

How Will AI Affect Patent Disclosure?


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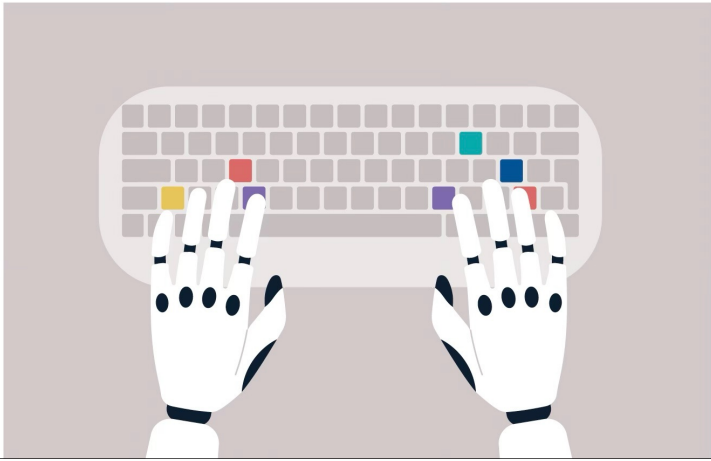
Patents <https://doi.org/10.1038/s41587-024-02515-6>

How will AI affect patent disclosures?

 Check for updates

Artificial intelligence tools for drafting patents will exacerbate challenges with the disclosure of useful technical information in patent documents.

A universal requirement of patent law is that inventors must disclose information about how to implement their inventions. Increasingly, however, portions of patents are written not by inventors (or their lawyers), but by generative artificial intelligence (AI). The burgeoning market for AI-assisted patent drafting may lower patenting costs, but it will also exacerbate existing disclosure problems. AI will amplify errors in both improperly granting poorly disclosed patents and improperly denying patents on the basis of earlier AI-generated references that do not actually disclose those inventions. In recognition of these issues, the US Patent and Trademark Office (USPTO) recently issued guidance requiring human review of AI-drafted submissions¹. But this will not be enough. Increasing enforcement of existing disclosure rules and heightening require-



What problems already exist with human-drafted patent disclosures?



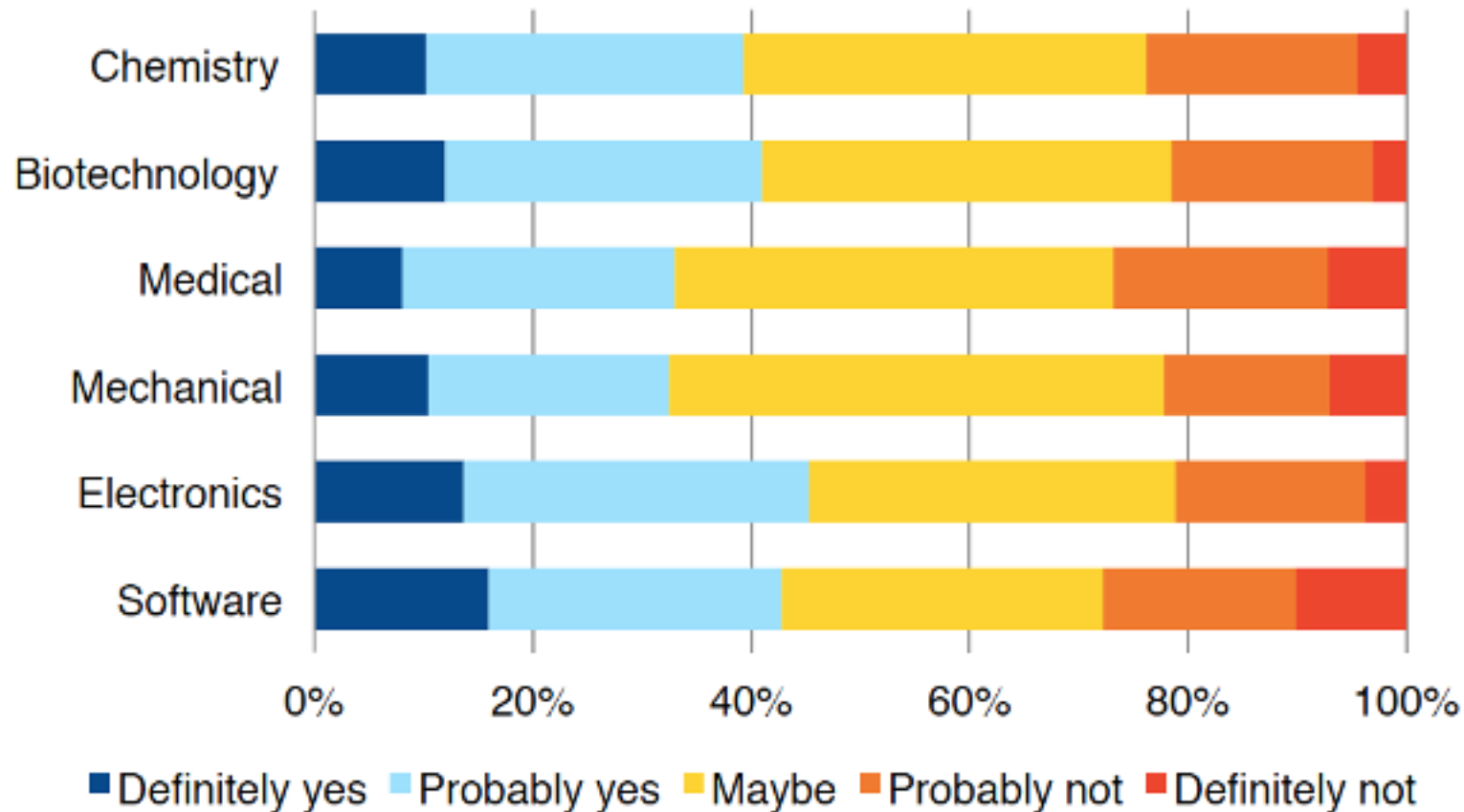
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Enablement is rarely policed during examination

- Patent examiners only have about **20 hours** total per application, which they tend to spend on prior art
 - Over 50% of USPTO rejections are for lack of novelty or obviousness
- Only **6% of rejections are for disclosure** (enablement & written description under § 112(a))
 - Little examiner training on disclosure, no model rejections
- Of USPTO examiners, **< 4% have a Ph.D.** and most have < 4 years of experience

Survey results suggest many patents aren't enabled

“Do you think that you could recreate the invention described in the most recent patent you read in your field?”



L.L. Ouellette, *Who Reads Patents?*, 35 *Nature Biotechnology* 421 (2017)

Patents are often granted based on “prophetic” disclosures that don’t reflect real inventive work

Pierson, Peer Review, and Patent Law

*Lisa Larrimore Ouellette**

There are problems both with
(1) examiners’ ability to police the current legal standard and
(2) the current standard itself

When has a researcher done enough to merit a patent? Should the patent belong to the researcher who first suggests an invention or the one who brings it to fruition? The canonical dispute over a fox in Pierson v. Post is used to illustrate the competing policy considerations in deciding when to award a new property right, including providing efficient incentives, setting forth clear rules to guide future behavior, and respecting natural rights. In patent law, all of these considerations suggest that in practice, many patents are awarded too early, before an applicant has demonstrated that the invention is likely to work. The main problem seems to be not with the substantive standards but with the Patent Office’s institutional competence to enforce these standards. A patent is supposed to teach a researcher of “ordinary skill” in the field how to make the invention without “undue experimentation.” Yet it often takes extraordinary skill to recognize when this standard is not met based merely on reading a patent application—expertise that the typical patent examiner lacks. To address

Prophetic examples are misleading

POLICY FORUM

INTELLECTUAL PROPERTY

Science fiction: Fictitious experiments in patents

Prophetic examples may unnecessarily distort understanding

By **Janet Freilich¹** and
Lisa Larrimore Ouellette²

Although it may surprise scientists, one can receive a patent in many jurisdictions without implementing an invention in practice and demonstrating that it works as expected. Instead, inventors applying for patents are allowed to include predicted experimental methods and results, known as prophetic examples, as long as the examples are not written in the past tense (1–3). Allowing untested inventions to be patented may encourage earlier disclosures about new ideas and provide earlier certainty regarding legal rights—which may help small firms acquire financing to bring their ideas to market. Yet granting patents too early may also discourage researchers from doing the work to bring ideas to fruition (4, 5). Even if allowing untested inventions to be patented is desirable, we think prophetic examples deserve closer

chemistry and biology; an estimated 17% of examples in U.S. patents in these fields are prophetic, and almost one-quarter of U.S. patents in these fields have at least one prophetic example—making prophetic examples a commonplace feature (for examples, see the box) (7).

Because of concerns about awarding patents to unproven inventions, prophetic examples are viewed with greater skepticism in Europe (8), Canada (9), Japan (10), and China (11). However, because patents with the same contents are often filed in multiple regions, prophetic examples originating in U.S. applications will often be present in applications filed in other jurisdictions. Further, because patent offices and examiners in those countries commonly read and cite patents from other jurisdictions, countries skeptical of prophetic examples still feel their effects.

PROPHETIC EXAMPLES MAY BE CONFUSING
Contrary to the assertions of some patent

merical results (“blood pressure is reduced within 3 hours...”). Some preliminary work suggests that of 100 randomly selected patents with only prophetic examples—that is, no actual data—that were cited in a scientific article or book for a specific proposition, 99 were not cited in a way that made clear that the cited information was prophetic (7). To the contrary, these prophetic patents were cited with phrases such as “[d]ehydration reaction in gas phase has been carried out over solid acid catalysts” (7), suggesting that prophetic examples mislead scientist readers.

Prophetic examples may also be confusing to other readers who are unfamiliar with the tense rule, such as investors seeking to accurately evaluate complex technologies. Causing further misunderstanding, the subtlety of prophetic examples may literally be lost in translation for patent applications that must be translated into different languages because they are filed in international jurisdictions. To be sure, quantifying the cost of this confusion would be challenging, especially because most confused scientists, investors, and patent examiners are likely unaware of the problem. But given the lack of a corresponding benefit, there seems to be no reason to perpetuate the practice. Nothing in patent law requires early-stage ideas to be described in a way that might confuse these different audiences by mimicking factual experiments; prophetic examples could be signaled more clearly or avoided altogether.



**U.S. Patent
No. 3,931,205**
2.5 g of 2-(5H-[1]
benzopyrano[2,3-b]
pyridin-7-yl)acrylic acid
is dissolved in 20 ml of 0.5

N aqueous sodium hydroxide solution, and 1 g of Raney nickel is added. The solution is stirred in a hydrogen stream at ordinary pressure and temperature until absorption of 230 ml of hydrogen is attained. The Raney nickel is removed by filtration, and the filtrate is neutralized with hydrochloric acid. The resulting crystalline precipitate is filtered off, washed with water, and recrystallized from aqueous dioxane to give 1.8 g of 2-(5H-[1]benzopyrano[2,3-b]pyridin-7-yl) propionic acid melting at 183°–184°C.



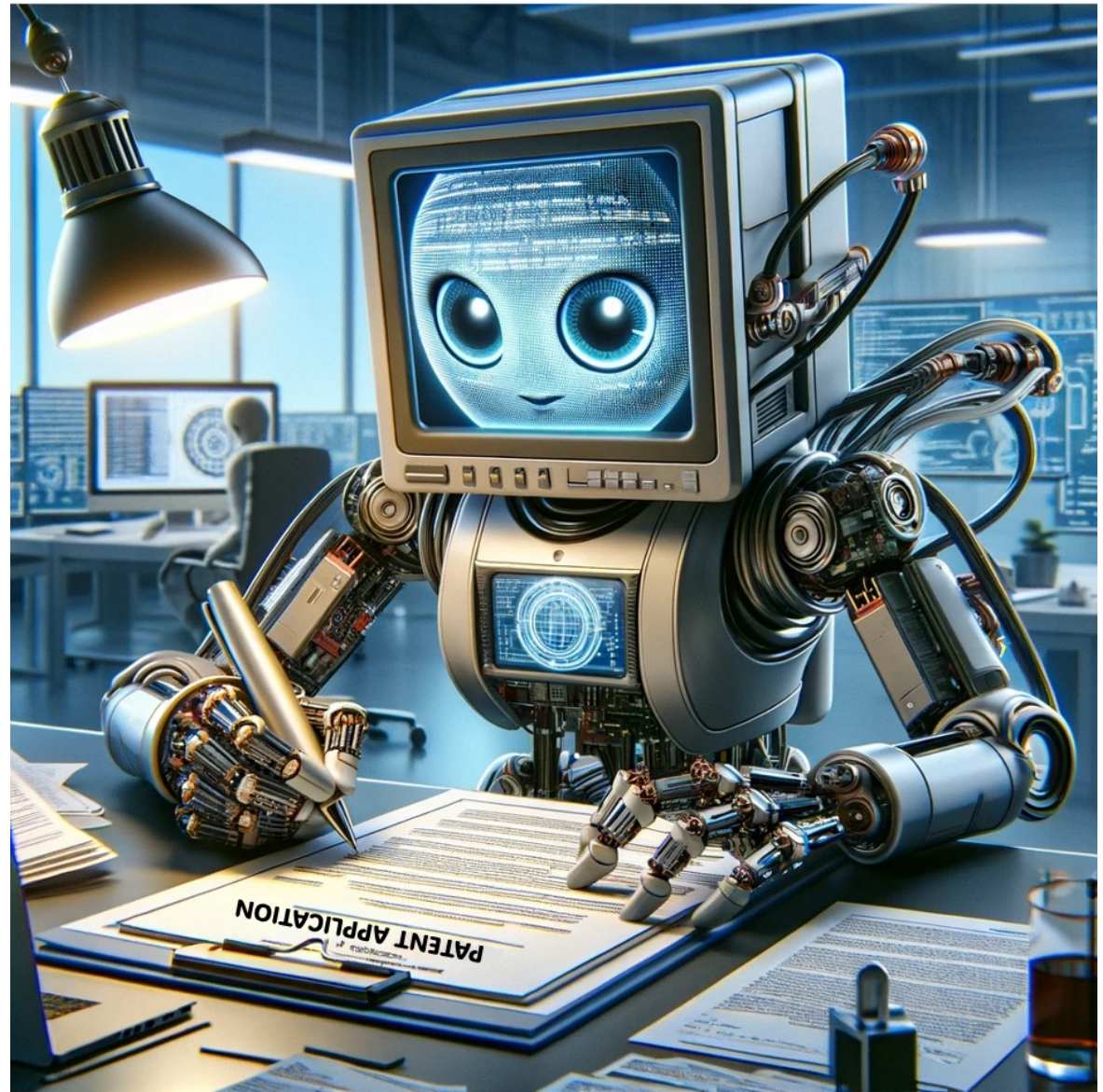
**U.S. Patent
No. 6,869,610**
A 46-year-old woman
presents with pain
localized at the deltoid
region due to an arthritic condition.

The muscle is not in spasm, nor does it exhibit a hypertonic condition. The patient is treated by a bolus injection of between about 50 units and 200 units of intramuscular botulinum toxin type A. Within 1 to 7 days after neurotoxin administration the patient's pain is substantially alleviated. The duration of significant pain alleviation is from about 2 to about 6 months.

Problems with poorly disclosed prior art

- Prevalence of prophetic or erroneous disclosures isn't just a problem in terms of granting poorly disclosed patents...
- ...also means that later patents will be denied based on prior art that doesn't actually disclose the invention!

How will
generative AI
affect these
problems?



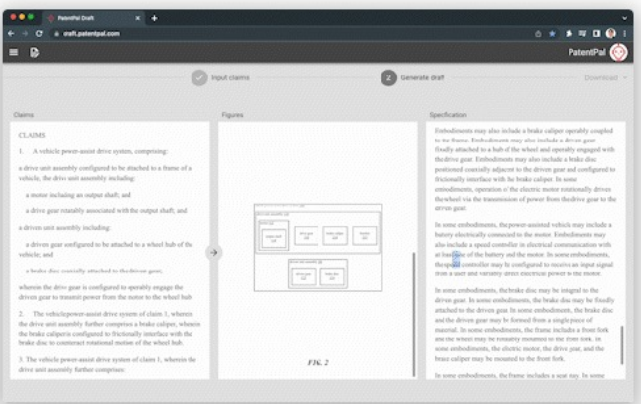
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Generative AI for Intellectual Property

Automate mechanical writing in your patent applications

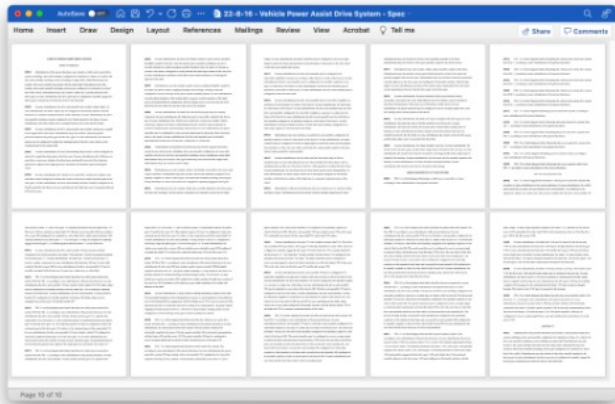
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What we generate:

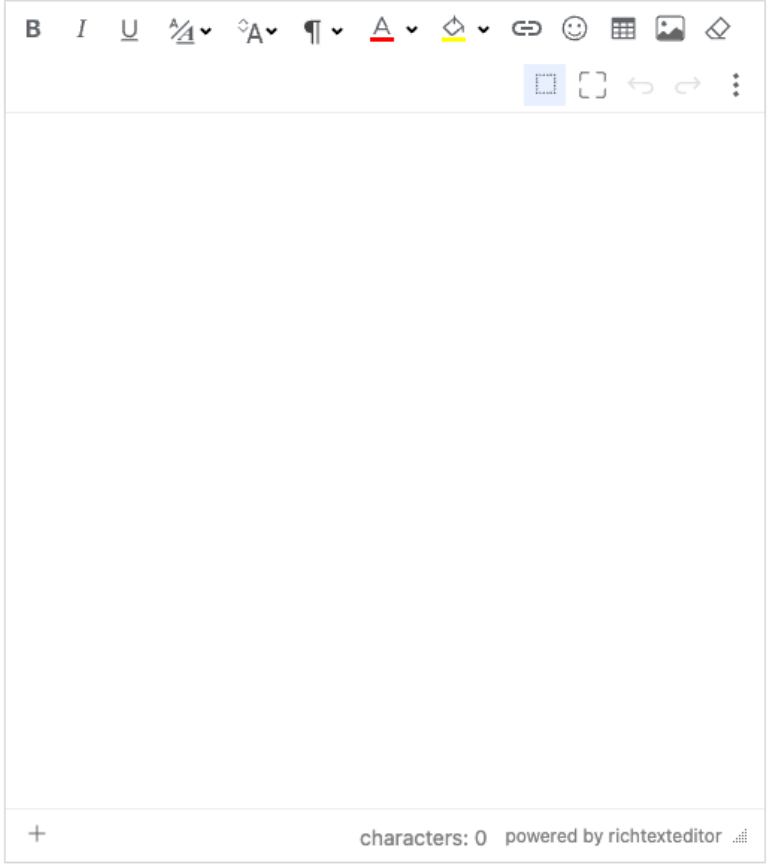
1. Flowcharts for methods
2. Block diagrams for systems and devices
3. Detailed descriptions of generated figures
4. Abstract and summary to support all claims

How it works

JustVise

Enter your invention i

Provide a detailed description of the invention detailing its commercial ingenuity and unique characteristics.



characters: 0 powered by richtexteditor

Advanced Options ▾ Submit

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(uses ChatGPT)

Dolcera IP Author

Changes have been saved successfully

← Home

Invention is an iontophoretic device for enhanced transport of substances through the skin. In my invention two electrical transport fields are applied. These fields are orthogonal and parallel to the skin surface, and applied in a temporally alternating sequence. The iontophoretic device preferably comprises an array of electrodes to which either a spatially alternating pattern of electrical potentials can be applied or which can alternatively be divided into two groups or neighbouring electrodes that are...

Modify Invention >> Save Claims >> Draft Patent >>

History

Version #2 Prompt >>

Version #1 Prompt >>

Modify Claims

Flowchart Hide Flowchart Hide History

1. A method for enhanced transport of one or more substances through a skin surface, the method comprising:
applying one or more electrical transportation fields in different directions to the skin surface;
facilitating the transport of the one or more substances through the skin surface using an iontophoretic device;
integrating the iontophoretic device into one or more skin-contacting devices.

2. The method of claim 1, further comprising:
applying a spatially alternating pattern of one or more electrical potentials to one or more arrays of electrodes of the iontophoretic device.

3. The method of claim 2, wherein the one or more arrays of electrodes are divided into two groups of neighbouring electrodes that are connected to the same potential.

4. The method of claim 1, wherein the one or more electrical transportation fields are applied in a temporally alternating sequence.

5. The method of claim 1, wherein the iontophoretic device is integrated into a skin-contacting device.

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graph TD
    100[Applying electrical transportation fields] --> 102[Facilitating the transport of substances]
    102 --> 104{Dividing the arrays of electrodes into groups}
    104 --> 106[Integrating the iontophoretic device into skin-contacting devices]
  
```

FIG. 1

Generate Detailed Technical Specifications

Edge

Writing

Excellent disclosures with minimal manual writing.

Our assistant helps draft the disclosures so inventors can spend more time inventing and in-house counsel can make more decisions with minimal phone calls.

Qatent

AI-drafted patent description

Generate an entire description from claims

Drafting LLM

PATENT DRAFTING MADE EFFORTLESS

Drafting LLM is a cutting-edge patent application drafting platform that utilizes Large Language Models (LLMs) & Generative AI for drafting top-tier preliminary patent drafts. It generates comprehensive claims, abstracts, drawings, backgrounds, and descriptions within a few minutes.

WHY DRAFTING LLM IS YOUR IDEAL SOLUTION FOR PATENT DRAFTING NEEDS?



HIGH-QUALITY DRAFTS WITHIN 5-7 MINS



SAVINGS OF 7-8 HRS. OF ATTORNEY TIME



DATA SECURITY & CONFIDENTIALITY

Solve Intelligence

Choose where you leverage AI

Our core philosophy is to keep you in the driving seat. Every part of our product has been built to be highly interactive and flexible. You can use AI as much or as little as you like throughout the patent application process.

Enhance invention disclosure

Generate or upload figures

Draft patents dynamically

...and many more!

Can genAI write useful patent disclosures?

- Some tools had consistently low-quality output that did not seem like it would help a patent applicant
- We prompted 3 more promising AI tools (Edge, Vaero, ChatGPT-4o) with short summaries & claims for 4 technologies
- For **2 existing technologies** (over 10 yrs old), all tools provided sufficient details to implement, but also included wrong information
- For **2 hypothetical technologies**, AI didn't provide workable solutions to the unsolved problems and made incorrect and unhelpful claims
- But from a patent law perspective, all outputs had credible descriptions of each part of the claims → **likely to get past a USPTO examiner**

2024 guidance on AI tools in USPTO practice requires disclosure only when material(?)

Saturday, May 25, 2024

Catalog of Court-Mandated AI Disclosures (cf. USPTO Guidance)

Posted by Lisa Larrimore Ouellette

Guest post by **Victoria Fang**, a JD candidate at Stanford Law. Before law school, Fang worked as a patent examiner at the USPTO in the medical imaging and diagnostics space.

In the past year, two “**ChatGPT lawyers**,” a California eviction law firm, **Michael Cohen**, and a **Colorado attorney** have each made headlines for making the same mistake—citing fake cases in legal filings. In attempts to speed up their legal research, these lawyers used generative AI tools like ChatGPT and Google Bard that “hallucinated” nonexistent case law.

Indeed, use of generative AI by litigants raises issues of accuracy and confidentiality. ChatGPT has been known to “hallucinate” and has other limitations, including being limited to information on the internet before certain date cutoffs and not actively searching the internet or dedicated legal databases for new information.

Courts have responded to the increased use of generative AI by litigants through judge- or case-specific guidance, standing orders, and local rules, which I have summarized in **this spreadsheet**. These court mandates have been collated from

- USPTO guidance is vague and unclear, but disclosure of AI doesn't address the underlying problem

How could disclosure be improved?

- Change the law to allow **fewer prophetic patents**; e.g., require actual reduction to practice with working examples for most inventions
 - Also make clear that the enablement standard isn't satisfied by a "kitchen sink" approach
- Improve **training for examiners** to increase attention to disclosure in examination, including by providing examples and sample rejections (as the USPTO has done for patent eligibility)
- Bring more **scientific expertise** into patent examination
 - Past peer review pilots have focused on prior art (Ho & Ouellette 2020; Peer to Patent); try **peer review focused on disclosure**?
 - Consider specialized **disclosure-focused examiners** who work in collaboration with the main examiner?
- Broaden rules for **post-grant disclosure challenges**
- Can **AI help patent examiners** evaluate disclosure?

Can AI help examiners evaluate disclosure?

- Are there ways to quantify (or more rigorously identify) disclosure problems without a ground-truth dataset?
 - How many patent applications *should* be receiving disclosure rejections?
 - If an AI model identified disclosure problems in granted patents (perhaps trained on existing 112(a) rejections), **how could its output be validated?**
 - Easy to find examples of granted claims that seem non-enabled to an expert, but each **review is time-consuming** (and would be disputed)
- Are there avenues for useful comparative work?
 - EPO examiners have **more technical background (Master's degree) and more disclosure-focused training**, but there isn't a dataset of EPO "objections" (to my knowledge). Other offices?