



P"AI" TENTS – are AI GENERATED Inventions Protectable?

Applying USPTO's Guidance
on AI-Assisted Inventions

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June 4, 2024



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Overview

By the end of this presentation, you will be able to analyze inventions created with AI Assistance for inventorship.

- ✓ Examine the role of human contributions in AI-generated inventions.
- ✓ Evaluate 5 scenarios for inventorship based on the USPTO's guidance and the Pannu factors.

Background for Guidance



Thaler v. Vidal

- Thaler v. Vidal is the first US case involving the question of whether an AI system can be considered an inventor.
- The case was decided by the U.S. Court of Appeals for the Federal Circuit in 2022.
- The Court ruled that only natural persons can be named as inventors under U.S. patent law.
- The Court did not answer the question of whether inventions made by a human with the assistance of AI are eligible for patent protection (AI-assisted inventions).

USPTO's Inventorship Guidance

USPTO issued inventorship guidance for AI-assisted inventions on February 13, 2024.

AI-assisted inventions are not categorically unpatentable for improper inventorship.

The guidance emphasizes the importance of human involvement in the inventive process.

Key Takeaways from USPTO's Inventorship Guidance

- Patent applications for AI-assisted inventions must name a natural person(s) who *significantly contributed* to the invention as the inventor or joint inventors (i.e., the Pannu factors).
- Patent applications must not list any entity that is not a natural person as the inventor or joint inventor, even if the AI system was instrumental in the creation of the claimed invention.

The Pannu Factors



First Factor: Contribution to the conception of the invention.

A person must contribute in some significant manner to the conception of the invention.



Second Factor: Quality of the contribution.

The contribution must not be insignificant in quality when measured against the dimension of the full invention.



Third Factor: More than explaining well-known concepts.

The contribution must involve more than merely explaining well-known concepts and the current state of the art.

Analyzing Inventions made by a Human with the Assistance of AI



Scenario 1: Facts

Ruth and Morgan, engineers at XYZ Toy Company, prompt AI system Puerto5 for a transaxle design for an RC car.

Prompt: "Create an original design for a transaxle for a model car, including a schematic and description of the transaxle."

Output: Design with a casing, a transmission within the casing, and axle shafts extending from the casing. The casing is separable along a vertical plane.

Ruth and Morgan review and agree that the design should work.

Scenario 1: Claim 1

1. A transaxle comprising:
 - a casing;
 - a transmission;
 - said transmission separate from said casing and removably mounted within said casing;
 - axle shafts extending from said casing;
 - said casing being defined by two separable casing elements of said transaxle;
 - a fastener on said transmission that removably mounts the transmission to one of said separable casing elements.

Scenario 1: Are Ruth & Morgan inventors?



Scenario 1: Analysis

First Pannu Factor: Ruth and Morgan recognized a problem, prompted the AI system, and reviewed the output. However, these actions do not rise to the level of conception.

Second Pannu Factor: Ruth and Morgan's contributions were minimal and did not significantly impact the quality of the invention.

Third Pannu Factor: They did not contribute beyond explaining the current state of the art.

Conclusion: Ruth and Morgan are not proper inventors of claim 1.

Scenario 2: Facts

Ruth and Morgan build the transaxle using Puerto5's schematic without altering the design.

They select steel, a common material, to build the transaxle.

Scenario 2: Claim 2

2. The transaxle of claim 1, wherein the casing is constructed from steel.

Scenario 2: Are Ruth & Morgan inventors?



Scenario 2: Analysis

First Pannu Factor: Building the transaxle based on the schematic and choosing steel does not constitute significant contribution to conception.

Second Pannu Factor: Selecting steel, a well-known material, is insignificant compared to the full invention.

Third Pannu Factor: Morgan's actions do not go beyond explaining the current state of the art.

Conclusion: Ruth and Morgan are not proper inventors of claim 2.

Scenario 3: Facts

Ruth and Morgan prompt Puerto5 for alternative transaxle designs.

Puerto5 generates a design with horizontal casing separation.

They decide to build the design, but it requires further modifications and experimentation.

They determine the casing needs elongation and horizontal separation in the upper third.

They design a clip fastener for the transmission.

Scenario 3: Claim 3

3. A transaxle comprising:
 - an elongated casing;
 - a transmission;
 - said transmission being separate from said casing and removably mounted **within the lower two-thirds of said casing**;
 - axle shafts extending from **the lower two-thirds of said casing**;
 - said casing being defined by two separable casing elements **along a horizontal plane**;
 - a **clip** fastener on said transmission that removably mounts the transmission to one of said separable casing elements.

Scenario 3: Are Ruth and Morgan inventors?



Scenario 3: Analysis

First Pannu Factor: Significant contributions to conception through experimentation and design alterations.

Second Pannu Factor: The specific arrangement and clip fastener are integral to the invention.

Third Pannu Factor: Contributions went beyond explaining the state of the art.

Conclusion: Ruth and Morgan are proper inventors of claim 3.

Scenario 4: Facts

After completing the models of scenario 3, Morgan prompts Puerto5 with details of their newly created design and a general request that Puerto5 provide manufacturing suggestions.

Puerto5 outputs a suggestion that the casing could be milled out of aluminum using a Computer Numerical Control (CNC) routing machine.

Morgan recognizes that a CNC routing machine is a conventional fabrication tool and that the transaxle casing could be readily constructed according to Puerto5's suggestion.

Scenario 4: Claim

4. The transaxle of claim 3, wherein the casing is made out of aluminum.

Scenario 4: Are Ruth & Morgan inventors?



Scenario 4: Analysis

First Pannu Factor: Ruth and Morgan made a significant contribution to the conception of the invention by altering the alternative design and creating a new design.

Second Pannu Factor: Their contributions are significant when measured against the full scope of claim 4, which includes the limitations from independent claim 3.

Third Pannu Factor: Their contributions were not the result of explaining the state of the art but amounted to a new design.

Conclusion: Ruth and Morgan are the proper inventors of claim 4.

Scenario 5: Facts

Maverick is the lead AI engineer who oversaw the creation and training of the AI system, Puerto5.

Puerto5 was trained on diverse collections of documents from various fields, via standard self-supervised learning techniques.

Maverick was unaware of any specific problems related to transaxles in RC cars when designing and training Puerto5.

Scenario 5: Is Maverick an inventor?



Scenario 5: Analysis

First Pannu Factor: Maverick's contribution is limited to the creation and training of Puerto5, which does not constitute a significant contribution to the conception of the invention.

Second Pannu Factor: Maverick's work was general and not specific to the claimed invention.

Third Pannu Factor: Maintaining intellectual domination over an AI system does not, on its own, make a person an inventor.

Conclusion: Maverick is not a proper inventor of the claimed inventions.

Summary of Scenarios

Scenario 1: Ruth and Morgan prompted AI for design; minimal contribution, not inventors.

Scenario 2: Building based on AI schematic and choosing materials; still minimal contribution, not inventors.

Scenario 3: Significant design modifications and experimentation; Ruth and Morgan are inventors.

Scenario 4: Creation of a new design with AI assistance; significant contributions, Ruth and Morgan are inventors.

Scenario 5: Training the AI system without specific problem knowledge; Maverick not an inventor.

Guiding Principles

- ✓ Prompting an AI system does not typically make someone an inventor.
- ✓ Simply reducing an invention to practice is not enough for inventorship.
- ✓ Using AI does not negate a person's contributions; significant contributions can still qualify them as an inventor.
- ✓ Overseeing an AI system without significant contributions to the invention's conception does not make someone an inventor.

Conclusion

Based on the USPTO guidance, significant human contribution is essential for inventorship in AI-assisted inventions.

The Pannu factors are used to determine whether a person's contribution to an invention is significant enough to qualify them as an inventor.

References

- USPTO AI Landing Page
 - <https://www.uspto.gov/initiatives/artificial-intelligence>
- USPTO Guidance on Inventorship for AI-Assisted Inventions & the Examples
 - <https://www.uspto.gov/initiatives/artificial-intelligence/artificial-intelligence-resources>
- Thaler v. Vidal, 43 F.4th 1207 (Fed. Cir. 2022)
- Pannu v. Iolab Corp., 155 F.3d 1344, 1351 (Fed. Cir. 1998)

Thank You

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