



22 July 2024

Office of Patent Legal Administration  
Office of the Deputy Commissioner for Patents  
United States Patent and Trademark Office  
Department of Commerce  
Washington, DC 22314

*In re: IEEE-USA's 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*

IEEE-USA is pleased to submit the following responses to the PTO's questions laid out in this RFC.

### **A. The Impact of AI on Prior Art**

**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 does not require (as 35 U.S.C. 115) or presume (as arguably U.S. Const. Art. I, Sec. 8, Cl. 8 and 35 U.S.C. 101) human involvement.

The various exceptions to statutorily presumed patentability set forth in pre-America Invents Act (AIA) section 102 involved multiple circumstances considered "prior art," some of which were carried forward in the AIA framework. Such "prior art" has always involved some amount of automation in development, implementation (as in public use), printing, and publishing. There has long been "defensive publication" of ideas, sometimes incomplete for patentability purposes, to reserve "freedom to operate" within areas of secret prior use or future expansion or for the public good in the view of the publisher.

Now, with the rapid expansion of generative AI, the issue is whether "prior art flooding" with "wholly" automatically generated, edited, and published combinations and permutations should qualify as section 102 disclosure, such that it may unduly prevent human inventors from availing of the incentives of the U.S. patent system (including the opportunity for exclusivity after investment). To some extent, this is a policy choice between "preserving the integrity of the current patent system" (within judicial application) and embracing greater public availability of ideas, even if trivial or even incorrect/impractical.

While our patent system no longer requires working models for the deterministic (some say "predictable") arts, it still requires deposits for some empirical (some say "unpredictable") arts. Analogously, since it is not the product of a reasoning being, we may well consider closer scrutiny of "enablement" by purported prior art that is published in an automatically generated pool or that appears to be automatically generated (as in toy transaxle example of the Office's Inventorship Guidance). This may even rise to a rebuttable presumption of non-enablement—or even operability. In the context of section 103 examination, where *KSR International Co. v. Teleflex Inc.* does not preclude the application of general knowledge or reasoning, there are real-world backstops in the secondary factors such as long-felt need and commercial success that may be expanded. Given recent events in academia, even peer-reviewed or refereed scholarly publications may warrant this increased scrutiny.

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**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?**

Disclosures made available in a relevant public repository (accessible to PHOSITAs in the relevant art) before the critical date would be pertinent to USPTO patentability determination, regardless of whether they were generated by an AI or other automated system. We differentiate between a search for and return of such a disclosure before the critical date and an Examiner's (post-filing) use of an interactive prompt of a large language model to return a combination, permutation, or projection, as that particular return would not have existed prior to the prompting and should not be considered section 102 ("anticipatory") prior art until the return, though such prompting may be relevant, as discussed below, for section 103 "obvious to try" a combination. A list of available stable combinations (under certain parameters/environments), however generated, provides combinations to try, just as purely human hypotheses or a catalog of naturally occurring combinations.

One example of "bulk disclosure" that has been discussed among practitioners is [allpriorart.com](http://allpriorart.com). We do not know whether that site uses what is currently understood to be generative AI, although it appears that some automation is involved, or how much human prompting or curating was involved. However, if adequately indexed or searchable, with public availability authenticated – subject to a showing of enablement, of course – there is nothing under current law that prevents examiners or litigants from availing themselves of such an information base, either for new development or to limit claims to existing "common knowledge." Having a searchable body of combinations and permutations of known or potential elements may be likened to discovery of what occurs in nature (or identified in lists of candidates for some particular application) but may find valuable use under certain parameters/environments, refinements, or methods of synthesis/construction. None of this negates or supersedes the requirement that prior art must exist as a whole disclosure at its effective date in some repository reasonably available and searchable by a PHOSITA.

**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?**

If a printed publication was available at the date of publication, it should be irrelevant how the publication was generated. Again, this is different from a document generated by prompting, for which a priority date should not be ethically claimed until the generated document is made available as such to the relevant PHOSITA (and public).

Similar considerations of provenance apply to patentable innovation (or effective defensive publication of incomplete innovation), so *how* the conception and part or full reduction to practice were made are generally not relevant, even to the main section 103 inquiry. A competitor that generates a picket-fence ("thicket") of patents covering a field may have relied upon a fair amount of automation. Although filing for publication is clearly a less expensive proposition, unless this becomes a problem, we do not see that the law needs to be changed. If the day does come when it is a problem, we may consider other disclosure and acceptance of some responsibility.

**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. Although there are arguments proposed that prior art should be generated by humans to merit consideration adverse to (that is, limiting) the patent-system incentive for human-contributed invention, there are many ways for prior art to become part of the “public domain” other than human documentation of that art. The perceived problem of “prior art flooding” by automatically generated art may be mitigated by existing law. One might consider “bulk disclosure” (picket-fencing with all permutations and combinations) as in multiplication of claim variants and prophetic examples. Sensible safeguards, including increased or presumed scrutiny of enablement, are available.

**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?**

Disclosures used today often include incorrect information/conclusions, and the tools used in such situations can also be used to limit the effect of incorrect information in the context of AI-generated disclosures. If errors in AI generated disclosures become a problem, courts and the Parent Office may increase their scrutiny of the disclosures’ enablement.

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

Public accessibility, at least to the relevant and neighboring arts, is key to any disclosure that should define the prior art. However, at least for anticipation purposes, enablement should be scrutinized more closely, and non-enablement should be presumed for art that is apparently bulk or AI-generated. We believe it appropriate to question operability of such disclosures as well, but the evidentiary challenges involved may make this issue more suitable for exploration in litigation rather than during examination.

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

There are those who believe that some may gain an unfair advantage by using automation to block patenting of novel and non-obvious complete conceptions, and there are those who believe that our patent system is unnecessary for appropriate innovation. We do not believe that “volume,” rather than quality, is determinative in striking the appropriate balance. “Volume” in terms of “bulk” disclosures of combinations and permutations – which should be apparent if publicly accessible from bulk sources of published information appropriately indexed/searchable (rather than by generation on prompting) – may be used as a threshold for scrutiny. However, if all the combinations and permutations of defined elements are offered as accessible alternatives, the inquiry may move to question “new uses” or “synthesis” or operability or utility in a real-world context. If the repository is not searchable to find whole documents, the documents should not be considered prior art. This situation has existed for decades in finding software art and biological arts, where intermediate remedies have included libraries of professional organizations.

**B. The Impact of AI on a PHOSITA**

**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?**

No. The PHOSITA is already hypothetical under current law, charged with knowing all the relevant prior art (available to the relevant public) and combining for section 103 if there is a good reason for combining. AI is a tool as in other prior search, computational, simulation, and visualization tools, which include several previous generations of “AI.” Where AI makes (patentable) innovation more rapid or technology more sophisticated for the relevant field, which may be much expanded by such availability, that should be considered along with other innovation and sophistication.

**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?**

To the extent that Examiners act as PHOSITAs, AI and other search, computational, simulation, and visualization tools should be part of their base knowledge. As with knowledge of basic technologies, continuing education should be supported and exposure to various computational tools possibly required.

**8. How, if at all, does the availability to a PHOSITA of AI as a tool impact:**

**a. Whether something is well-known or common knowledge in the art?**

Not at all. The PHOSITA is already charged with knowledge of qualified, published prior art. Availability of automated tools for search should be presumed at the level of the PHOSITA at the relevant time. Whether something is well-known or common knowledge should be determined from actual rather than hypothetical (or generated-after-the-fact) “knowledge” in the art. That inquiry may be aided as much by AI as by other automation. That particular details may require computer-aided search as opposed to what is held in the mind of PHOSITA does not materially change the inquiry, though computer-aided generation should not be allowed.

**b. How a PHOSITA would understand the meaning of claim terms?**

Same as above.

**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?**

Affected. The ability to search using current, earlier, or future “AI” should be considered as of the time of invention. “Analogous” may be better defined as search capabilities (and disabilities) are considered, but is a particular search reliable with the given search algorithm or foundation model?

**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)?**

Affected. Automated prospect/candidate generation has already been an issue for “obvious to try,” but there should be more practical inquiry, perhaps with greater attention to the “reasonable expectation of success” inquiry and possible qualification of practical reasons not to try, adjusted for claimed inventions that are hypothetical, but actual inferior solutions. As to scientific principles or legal precedent, because of the current foundation models based upon prevalence of tokens and vectors among them in the training data, it cannot be said that such generative AI is yet “drawn from a convincing line of reasoning based on established scientific

principles or legal precedent,” so such sources would not provide a reasonable basis for such rationale. At some time it may, but at this time a response from an AI chatbot is not yet “established.”

**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)?**

It depends on the AI system. Some predictive/simulation systems do yield predictable results and a good expectation of success. However, current LLM foundation models remain untrustworthy, so their use in litigation should clearly be scrutinized, and use in examination should be approached cautiously if not fully restricted at this time.

**d. Evaluating objective indicia of obviousness or nonobviousness (e.g., commercial success, long felt but unsolved needs, failure of others, simultaneous invention, unexpected results, copying, etc.)?**

As with existing searches concerning objective indicia, the available evidence may be limited, e.g., to internal financial reports, proprietary financial databases. LLM-AI-enhanced search may or may not be better than keyword or company searches. As in (c), use in litigation clearly will be scrutinized, and use in examination should be performed cautiously if not fully restricted at this time.

**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)?**

Very much, affecting the reliability of its output in the context of some of the preceding questions. Most of the foundation models are based in large part on publicly scraped information, and for some incumbent companies, on certain data feeds that are not available to others. Worse is that part of maintenance of competitive position involves the processing of more data, and much of that is created using un-factual “synthetic data,” which while arguably further amplifying popular responses, degrades the integrity of the model (e.g., because of “model drift”).

**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 availability to a PHOSITA of good adversarial, predictive, simulation AI (which has existed for decades) has already changed what is “undue experimentation.” A greater societal (and outside the USPTO) consideration is “*who* has such availability.”

**C. The Implications of AI That Could Require Updated Examination Guidance and/or Legislative Change**

**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?**

As suggested in response to the preceding questions, increased scrutiny of enablement should apply to apparent “bulk” prior art, and guidelines should be provided for in-Office searching of specific kinds of AI-

generated material (e.g., search methodology to support “Examiner notice” of PHOSITA knowledge, looking for date-authenticated documents available to the relevant public as distinguished from AI-generated responses to prompts).

**13. In addition to the considerations discussed above, in what other ways, if any, does the proliferation of AI impact patentability determinations made by the Office (e.g., under [35 U.S.C. 101](#), [102](#), [103](#), [112](#), etc.)?**

35 U.S.C. 101, relating to patent eligibility’s tie to incentives for human inventorship, and 35 U.S.C. 115, read as requiring a human inventor to sign the appropriate declaration of inventorship, were applied in part in the Office’s, *Inventorship Guidance for AI-Assisted Inventions*, 89 Fed. Reg. 10043 (Feb. 13, 2024). [IEEE-USA responded on May 7, 2024, to the Office’s related invitation for comments](#) by firmly supporting inventorship where a human is involved in the conception or setting into motion reduction to practice of the invention. In doing so, we questioned application to AI-contribution of the more limited (joint human inventorship) *Pannu* test of the Guidance (“substantial contribution” by a human) and emphatically rejected the Copyright Office’s March 16, 2023 (*Copyright Registration Guidance: Works Containing Material Generated by Artificial Intelligence*, 88 Fed. Reg. 16190), approach of rejecting for copyright registration any work that included more than a *de minimis* generative AI contribution.

This Office has also provided guidance (*Guidance on Use of Artificial Intelligence-Based Tools in Practice Before the United States Patent and Trademark Office*, 89 Fed. Reg. 25609, Apr. 11, 2024), raising issues facing practitioners in complying with disclosure requirements under Title 35, U.S.C. and Title 37, C.F.R., including the duty to check for technological accuracy and review of prior art included in information disclosure statements. One of the concerns was the possible generation in AI-drafted applications of examples not conceived by the applicant (89 Fed. Reg. at 25615). Our position is that if such examples – as in existing practice relative to species example of a disclosed genus and “prophetic examples,” if adequate connection with the human invention is made, with enablement and demonstration of “possession” under the written description requirement of 35 U.S.C. 112(a) – should not be disqualified by AI assistance if there is a human setting into motion such reduction to practice as to complete conception adequate for invention. We believe that greater attention to enablement, even for “predictable” arts, may go a long way to filtering out unmeritorious combinations and permutations as feared from generative AI.

Design patents and plant variety patents may deserve further consideration. Most industrial designs already rely on substantial automation (computer-assisted design) involving increasingly more sophisticated AI. With the obviousness consideration for design patents, recently brought in line with that for utility patents under *LKQ Corp. v. GM Glob. Tech. Operations LLC*, 102 F.4th 1280 (Fed. Cir. May 21, 2024), considerations of the “ordinary designer,” “market demands and industry customs,” “which ornamental features are commonplace in the relevant field,” (*id.* at 1299), among others, are in line with our considerations above. However, in the context of design patents, there may be the additional danger of a manufacturer of utilitarian articles (e.g., an automotive vehicle) using generative AI to more efficiently generate a thicket of patents to preclude independent manufacture of compatible repair or modified parts. However, any change should require competitive policy set by legislation.

The problem of “prior art flooding” by preemptive generation of decorative designs seems less of an issue.

**14. Are there any laws or practices in other countries that effectively address any of the questions above? If so, please identify them and explain how they can be adapted to fit within the framework of U.S. patent law.**

We know of no foreign law that addresses these issues while still rewarding individual ingenuity in claims considered as a whole, compared with the incremental contributions to “industrial property” framed in most of the rest of the world, including their different competition policies.

**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?**

No. None at this time.

Sincerely,

A handwritten signature in black ink, appearing to be 'KM', with a stylized, cursive flourish extending to the right.

Keith Moore  
IEEE-USA President