

Before the
United States Patent and Trademark Office
Washington, D.C.

In re

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

Docket No. PTO-P-2023-00004

**COMMENTS OF
THE COMPUTER & COMMUNICATIONS INDUSTRY ASSOCIATION (CCIA)**

In response to the Request for Comments published in the Federal Register at 89 Fed. Reg. 34217 (Apr. 30, 2024) (the “Request”), the Computer & Communications Industry Association (“CCIA”)¹ submits the following comments.

CCIA believes that, while the specific impacts of AI on prior art and obviousness will vary by field and will change and develop over time, the existing statutory text is sufficient to adapt to these changes. AI tools will help innovators create new inventions; it will also generally increase the level of creativity required to reach the threshold of non-obviousness. By shifting the window towards the creation of ever more innovative technologies, AI will continue the long arc towards technological improvement and increasingly skilled human artisans.

¹ CCIA is an international nonprofit membership organization representing companies in the computer, Internet, information technology, and telecommunications industries. Together, CCIA’s members employ nearly half a million workers and generate approximately a quarter of a trillion dollars in annual revenue. CCIA promotes open markets, open systems, open networks, and full, fair, and open competition in the computer, telecommunications, and Internet industries. A complete list of CCIA members is available at <http://www.ccianet.org/members>.

I. General Topics

A. The Increasing Prominence of AI Will Raise the Level of Ordinary Skill In the Art

Utilization of AI is increasing throughout American industry and society. While headlines may focus on generative AI systems like ChatGPT, much of the growth has come in other arenas—AI for drug discovery and chemical synthesis, AI-assisted coding, and numerous applications of machine learning to sift through and help understand large data sets. In patent law, the question of obviousness rests on whether a person of ordinary skill in the art with all relevant prior art available to them could have come up with the same invention. Some AI systems attempt to operate in this way, with varying degrees of success.

The availability of AI as a tool to aid in invention may thus raise the level of ordinary skill in the art for those fields where it is being leveraged, but it is critically important to note that this is not a bright-line rule. The impact of AI on ordinary skill will be field-dependent and change over time, as it depends on how AI tools are being used in any given field of technology. As AI tools are used more widely and as their capabilities increase, the level of ordinary skill is likely to increase over time, affecting more fields of technology and providing more capabilities within those fields.

Computer design tools provide a relevant analogy. Although computation and computer-aided design tools are not universally available in all technology domains, where they are available they have increased the level of ordinary skill. Given the increasingly widespread utilization of AI in the innovation process, and the increasing sophistication of available tools, AI has already raised the level of ordinary skill in the art in some fields, and is likely to continue to do so if and as AI usage increases.

B. Existing Law Is Sufficient to Address the Increased Use of AI

While the increasing utilization of AI will lead to changes in the practice and application of patent law, this does not mean that changes to the law itself are required. In particular, there is no necessity for statutory changes at this time. Patent law was written in a technologically-neutral manner with significant flexibility to adapt as the technological environment changes. For example, and as discussed above, the concept of a “person of ordinary skill in the art” is adaptable to reflect changes in training and technology. Today’s ordinary engineer is likely to have had far more education than their 18th century equivalent and the computerized tools they

have access to are hardly comparable to the pen, paper, and slide rule those historical engineers might have employed. While that 18th century engineer is no more or less intelligent than today's engineer, the ordinary skill in the art has increased alongside the improvements in technology and education. This type of adaptability to the present technological situation illustrates why statutory changes are not required at this time.

II. Responses to Specific Questions from the Request

1. *In what manner, if any, does [35 U.S.C. 102](#) presume or require that a prior art disclosure be authored and/or published by humans? In what manner, if any, does non-human authorship of a disclosure affect its availability as prior art under [35 U.S.C. 102](#)?*

35 U.S.C. § 102 neither presumes nor requires any human contribution to a prior art disclosure. Congress adopted the current § 102 language at a time when AI tools were beginning to come into use, and is presumed to have known about this. Even so, there is no textual requirement that a prior art publication have been created by an “individual” and no other text that constrains prior art based on its authorship, or lack thereof. Instead, Congress focused on whether a reference is available. Congress chose to provide a broad definition of prior art, up to and including something printed that is “otherwise available to the public.” These Congressional choices illustrate the proper focus—not whether a document was created by an AI or a human, but instead whether the document was available to the interested public.

Given this clear statutory intent to sweep widely, and the lack of any text that would point towards restricting prior art status, non-human authorship does not affect availability of a reference as prior art.

2. *What types of AI-generated disclosures, if any, would be pertinent to patentability determinations made by the USPTO? How are such disclosures currently being made available to the public? In what other ways, if any, should such disclosures be made available to the public?*

Any AI-generated disclosure that would be pertinent if authored by a human would be pertinent to patentability determinations. Authorship is not relevant to a document's pertinence except for purposes of the one year grace period of 102(b)(1). So long as a document is not itself derived from the inventor(s), a document with relevant information is pertinent to patentability determinations regardless of who generated it. CCIA and its members are not aware of any specific mechanism by which AI-generated disclosures are being made available to the public,

but instead such disclosures appear to be being made available via the same mechanisms as human-generated disclosures.

3. *If a party submits to the Office a printed publication or other evidence that the party knows was AI-generated, should that party notify the USPTO of this fact, and if so, how? What duty, if any, should the party have to determine whether a disclosure was AI-generated?*

Where a party is submitting a document as prior art, for example via a third party *ex parte* reexamination request, the party is under no obligation to disclose or investigate whether a reference was AI-generated, even if they were already aware of its provenance. However, because AI authorship might affect determinations like enablement, as discussed below, it may be appropriate to disclose AI-generation if it might affect determinations such as whether a reference is enabled.

4. *Should an AI-generated disclosure be treated differently than a non-AI-generated disclosure for prior art purposes? For example:*
 - a. *Should the treatment of an AI-generated disclosure as prior art depend on the extent of human contribution to the AI-generated disclosure?*

No. AI-generated disclosures should be treated identically to human-generated disclosures for purposes of prior art. As discussed above, Congress intentionally swept in a wide range of public disclosures for prior art purposes, and did not choose to limit it to only disclosures authored by individuals. Instead, Congress focused on the keys to prior art status—when was the reference available to the public, and what is the technical content of that reference?

- b. *How should the fact that an AI-generated disclosure could include incorrect information (e.g., hallucinations) affect its consideration as a prior art disclosure?*

The inclusion of incorrect information is hardly an AI-specific phenomenon. Humans may include incorrect information, whether intentionally or unintentionally, when they author a document. Even patent documents can contain information that is incorrect, or even information that was made up from whole cloth.² As noted by Prof. Freilich, “in most contexts, making up

² See Janet Freilich, *Prophetic Patents*, 53 U.C. Davis L. Rev. 663 (2019).

data is forbidden - considered fraudulent, even immoral.”³ But that is not the case in patent law. Instead, “[p]atents often contain experimental data, and it is perfectly acceptable for these experiments to be entirely fictional.”⁴ In fact, in Prof. Freilich’s analysis, approximately 24% of patents that contain examples contain these “prophetic”—i.e., fictional—examples.

Given the treatment of human-authored disclosures, and the frequency with which such disclosures contain incorrect or fictitious information which may not match reality, it is unclear why AI-generation of a disclosure should affect its treatment. In either case, those assessing the document are obligated to assess whether it is in fact accurate.

c. How does the fact that a disclosure is AI-generated impact other prior art considerations, such as operability, enablement, and public accessibility?

As outlined above, in general the authorship of a document should not impact prior art considerations. However, it might still be relevant. An AI-generated publication—much like only authored by a human—may not contain the necessary enabling information. Regardless of authorship, the critical point is what the content of the document is, not who wrote it. Although there is a presumption of operability for references,⁵ for AI-generated disclosures and human-authored documents alike, the USPTO should still assess whether a given document is operable, enabled, and accessible before rejecting an application over that document.

The issue of accessibility is likely to be particularly relevant. Where a disclosure is part of a large database that is not well-indexed or easily searchable, particularly if that database is so large that even using available indexing or searching still returns an unfeasibly large number of results, this should not necessarily be considered to be publicly available. However, existing case law on public accessibility provides sufficient guidance to address this issue if and when it arises.

- 5. At what point, if ever, could the volume of AI-generated prior art be sufficient to create an undue barrier to the patentability of inventions? At what point, if ever, could the volume of AI-generated prior art be sufficient to detract from the public accessibility of*

³ *Id.*

⁴ *Id.*

⁵ See *In re Antor Media Corp.*, 689 F.3d 1282 (Fed. Cir. 2012).

prior art (i.e., if a PHOSITA exercising reasonable diligence may not be able to locate relevant disclosures)?

AI-generated art is unlikely to ever present an undue barrier to the patentability of inventions, as the information must still meet the requirements of operability, enablement, and accessibility. For large repositories of autonomously generated prior art,⁶ this is unlikely to be the case.

AI technology is also likely to make it easier to search for, locate, and access relevant information. Previous informational revolutions have had exactly this effect. Handwritten books were more difficult to search and locate than printed books, which were in turn made easier to access when indexes were reproduced to many locations. The creation of the computer and information networking technologies like the Internet in turn continued to expand the universe of prior art, but also made it far easier to search for and locate those references. AI is no different. It might increase the amount of information available, but it will also make it simpler to locate relevant information within the larger mass of data.

6. *Does the term “person” in the PHOSITA assessment presume or require that the “person” is a natural person, i.e., a human? How, if at all, does the availability of AI as a tool affect the level of skill of a PHOSITA as AI becomes more prevalent? For example, how does the availability of AI affect the analysis of the PHOSITA factors, such as the rapidity with which innovations are made and the sophistication of the technology?*

The term “person” in PHOSITA does not presume natural personhood. However, even if “person” does not extend to AI systems in this context, the answer to the question remains the same. Whether a PHOSITA includes an AI system by itself or only when used by a human, AI is still likely to raise the level of ordinary skill for an actual human person of skill in the art. A PHOSITA would have access to AI tools and systems, raising the level of skill we would expect from them. Much as a computer is not itself a PHOSITA, but computer tools raise the level of skill a PHOSITA can bring to bear, the increased availability and usage of AI will increase the ordinary level of skill in the art.

⁶ See, e.g., All Prior Art – Algorithmically Generated Prior Art, <https://allpriorart.com>.

7. *How, if at all, should the USPTO determine which AI tools are in common use and whether these tools are presumed to be known and used by a PHOSITA in a particular art?*

The USPTO should continue its existing practices aimed at understanding how tools are used in industry. For example, the Site Experience Education (SEE) program⁷ already provides an opportunity for examiners to “learn about new and evolving technologies, and experience how these technologies are developed and operate in the field.” The usage of AI tools is part of the learning experience SEE provides. The Patent Examiner Technical Training Program (PETTP)⁸ is another avenue by which the Office can derive an enhanced understanding of what tools are used, and how those tools are used, in industry. These programs already provide the USPTO with significant visibility into how tools are used in industry, and there is no reason to expect that similar visibility into the usage of AI tools will be any different.

8. *How, if at all, does the availability to a PHOSITA of AI as a tool impact whether something is well-known or common knowledge in the art?*

In fields where AI is commonly used, the availability of AI tools to a PHOSITA will generally make it more likely that something should be considered to be well-known or common knowledge in the art. For example, AI tools enhance searchability and accessibility of knowledge, rendering it easier for an individual to access the relevant information. This is analogous to the increase in common knowledge generated by search engines—for example, surfacing examples of a particular coding technique from StackOverflow—which expanded the universe of knowledge commonly accessible to a PHOSITA. However, this will not be universal—in fields where AI is not used or is uncommon, the level of ordinary skill may be unaffected.

⁷ <https://www.uspto.gov/patents/initiatives/site-experience-education-see-program>

⁸ <https://www.uspto.gov/patents/initiatives/patent-examiner-technical-training-program>

9. *In view of the availability to a PHOSITA of AI as a tool, how, if at all, is an obviousness determination affected, including when:*
- a. *Determining whether art is analogous to the claimed invention, given AI's ability to search across art fields? Does the "analogous" art standard still make sense in view of AI's capabilities?*

The analogous art question raised here is an ideal example of how AI tool usage can raise the level of ordinary skill in the art. One of the strengths of AI systems is in making correlations and connections across apparently unrelated areas of information. Because AI systems can and do make these sorts of connections, the analogous art standard likely poses a lower barrier than in the past. However, even with AI being available, the Office and/or a challenger would need to articulate some reason to believe AI would link two areas of art. An AI system intended for modeling semiconductor dopant behavior might well incorporate metallurgical information. That same system is less likely to include information on manufacturing paint. Rather than eliminating analogous art entirely, AI appears to broaden what is an analog, connecting additional areas of technology to one another.

- b. *Determining whether there is a rationale to modify the prior art, including the example rationales suggested by KSR(MPEP 2143, subsection I) (e.g., "obvious to try") or the scientific principle or legal precedent rationales (MPEP 2144)?*

This question, similar to the discussion above, provides another example of how AI raises the ordinary skill in the art. Concepts that might not have been "obvious to try" might become so as AI systems become more and more capable of making connections across disciplines and suggesting potential avenues of modification to solve a particular problem. However, this can cut both ways. As discussed in more detail in response to question 11 below, in the example where an AI system produces an overwhelming amount of output, it is likely to be impractical to try all of the suggestions (even presuming the information would qualify as prior art, i.e., is operable, enabled, and accessible). Thus the answer here will likely be field-dependent and change over time as AI systems improve.

- c. *Determining whether the modification yields predictable results with a reasonable expectation of success (e.g., how to evaluate the predictability of results in view of the stochasticity (or lack of predictability) of an AI system)?*

This will, much like the prior question, depend significantly on specific AI technologies. A system that has significant hallucinatory tendencies might produce output that is not

reasonably likely to be successful. But it is the lack of success, not the unpredictability of the output, that would mean that the AI tool would not affect obviousness.

Separate from the factual accuracy of its output, the stochastic nature and unpredictability of some AI systems is not in and of itself a bar. As one analog, consider an ordinary die. While you cannot reliably predict what number will roll next, you can reasonably expect that, over time, each of the six faces will come up an approximately equal number of times. You can also reasonably expect that the die will never produce a 7. Similarly, a particular AI system might produce an unpredictable output, but that output might itself be likely to be a successful solution, creating a situation in which an unpredictable tool creates a predictably successful outcome.

The critical inquiry is thus not the predictability of the output, but the predictability of success if the output is implemented.

In addition, CCIA notes that while some AI tools are stochastic in nature, others are more reproducible. As such, the impact on obviousness will depend on the characteristics of the AI systems used in a particular area of art.

10. How, if at all, does the recency of the information used to train an AI model or that ingested by an AI model impact the PHOSITA assessment when that assessment may focus on an earlier point in time (e.g., the effective filing date of the claimed invention for an application examined under the First-Inventor-to-File provisions of the America Invents Act)?

The obviousness inquiry is assessed based on the characteristics of a PHOSITA at the time of the invention or at the time of the effective filing date, including what references they would have had access to. As such, the key is not the recency of information used in an AI model but rather whether that system was in use and whether that output was publicly accessible prior to the critical date.

However, the Office should not generally be using specific AI systems available as of a specific date as prior art. In certain circumstances—for example, when examining an application relating to AI tools—doing so may be appropriate, but in general AI tools may create a general trend towards higher levels of skill, and the Office should incorporate that trend as it assesses a given application rather than relying on output from any specific AI. Even where AI output is relied upon as a reference, the recency of information used in training is irrelevant, as the critical question remains whether that information was publicly accessible as of a specific date.

11. *How, if at all, does the availability to a PHOSITA of AI as a tool impact the enablement determination under 35 U.S.C. 112(a)? Specifically, how does it impact the consideration of the In re Wands factors (MPEP 2164.01(a)) in ascertaining whether the experimentation required to enable the full scope of the claimed invention is reasonable or undue?*

The impact of AI tools on enablement determinations is, much like its impact on obviousness, likely to depend heavily on the specifics of the tools used in an area of technology. For example, existing AI systems can use coding knowledge to write code to solve a problem, reducing the required amount of experimentation needed to enable the full scope of a claim in that context. In other areas of technology, such as drug discovery, AI tools may not be able to produce this type of narrowing determination, instead producing a wide array of unviable outputs which humans must sort through and discard individually via experimentation and analysis.⁹

12. *What guidance from the USPTO on the impact of AI on prior art and on the knowledge of a PHOSITA, in connection with patentability determinations made by the Office, would be helpful?*

In general, guidance expressing the Office’s opinion that AI may increase the level of ordinary skill in a given field, depending on how that field of technology uses AI tools, would be helpful. Specific statements that the USPTO interprets a PHOSITA as an individual with access to tools, including AI, would be helpful, as would specific statements that the availability of AI tools can lower the burden on examiners to show that a piece of non-analogous art would have been considered by a PHOSITA. In addition, guidance from the Office on how they understand the impact of specific parameters of AI tools, such as reproducibility or hallucinatory tendency, on the determinations discussed in the Request would be helpful.

15. *Should title 35 of the U.S. Code be amended to account for any of the considerations set forth in this notice, and if so, what specific amendments do you propose, and why?*

CCIA does not believe that there is any present need to amend title 35.

III. Conclusion

CCIA reiterates our belief that, while the specific impacts of AI on prior art and obviousness will vary by field and change over time, the existing statute is sufficient to adapt to

⁹ See, e.g., Derek Lowe, “AI Drugs So Far”, *In The Pipeline* (May 13, 2024), <https://www.science.org/content/blog-post/ai-drugs-so-far>.

these changes. AI tools will help innovators create new inventions; it will also mean that the level of creativity required to reach the threshold of non-obviousness will increase. By shifting the window towards the creation of ever more innovative technologies, AI will continue the long arc towards technological advancement.

We appreciate the opportunity to comment and would be happy to provide the Office with any further information that might be useful.

Respectfully submitted,

Joshua Landau
Senior Counsel, Innovation Policy
Computer & Communications Industry Association
25 Massachusetts Avenue NW, Suite 300C
Washington, DC 20001
jlandau@ccianet.org

July 29, 2024