GenAI in Patent Drafting

THE NEED FOR FURTHER GUIDANCE

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KEY DEFINITIONS

Generative Artificial Intelligence (GenAI)

GenAI is the branch of AI that enables machines to learn patterns from vast datasets and then to autonomously produce new content based on those patterns.*[i]* In patent drafting, GenAI can be used to assist in drafting specifications, claims, and technical descriptions.

Large Language Model (LLM)

Large language models (LLMs) are a category of foundation models trained on immense amounts of data making them capable of understanding and generating natural language and other types of content to perform a wide range of tasks.*[ii]*

Hallucination (in AI)

A phenomenon where an AI system outputs text that is syntactically fluent and confident but factually incorrect, unverified, or fabricated.*[iii]*

Prompting

The act of inputting structured text or instructions into a generative AI system to elicit a desired output.*[iv]* In the context of patent drafting, prompting can be used in a wide range of tasks, including asking the model to generate claim language, rephrase technical descriptions, suggest alternatives, or simulate reasoning processes.

Reasoning Models

LLMs trained with reinforcement learning to simulate human-like reasoning. Reasoning models think before they answer, producing a long internal chain of thought before responding to the user.*[v]*

AI Use Guidance

The official guidance issued by the United States Patent and Trademark Office (USPTO) on April 11, 2024, titled “Guidance on Use of Artificial Intelligence-Based Tools in Practice Before the United States Patent and Trademark Office.” The guidance outlines responsibilities for attorneys and parties who utilize generative AI or other AI-based tools in preparing and submitting materials to the USPTO.*[vi]*

AI Inventorship Guidance

The official guidance issued by the United States Patent and Trademark Office (USPTO) on February 13, 2024, titled “Inventorship Guidance for AI-Assisted Inventions.” This document clarifies how existing legal standards for inventorship apply when AI tools are used during the innovation process.*[vii]*

EXECUTIVE SUMMARY

As generative artificial intelligence (GenAI) tools rapidly enter the realm of patent practice, they offer both transformative potential and accompanying legal challenges. In patent drafting, GenAI can enhance efficiency, consistency, and scalability. For example, these tools can be used to craft layered descriptions, translate complex operations into clear procedural steps, ascribe definitions and special meaning to technical terms, and more.

However, the benefits of using GenAI for patent drafting are accompanied by risks, many of which are still unknown, particularly when GenAI is prompted to reason independently without sufficient attorney oversight. For example, using GenAI for structured analysis of complex disclosures or to propose alternative embodiments may result in outputs that influence the scope of claims in ways that might not be directly traceable to a human inventor or human contribution. This raises concerns about whether claims drafted with GenAI assistance run counter to established inventorship standards.

When it comes to the impact of AI in the patent field, the U.S. Patent and Trademark Office (USPTO) has taken the lead over other major patent offices worldwide by issuing critical guidance in this area, including the Guidance on Use of AI-Based Tools (the AI Use Guidance) and the Inventorship Guidance for AI-Assisted Inventions (the Inventorship Guidance) in early 2024. However, an area needing clarification between the two dominant guidance documents remains. Specifically, there is currently no integrated framework connecting permissible GenAI prompting techniques when using GenAI for patent drafting with inventorship determination, nor is there guidance on how attorneys should document or assess their contributions when GenAI tools are used to shape substantive claim content. To ensure the responsible integration of GenAI in patent drafting, this white paper calls on the USPTO to supplement existing guidelines with:

- **examples of permissible vs. impermissible uses of GenAI in claim drafting;**
- **clarification on what constitutes significant human contribution to claim scope when GenAI is involved;**
- **clarification on how human contribution should be tracked or documented, including whether the patent drafter's interactions with GenAI must be preserved;**
- **clear standards for identifying and labeling "prophetic examples" in patent applications;**
- **examples of scenarios where the duty of candor may be violated through the unmonitored use of GenAI;**
- **examples illustrating how AI-generated alternative embodiments or modifications may improperly influence claim scope or inventorship; and**
- **encouragement the development and adoption of structured, attorney-guided frameworks to ensure oversight in GenAI-driven patent drafting.**

INTRODUCTION

As artificial intelligence assistance increasingly enters the professional world, its role in patent drafting is a subject of both intrigue and concern, particularly the use of GenAI that can create content such as text and images based on inputs or prompts. The USPTO's **AI Use Guidance** affirms that the use of AI assistance is permissible in the field of patent practice while emphasizing that human oversight and responsibility are essential. While the guidance identifies general areas of concern in terms of how GenAI can impact inventorship, it lacks the specificity and examples needed to show how inventorship should be assessed in instances where GenAI was used to draft the specification and claims.

If AI derives a claim scope based on its own reasoning, and the attorney merely selects or files it, is the requirement for significant human contribution met in order to establish human inventorship?

Patent practitioners are currently tasked to independently evaluate whether their use of GenAI tools crosses the line from ministerial assistance to inadvertent claiming subject matter lacking significant human contribution, an assessment complicated by the evolving capabilities of AI systems and the lack of definitive guidance on where that line is drawn. While other jurisdictions such as the UKIPO, EPO, WIPO, and CNIPA are actively examining AI's role in IP generation and protection, no patent office has provided clarity on inventorship determination and drawn definitive lines delineating the circumstances in which AI reasoning impacts claim scope such that inventorship is called into question.

This white paper explores the breadth of the USPTO's AI Use Guidance and the AI Inventorship Guidance, the unaddressed intersection between these documents with respect to evaluating improper GenAI use, and why a structured, attorney-led approach to GenAI use in patent drafting is now critical. In particular, prompting techniques that induce reasoning may create a conception "gray zone." That is, if AI derives a claim scope based on its own reasoning, and the attorney merely selects or files it, is the requirement for significant human contribution met in order to establish human inventorship? When using GenAI for patent drafting, techniques that restrict the model to structured, attorney-led input and output evaluation minimize the risk of AI extending beyond the use of just being a tool by systematically checking and evaluating for independently reasoned AI outputs.

SECTION 1

USPTO's Guidance on the Use of AI-Based Tools:

Human Oversight, Disclosure Obligations, and Looming Inventorship Concerns

Under the April 2024 **AI Use Guidance**, patent practitioners are permitted to use GenAI tools in preparing patent applications, but only under the condition that a qualified human remains fully accountable for all content submitted. The guidance reminds practitioners of their duty of care while using AI tools, stating:

> ***Upon review of the document drafted with the assistance of an AI tool, any errors or omissions in the document must be corrected. Filing a paper with the USPTO that includes erroneous facts, arguments, or authorities would not comply with 37 CFR 11.18(b)… This review must also ensure that all arguments and legal contentions are warranted by existing law, a nonfrivolous argument for the extension of existing law, or the establishment of new law.***

Of particular note is the USPTO's specific instruction regarding the use of GenAI when it comes to drafting patent claims, instructing practitioners that AI-assisted claims must still reflect significant human contribution to meet the standards for proper inventorship:

> ***[I]n patents and patent applications, all patent claims must have a significant contribution by a human inventor. Thus, if an AI system is used to draft patent claims that are submitted for examination, but an individual listed in 37 CFR 1.56(c) has knowledge that one or more of the claims did not have a significant contribution by a human inventor, that information must be disclosed to the USPTO.***

While a seeming passing note, this point is very significant – **the AI Use Guidance acknowledges that the use of GenAI for patent drafting, particularly claim drafting, can impact inventorship determination**. On top of that, practitioners owe a duty of disclosure to the USPTO in these instances if GenAI's use in claim drafting could impact inventorship.

However, the USPTO stops short of providing specific examples of GenAI use in claim drafting that could illustrate this dilemma more clearly. Particularly, the USPTO has not yet provided information with regard to whether specific forms of AI-generated reasoning or synthesis may infringe inventorship requirements. This leaves attorneys unknowing of potentially significant problems stemming from GenAI use in claim drafting, notably inventorship disputes.

Synthesizing the USPTO Guidance on AI-Based Tool Use and Current Inventorship Criteria

When it comes to AI's impact in patent practice, the USPTO has issued two distinct but interrelated sets of guidance—one addressing the permissible use of AI-based tools in the patent drafting process in the AI Use Guidance, and another clarifying the legal standard for inventorship in the context of AI use during the innovation process in the AI Inventorship Guidance. **When considered as a whole, these guidelines establish a framework for using GenAI in patent drafting: practitioners may use GenAI tools to help with drafting, but the resulting claims are still required to satisfy the statutory inventorship criteria set forth in *Pannu v. Iolab Corp*.***[viii]*

Under *Pannu*, each named inventor must:

- contribute significantly to the conception or reduction to practice of the invention;
- contribute to the claimed invention that is not insignificant in quality, when that contribution is measured against the dimension of the full invention; and
- do more than merely explain to the real inventors well-known concepts and/or the current state of the art.

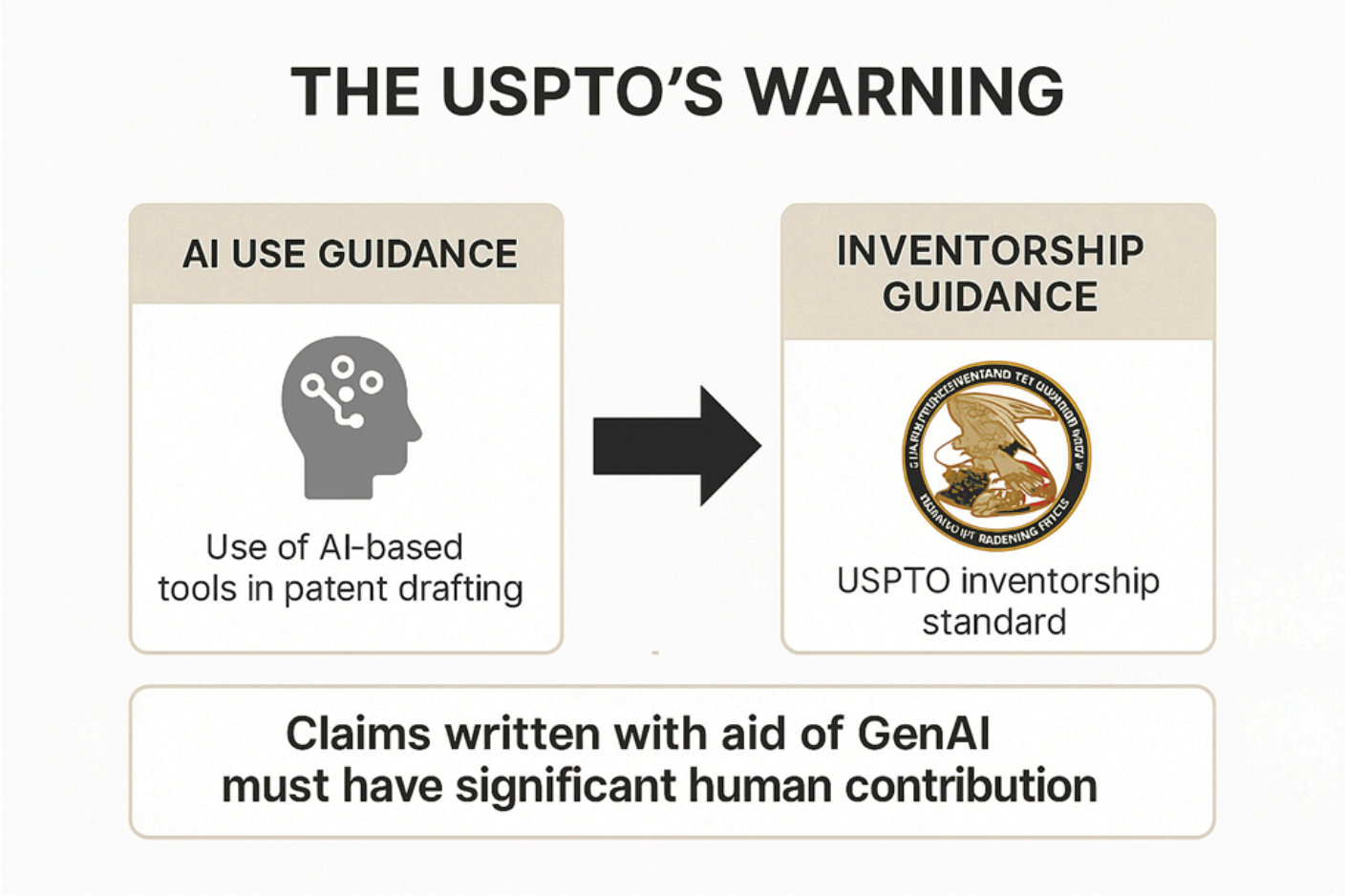
Failure to meet any one of these factors precludes one from being named an inventor.

The core inventorship challenge in the context of GenAI use in patent drafting is not that AI systems are legally capable of inventing—they are not. The courts and the USPTO have been unequivocal on this point: AI cannot be an inventor.*[ix]* Instead, the issue arises when AI-assisted drafting introduces content for which no human contributor meets the threshold of "significant contribution" under *Pannu*. In such cases, the problem is not that AI "conceived" something when used for claim drafting, but rather that no natural person did—a scenario that renders the claim legally unmoored from human inventorship.

Following the Federal Circuit's decision in *Thaler v. Vidal* and in understanding that GenAI use may result in the outcome that no one single person conceives the entire invention, the USPTO issued the **AI Inventorship Guidance** which set forth that the threshold for determining inventorship involving GenAI use is based on determining whether there was significant contribution from a human:

> ***In situations where a single person did not conceive the entire invention (e.g., joint inventorship), courts have found that a person who shares in the conception of the invention is an inventor. In these situations, each named inventor in a patent application or patent, including an application or a patent for an AI-assisted invention, must have made a 'significant contribution' to the claimed invention.***

Therefore, the USPTO requires that "[p]atent applications and patents for AI-assisted inventions must name the natural person(s) who significantly contributed to the invention as the inventor or joint inventors."



GenAI and the Blurry Boundary

As the capabilities of GenAI systems expand, so does the complexity of the inventorship analysis. A key ambiguity arises when GenAI produces content, such as claim language or alternative embodiments that the human user did not themselves conceive, anticipate, or direct. In these cases, if the AI proposes a novel claim structure or introduces a technically meaningful variation to an invention implementation, does that disqualify the human from meeting the standard of significant human contribution under *Pannu*?

The **AI Inventorship Guidance** addresses this risk directly:

> ***Each claim must have been invented by at least one named inventor. In other words, a natural person must have significantly contributed to each claim in a patent application or patent . . . Inventorship is improper in any patent or patent application that includes a claim in which at least one natural person did not significantly contribute to the claimed invention, even if the application or patent includes other claims invented by at least one natural person. Therefore, a rejection under 35 U.S.C. §§ 101 and 115 should be made for each claim for which an examiner or other USPTO employee determines from the file record or extrinsic evidence that at least one natural person, i.e., one or more named inventors, did not significantly contribute.***

This underscores the claim-by-claim requirement for human inventorship. A single AI-derived claim lacking meaningful human input, even in an application where other claims are fully human-conceived, can render the inventorship defective.

Even while USPTO's **AI Use Guidance** explicitly acknowledges the potential challenge to inventorship determination when AI is used to draft a patent application, it does so in cautious and conditional terms, signaling awareness of the issue without offering definitive issue spotting samples, asking practitioners to be generally mindful of evaluating that appropriate inventors are listed in a patent application:

> ***When AI systems are relied upon to draft or modify claims, such drafts or changes could impact inventorship or patentability (e.g., 35 U.S.C. 112(a)). For example, when AI makes contributions to drafting portions of the specification and/or claims (e.g., introducing alternate embodiments not contemplated by the inventor(s)), it is appropriate to assess whether the contributions made by natural persons rise to the level of inventorship, in accordance with the law and recent USPTO guidance. In particular, each named inventor must have significantly contributed to a claimed invention of the application as described by the Pannu factors. Therefore, practitioners should carefully reevaluate that the appropriate inventors are listed on the patent application. It is particularly important for a practitioner to review applications prepared with the assistance of AI, before filing, to see that information is not incorrectly or incompletely characterized.***

Despite this acknowledgement that GenAI use in patent drafting can lead to matters of improper inventorship, that claims drafted with AI assistance should be assessed under *Pannu*, the AI Use Guidance stops short of specifying how to evaluate the *Pannu* standards in the context of AI-prompted claim language, particularly where human input may be passive, indirect, or minimal. This lack of specificity not only leaves uncertainty for practitioners attempting to use GenAI for claim drafting while maintaining valid inventorship, but the lack of emphasis on this particular issue overall can cause unawareness on the part of patent practitioners who might not recognize inherent risks of using GenAI in patent drafting.

Despite this acknowledgement that GenAI use in patent drafting can lead to matters of improper inventorship, that claims drafted with AI assistance should be assessed under *Pannu*, the AI Use Guidance stops short of specifying how to evaluate the *Pannu* standards in the context of AI-prompted claim language, particularly where human input may be passive, indirect, or minimal.

SECTION 2

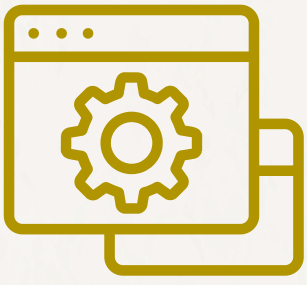
Using GenAI in Patent Drafting

Patent attorneys increasingly recognize the value of using GenAI as a structured tool—not to replace legal expertise, but to enhance the depth and flexibility of a patent application. One use of GenAI in patent practice is to afford special meaning to technical terms that, if left undefined, may be construed unfavorably from a patenting standpoint. For example, algorithms or data transformation steps (such as use of a backpropagation algorithm or gradient descent algorithm) might otherwise be deemed abstract mathematical processes under their plain meaning definitions.*[x]* GenAI can assist in drafting special meaning terms to sidestep unfavorable generic meanings or dictionary definitions.

Additionally, GenAI can be used to draft descriptions for methods, systems, components, and apparatuses in varying degrees of scope, enabling attorneys to draft layered descriptions of the same system or method. By doing so, GenAI can be used as a scalable drafting tool to support claims of differing breadth and scope.

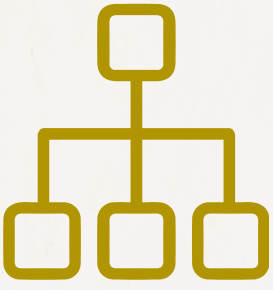
Moreover, when describing complex operations or software routines, GenAI can help convert abstract functional descriptions into stepwise processes, or vice versa, making it easier to align the narrative with flowcharts or reference figures. In this role, GenAI is not reasoning independently but is acting under careful attorney instruction to promote consistency, completeness, and technical precision.

Why GenAI Can Be Useful In Patent Drafting



Gen AI can be used to afford special meaning to technical terms.

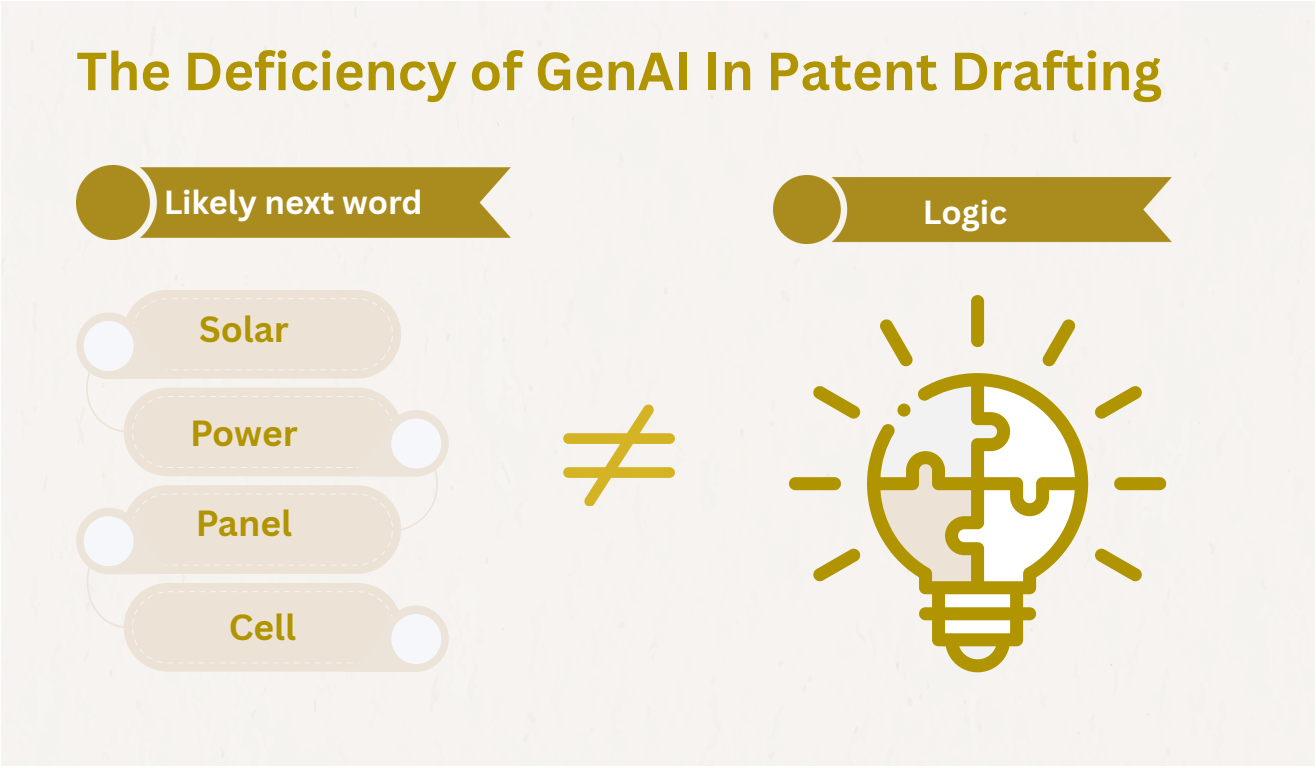
GenAI can be used as a scalable drafting tool to support claims of differing scope.



GenAI can efficiently convert abstract functional descriptions into stepwise processes, or vice versa.

Potential Risks of GenAI Use in Patent Drafting

GenAI, particularly large language models (LLMs), was developed to assist humans in solving complex problems creatively and efficiently.*[xi]* These models are trained to predict and generate human-like language, making them valuable tools for summarization, translation, and even technical writing.*[xii]* However, their strengths also pose serious risks when applied to the highly structured, legally sensitive task of patent drafting.



Hallucinations

One well-documented issue is hallucination on the part of the GenAI where AI generates factually incorrect or entirely fabricated information presented with confident fluency. This is not a rare or uncommon glitch; it is a known inherent characteristic of LLMs, stemming from their reliance on statistical patterns rather than verifiable logic or factual understanding.*[xiii]*

In the context of patent drafting, AI hallucinations would be output that are not enabled under 35 USC §112. It is worth noting that no clear standard exists for determining enablement of an AI-generated output. However, it can be assumed that if the combination of information provided by the inventor and the invention disclosure plus what is known in the prior art fails to teach one skilled in the art how to make or use the invention as integrated with the technical features outputted by the GenAI, then the output is conceivably unenabled.*[xiv]*

Because GenAI models generate language based on probabilities of linguistic association rather than verifiable logic, there is no reliable way to predict or prevent unenabled hallucinations at the user level. Experts suggest improving model training data to reduce hallucination, but this practice is beyond the control of patent practitioners.*[xv]* Compounding this risk is the growing popularity of prompting techniques and reasoning models specifically designed to induce reasoning.*[xvi]*

The risk of hallucinations when using generative AI in patent practice has been identified across jurisdictions, such as by the **European Patent Institute (EPI)**, which issued specific guidelines regarding use of GenAI for patent attorneys. Unlike the USPTO's AI Use Guidance that only discussed AI use in patent practice generally, the epi Guidelines specifically directed their guidance to GenAI use:

> **Despite the increasing use of generative AI, the operations of this type of tool are often poorly understood. Such misunderstandings can severely, adversely impact the correctness of the work of patent attorneys and they can cause detriment to clients and instructing principals.***[xvii]*

In fact, Guideline 1 of the epi Guidelines specifically tells members to inform themselves of GenAI's likelihood of hallucinating:

epi Guideline 1

Members should inform themselves about both the general characteristics of generative AI models and the specific attributes of any model(s) employed in their professional work, in terms of (at least) the key aspects of prompt confidentiality and (to the extent this can be known) the likelihood of hallucinations.

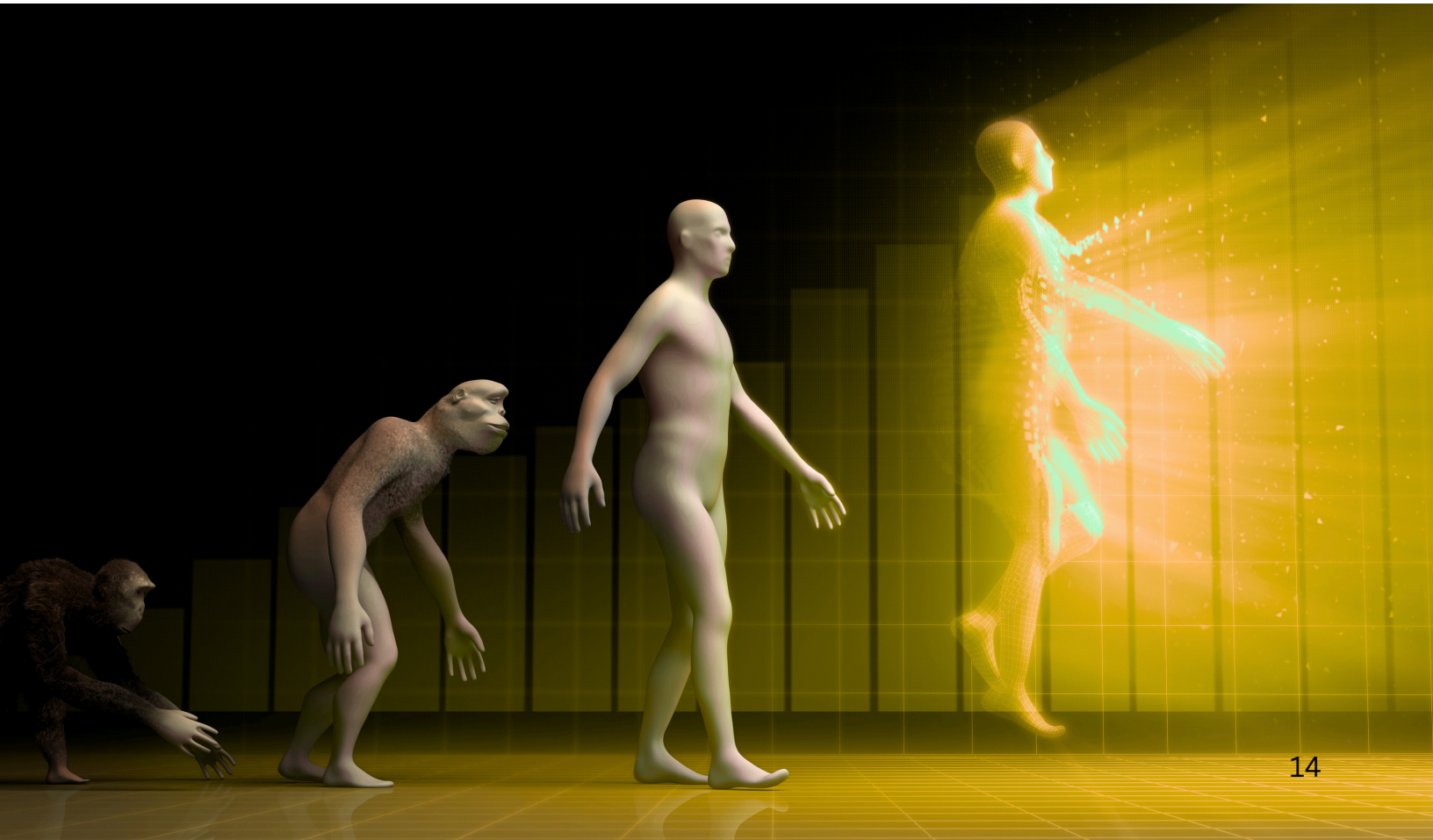
Despite this acknowledged risk, how to specifically target and preempt hallucinations that are unenabled and pose inventorship questions is also largely unsaid in the epi Guidelines. The risk of unenabled hallucinations is exacerbated by the rise and development of advanced reasoning models designed to problem solve, as explored below.

Likelihood of Inducing AI Reasoning

Recent advances in GenAI have introduced LLMs capable of increasingly sophisticated forms of reasoning. Reasoning models, such as OpenAI's GPT-5, are trained not only on vast corpora of text but also with reinforcement learning techniques that enable them to simulate reasoning patterns.*[xviii]* These "reasoning models" are trained to "think" to help the user problem solve, offering "deeper reasoning" that "thinks harder on complex multi-variable questions."*[xix]* As a result, these models are designed for complex problem-solving and multi-step planning.

This evolution in LLM design is highly relevant to the field of patent drafting. While reasoning-capable GenAI tools offer promising capabilities for technical writing and claim development, they also introduce unique legal and regulatory concerns, particularly concerning inventorship and enablement. When practitioners use certain prompting techniques that intentionally induce the model to reason, particularly into reasoning models, they may be unknowingly inviting the AI to fill in technical gaps, infer improvements, or structure claims in ways not originally conceived by a human. This raises serious questions about whether such output reflects "significant human contribution," a standard required for valid inventorship.

This section identifies several major prompt engineering techniques commonly used in professional workflows and evaluates their likelihood of inducing AI-generated reasoning, which can be deemed to be hallucinatory content, possibly unenabled. The goal is to provide legal professionals with a clearer understanding of when and how GenAI may cross the line from mechanical assistance into conceptual contribution.



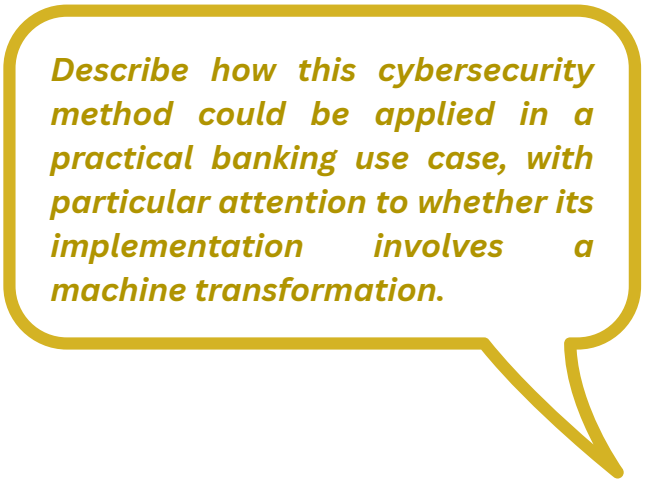
Prompting And AI Reasoning

Chain-of-Thought (CoT) prompting can be considered a type of reasoning-based prompting, as it instructs the model to reason step-by-step before delivering a final output.*[xx]* This type of prompting induces a series of intermediate natural language reasoning steps that lead to the final output useful for tasks such as math word problems, commonsense reasoning, and symbolic manipulation, and is potentially applicable (at least in principle) to any task that humans can solve via language.*[xxi]* In fact, it has been recognized in academic and research circles that CoT prompting elicits reasoning in LLMs.*[xxii]* In the case of patent drafting, CoT prompting can be used in analytical contexts where structured logic is preferred such as in the following prompt example:

> ***Step-by-step, explain how the above mentioned arrangement of power sources reduces power consumption in a distributed sensor network. Then describe how that improvement could be reflected in the preamble and body of a method claim.***

Using these types of prompts is tempting when attempting to achieve efficient, technically rich language while operating under a tight budget. But this type of prompting induces the model to infer improvements and possibly propose novel functionality. Even if the patent drafter provided background information to the model as to how power consumption is accomplished, this type of prompting still allows the AI to potentially "reason" or hallucinate technical explanations for achieving said reduction in power consumption that are beyond the scope of the reasons that were provided, potentially generating unenabled output. In the above example, the prompt asked the model to suggest content that could be implemented in a claim without any guarantee that the ideas originated from or were understood by the inventor. If the model fills in gaps using probabilistic language rather than inputted facts, this could lead to enablement questions and inventorship issues under *Pannu* if no human made a significant contribution.

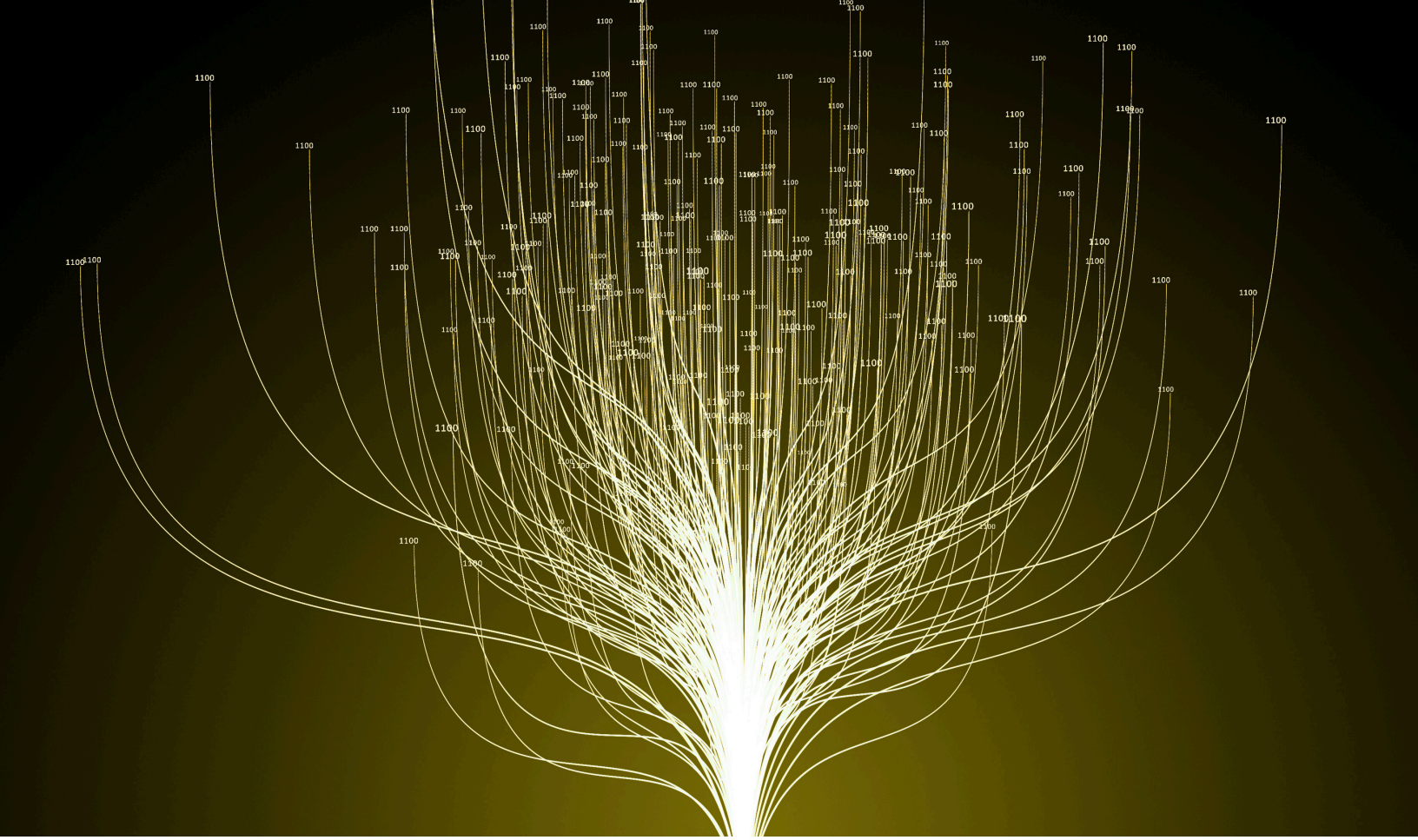
Another example of CoT prompting in patent drafting arises in the context of drafting to preempt patent ineligibility challenges:



Here, the attorney may be seeking a practical application for a purely software invention and attempts to link software functions to a concrete, physical implementation to meet the practical application requirement based on the machine-or-transformation test.*[xxiii]* However, it introduces several risks. First, the first section of the prompt is open-ended and invites the model to simulate contextual reasoning around how a cybersecurity method might manifest in practice, except that the model is not reasoning in the known or factual sense. It simply generates likely-sounding language based on training data and provides a plausible-sounding scenario.

This is precisely the danger of unstructured GenAI prompting: the model will rarely admit uncertainty and is not designed to fact-check. Rather, it is designed to deliver text — not to verify facts or legal sufficiency. When prompted in this manner, GenAI may very well generate output that is not enabled and give what the USPTO calls a "prophetic example," which the AI Use Guidance states should be differentiated from an actual working example.

This type of open-ended prompting – asking the AI to devise a use case – can also occur when prompting the GenAI model to provide alternative methods, embodiments, or materials for an invention, encouraging the AI to branch into multiple reasoning paths, possibly inducing autonomous reasoning from the AI. The usual concerns of enablement occur, but also potentially inventorship if the alternative iterations impact the scope of the claims beyond what the inventor disclosed.



Tree-of-Thought (ToT) prompting is a structured prompting technique designed to encourage a GenAI model to explore multiple reasoning paths before converging on the most promising one.*[xxiv]* In the context of patent drafting, this often occurs when practitioners prompt GenAI tools to suggest alternative embodiments, materials, or methods for implementing an invention. While such exercises mirror traditional drafting practices where attorneys are expected to anticipate design-arounds and claim strategically beyond a specific implementation, reliance on GenAI introduces a unique risk.

In conventional practice, a patent attorney independently develops foreseeable variations based on their understanding of the invention and the state of the art. These variations reflect the attorney's legal judgment, technical insight, and professional experience. However, when GenAI is used to generate alternatives through autonomous reasoning, the resulting content may stem not from the inventor's disclosure or the attorney's input but rather from the model's statistical inference and training data.

This distinction matters as **alternative embodiments or methods, whether or not they are explicitly claimed, can significantly influence claim scope.** For example, their inclusion may justify the use of broader terminology or more generic language. If those alternatives were introduced primarily by the AI, and not significantly contributed to by a human, it raises concerns about whether the resulting claims meet the inventorship standards articulated in *Pannu* and reflected in the AI Inventorship Guidance.

1. Chain-of-Thought (CoT) Prompting

Description: Asks the model to reason step-by-step before giving an answer.*[xxv]*

Example: “Explain, step by step, how this sensor network improves power efficiency, and then how that might be reflected in a method claim.”*

Likelihood of Inducing Reasoning: Very High 🔴

Why: The model is explicitly encouraged to simulate a logical chain, potentially introducing inferences or novel logic not disclosed by the user.

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2. Tree-of-Thought (ToT) Prompting

Description: Instructs the model to explore multiple reasoning paths or options before choosing the best one.*[xxvi]*

Example: “List three alternative ways to implement this algorithm in a wearable device and evaluate their pros and cons.”*

Likelihood of Inducing Reasoning: Very High 🔴

Why: ToT prompts the model to imagine and evaluate divergent paths, increasing the likelihood of speculative or hallucinatory output.

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3. Few-Shot Prompting

Description: Prompting by including a few examples of desired output to guide the model’s response format or logic.*[xxvii]*

Example: "Here are two examples of claim structure. Now draft a similar claim structure for this invention..."*

Likelihood of Inducing Reasoning: Medium to High 🟠

Why: The model may infer a generalized rule from the examples and extrapolate.

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4. Zero-Shot Prompting

Description: A direct prompt without examples or providing prompt that is not part of the training data to the model.*[xxviii]*

Example: “Rewrite the following description of the process into a more polished format.”*

Likelihood of Inducing Reasoning: Medium 🟡

Why: Model uses its training data to simulate plausible legal language or structure but hallucinations are easier to catch by the user.

5. Socratic Prompting

Description: Asks the model a series of reflective/recursive questions to explore an idea.*[xxix]*

Example: "What assumptions underlie this implementation to achieve technical improvement? If those assumptions change, how might that impact technological improvement?"*

Likelihood of Inducing Reasoning: High 🔴

Why: This approach promotes abstract, analytical reasoning beyond simple retrieval or reformulation.

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6. Prompt Chaining / Multi-Step Prompting

Description: Uses the output of one prompt as input for the next, building toward a complex result.*[xxx]*

Step 1 Prompt:
"Summarize the core point of novelty of the invention described below in one paragraph. (Insert technical disclosure of a new optical sensor system)."*
Model Output (Step 1):
"The invention provides a high-resolution optical sensor system that improves signal-to-noise ratio through an adaptive feedback mechanism, enabling accurate low-light imaging for autonomous vehicles."

Step 2 Prompt (chained):
"Using the summary above, draft a set of three independent claims that capture the inventive concept."*
Model Output (Step 2):
(Drafts three independent claims focused on the sensor system, adaptive feedback loop, and integration into vehicle control.)

Step 3 Prompt (chained):
"Based on the claims above, generate a detailed description section that provides sufficient support under 35 U.S.C. § 112."*
Model Output (Step 3):
(Produces detailed specification text elaborating on the system architecture, components, and operational feedback loop.)

Likelihood of Inducing Reasoning: Very High 🔴

Why: This accumulates and amplifies the model's interpretive assumptions across each step.

7. Persona-Based Prompting

Description: Assigns the model a persona to influence the output.*[xxxi]*

Example: “As a patent attorney, draft an independent claim covering the arrangement of the fuel cell.”*

Likelihood of Inducing Reasoning: High 🔴

Why: The model draws on generalized patterns from training data to emulate the behavior or analysis of the given role, which may introduce synthesized reasoning.

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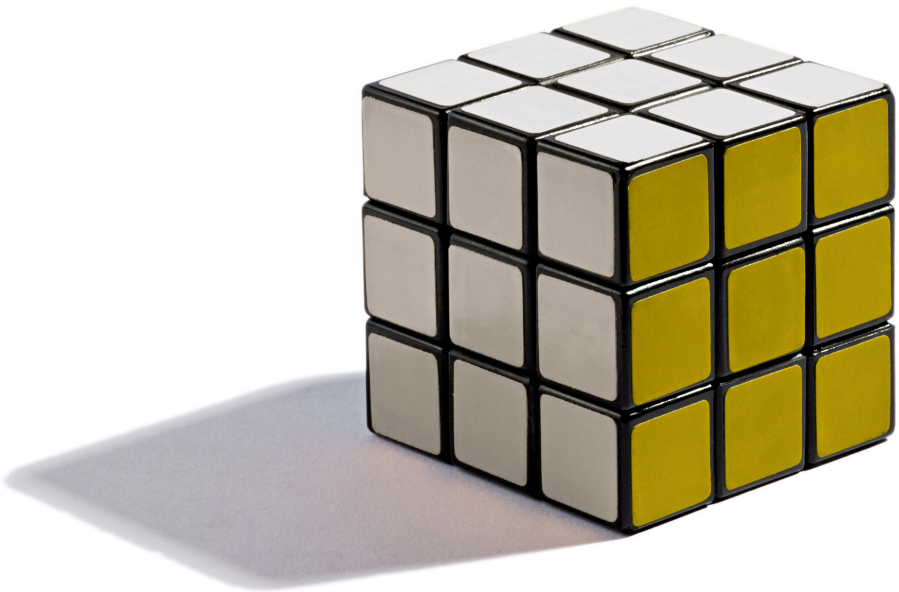
8. Descriptive or Open-Ended Prompting

Description: Questions or statements that do not have a specific answer or predetermined outcome. Instead, they encourage users to think creatively, express their thoughts and opinions, and engage in a more natural and dynamic conversation.*[xxxii]*

Example: “Describe possible use cases of this method in industry.”*

Likelihood of Inducing Reasoning: Very High 🔴

Why: LLMs will generate plausible but potentially speculative use cases or applications not present in the user’s data.



*The sample prompts above are provided solely for illustrative purposes. Certain examples have been intentionally crafted to demonstrate language that may elicit reasoning behaviors from GenAI systems.

While the risk of inducing AI-generated reasoning through CoT compritng, ToT prompting and prompt chaining is high, these techniques are arguably the most useful and effective prompting techniques in the context of patent drafting. CoT and ToT prompting excel at breaking down complex technical ideas into structured sequences, allowing attorneys to explore how a feature might function, how a problem might be solved, or how a claim might be constructed around a given technical contribution. If done right, prompt chaining allows the drafter to establish a clear logical foundation that guides the AI's reasoning process. As AI reasoning is not based on logic on its own, prompt chaining is an effective way to guide GenAI to generate output based on established logic from the drafter.

However, the same strengths that make these prompting techniques valuable also pose the greatest risk. As these techniques induce the AI to simulate technical or legal reasoning, it can generate content that was not explicitly conceived by a human and also lack significant human contribution if the drafter does not catch these outputs. This risks triggering inventorship issues under *Pannu* or generating content that lacks enablement under §112.

Thus, while CoT prompting, ToT prompting and prompt chaining may be among the most useful techniques in the patent practitioner's GenAI toolkit, their use demands heightened vigilance. These techniques should be paired with attorney-guided frameworks that enforce review checkpoints, traceability of human contribution, and awareness of where GenAI might be introducing novel reasoning.

Clear guidance from the USPTO is also needed to balance the powerful utility of reasoning-based prompting with the regulatory requirements of human inventorship, duty of candor, and enablement.

[W]hile CoT prompting and prompt chaining may be among the most useful techniques in the patent practitioner's GenAI toolkit, their use demands heightened vigilance. These techniques should be paired with attorney-guided frameworks that enforce review checkpoints, traceability of human contribution, and awareness of where GenAI might be introducing novel reasoning.

SECTION 3

Regulatory Blind Spots

While the USPTO's April 2024 **AI Use Guidance** offers a strong foundational framework for responsible AI use in patent practice, it stops short of addressing nuances that emerge when GenAI is integrated into the substantive stages of patent drafting.

At present, the current guidance does not provide sufficient clarity regarding:

- **Which prompting techniques are considered "high risk" for potential unenabled hallucinations and autonomous reasoning by the model;**
- **How to evaluate whether a claim includes or reflects a significant human contribution in the context of AI-assisted drafting;**
- **To what extent does the duty of candor affect record keeping practices in the context of AI use.**

Additional questions remain. For example, the USPTO's AI Use Guidance includes the following instruction*[xxxiii]*:

> When AI tools are used to produce or draft prophetic examples, appropriate care should be taken to assist the readers in differentiating these examples from actual working examples.

But this instruction only raises further questions:

- **What constitutes a "prophetic example" in the context of GenAI use? Is a model-generated use case that is technically plausible like the banking case described above — but not disclosed by the inventor — considered prophetic?**
- **What is a "working example" in this context? Must it be based exclusively on information provided by the inventor, or can it include AI-generated elaboration?**
- **If an AI-generated claim is not clearly labeled as prophetic or speculative, does it automatically raise enablement or inventorship risks?**

When it comes to GenAI's impact on inventorship when used for patent drafting, the USPTO acknowledges the potential for inventorship complications when AI-generated content is used — particularly in claim language — but does not provide any clear test or analytical standard for what constitutes a "significant human contribution" when AI assists in shaping claim scope or technical substance. Significantly, the AI Use Guidance fails to provide specific examples of the permissibility of using reasoning-based prompting where the AI contributes to the analytical construction of a claim, and the level of human contribution needed to circumvent inventorship questions under the AI Inventorship Guidance.

This lack of specificity creates a gray area at the intersection of the AI Use Guidance and the Inventorship Guidance. While both documents emphasize human oversight, neither directly addresses how that oversight should be exercised in the context of reasoning-based AI prompting — that is, prompting techniques that ask the model to perform a form of technical or legal analysis that can materially affect claim language, structure, or breadth.

The AI Use Guidance does not provide specific examples of the permissibility of using reasoning-based prompting where the AI contributes to the analytical construction of a claim, and the level of human contribution needed to circumvent inventorship questions under the AI Inventorship Guidance.

Consequences of the Disconnect Between the AI Use Guidance and the Inventorship Guidance

Now as GenAI becomes increasingly adopted and widespread in patent practice, immediate action needs to be taken to connect the USPTO's two key guidance documents on GenAI's impact on patent practice, particularly in scenarios where GenAI is not simply transforming text, but participating in structural or conceptual reasoning. Currently, even when a practitioner conducts a thorough review of GenAI-generated content, the substance of human contribution may be limited or indiscernible if the model was responsible for the underlying reasoning that defined the claim scope or technical rationale. The degree and substance of human contribution to patent drafting when GenAI is used is either indeterminate or at least difficult to determine without clearer guidelines. In the absence of clear, structured guidance, even diligent review may overlook critical issues.

Absent further guidance, patent professionals are left to make their own determinations without knowing how to spot the issues. This regulatory ambiguity may inadvertently expose both practitioners and their clients to inventorship disputes or future validity challenges.

SECTION 4

Call to Action

Accordingly, this paper urges the USPTO to more clearly connect the AI Use Guidance with existing inventorship standards. Specifically, the Office should issue concrete examples illustrating:

- **Permissible versus impermissible uses of GenAI in claim drafting;**
- **What constitutes significant human contribution to claim scope when GenAI has been used in patent drafting;**
- **How significant human contribution is traced or tracked (e.g., is there a requirement that chats with GenAI be preserved?);**
- **What qualifies as a "prophetic example" and how they are to be specifically labeled or described as being prophetic in a patent application;**
- **Instances in which the duty of candor is violated to the USPTO if GenAI is utilized; and**
- **Examples of how GenAI-assisted generation of alternative embodiments or modifications may influence claim scope and inventorship.**

Such clarity is essential to ensure responsible use of AI in patent practice and to preserve the integrity of the patent system.

This paper calls for the USPTO to consider:

- **Supplementing the AI Use Guidance with examples;**
- **Anchoring the AI Use Guidance to the AI Inventorship Guidance;**
- **Encouraging the development of attorney-guided frameworks structured to identify key issues in patent drafting using GenAI;**
- **Establishing a pilot program or working group to evaluate structured GenAI drafting methods.**

CONCLUSION

GenAI presents tremendous potential for innovation within the patent profession. When used responsibly, it can enhance the speed, precision, and breadth of patent drafting, offering attorneys new ways to structure claims, visualize applications, and capture technical nuance. As patent professionals embrace these next-generation tools, the focus should now shift from debating whether GenAI can be used, to how it should be integrated in a manner that preserves attorney oversight, ethical responsibility, and legal integrity.

The USPTO has taken the lead in 2024 in guiding practitioners on GenAI's role in practicing before the Office. Now, broader and clearer guidance is needed as GenAI tools become increasingly adopted in the legal and patent professions. Practitioners must be able to identify high-risk prompting techniques, evaluate whether claims reflect significant human contribution, and understand how to fulfill the duty of candor when AI plays a role in claim development.

The goal is not to restrict innovation in the legal field, but to foster it by encouraging responsible frameworks that protect the patent system’s foundational principles. Without deeper scrutiny and proactive guidance, we risk allowing a new form of legal drafting to take root—one that may compromise inventorship, enablement, or enforceability of many patents, yet prove difficult to unravel years down the line.

To future-proof both innovation and the rule of law, the USPTO must update its existing guidance documents and seek to identify best practice for developing structured, attorney-led integration of GenAI into the patent drafting process. Only then can we truly balance progress with oversight.

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*A note on AI: This white paper was written by the principal author. ChatGPT was used to aid in research and drafting the references. Grammarly was used in editing.

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