast of new developments, participate in ongoing policy discussions, and be

prepared to adapt their practices to ensure the best outcomes in this AI-augmented patent landscape.

This article was authored by Joshua Jackson. The team was also supported by summer associates Joshua Kuhn and Victoria Martin.

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1. Inventorship Guidance for AI-Assisted Inventions, 89 Fed. Reg. 10,043 (Feb. 13, 2024), available at: <https://www.govinfo.gov/content/pkg/FR-2024-02-13/pdf/2024-02623.pdf>.
 2. Crouch, D., *Discerning signal from noise: Navigating the flood of ai-generated prior art*, *Patently-O* (Apr. 30, 2024), available at: <https://patentlyo.com/patent/2024/04/discerning-navigating-generated.html>.
 3. See *In re Antor Media Corp.*, 689 F.3d 1282, 1289 (Fed. Cir. 2012); *Apple Inc. v. Corephotonics, Ltd.*, 861 Fed. App'x 443, 450 (Fed. Cir. 2021) ("[R]egardless of the forum, prior art patents and publications enjoy a presumption of enablement, and the patentee/applicant has the burden to prove nonenablement for such prior art.").
 4. Request for Comments Regarding the Impact of the Proliferation of Artificial Intelligence on Prior Art, the Knowledge of a Person Having Ordinary Skill in the Art, and Determinations of Patentability Made in View of the Foregoing, 89 Fed. Reg. 34,217 (Apr. 30, 2024), available at: <https://www.federalregister.gov/documents/2024/04/30/2024-08969/request-for-comments-regarding-the-impact-of-the-proliferation-of-artificial-intelligence-on-prior#>.
 5. See Comment PTO-P-2023-0044-0025 (IEEE-USAs response to Request for Comments Regarding the Impact of the Proliferation of Artificial Intelligence on Prior Art, the Knowledge of a Person Having Ordinary Skill in the Art, and Determinations of Patentability Made in View of the Foregoing), available at: <https://www.regulations.gov/comment/PTO-P-2023-0044-0025>.
 6. See Comment PTO-P-2023-0044-0023 (Sheng Tong's Comment to Impact of the Proliferation of AI on Prior Art, the Knowledge of a Person Having Ordinary Skill in the Art, and Determinations of Patentability Made in View of the Foregoing), available at: <https://www.regulations.gov/comment/PTO-P-2023-0044-0023>.
 7. Gilbert, A., *Invention Applications Face AI-Backed Scrutiny at Patent Office* (Oct. 2, 2023), page 5, available at: <https://news.bloomberglaw.com/ip-law/invention-applications-face-ai-backed-scrutiny-at-patent-office>.