DEPARTMENT OF COMMERCE

Patent and Trademark Office

[Docket No. PTO-P-2023-0043]

Inventorship Guidance for AI-assisted Inventions

AGENCY: United States Patent and Trademark Office, Department of Commerce.

ACTION: Examination guidance; request for comments.

SUMMARY: Pursuant to the "Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence" (October 30, 2023), the United States Patent and Trademark Office (USPTO or Office) is issuing inventorship guidance for inventions assisted by artificial intelligence (AI). The guidance provides clarity for USPTO stakeholders and personnel, including the Central Reexamination Unit and the Patent Trial and Appeal Board (PTAB or Board), on how the USPTO will analyze inventorship issues as AI systems, including generative AI, play a greater role in the innovation process. This guidance explains that while AI-assisted inventions are not categorically unpatentable, the inventorship analysis should focus on human contributions, as patents function to incentivize and reward human ingenuity. Patent protection may be sought for inventions for which a natural person provided a significant contribution to the invention, and the guidance provides procedures for determining the same. Finally, the guidance discusses the impact these procedures have on other aspects of patent practice. The USPTO is seeking public comments on this inventorship guidance for AI-assisted inventions.

DATES: *Applicability Date:* The inventorship guidance for AI-assisted inventions is effective on [INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]. This guidance applies to all applications, and to all patents resulting from applications,

filed before, on, or after [INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER].

Comment Deadline Date: Written comments must be received on or before [INSERT DATE 90 DAYS AFTER PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: Comments must be submitted through the Federal eRulemaking Portal at www.regulations.gov. To submit comments via the portal, enter docket number PTO-P-2023-0043 on the homepage and select "Search." The site will provide a search results page listing all documents associated with this docket. Find a reference to this document and select on the "Comment" icon, complete the required fields, and enter or attach your comments. Attachments to electronic comments will be accepted in Adobe® portable document format (PDF) or Microsoft Word® format. Because comments will be made available for public inspection, information that the submitter does not desire to make public, such as an address or phone number, should not be included in the comments.

Visit the Federal eRulemaking Portal for additional instructions on providing comments via the portal. If electronic submission of comments is not feasible due to a lack of access to a computer and/or the internet, please contact the USPTO using the contact information below for special instructions.

FOR FURTHER INFORMATION CONTACT: Matthew Sked, Senior Legal Advisor, at 571-272-7627; or Nalini Mummalaneni, Senior Legal Advisor, at 571-270-1647, both with the Office of Patent Legal Administration, Office of the Deputy Commissioner for Patents.

SUPPLEMENTARY INFORMATION:

I. Background

In August 2019, the USPTO issued a request for public comments on patenting AI-assisted inventions.[1] Among the various policy questions raised in the notice, the USPTO requested comments on several issues involving inventorship, such as the different ways a natural person can contribute to the conception of an AI-assisted invention. In October 2020, the USPTO published a report titled "Public Views on Artificial Intelligence and Intellectual Property Policy," which took a comprehensive look at the stakeholder feedback received in response to the questions posed in the August 2019 notice.[2] In June 2022, the USPTO held its inaugural Artificial Intelligence/Emerging Technologies Partnership meeting, which included a panel discussion on "Inventorship and the Advent of Machine Generated Inventions."[3] The USPTO later issued a "Request for Comments Regarding Artificial Intelligence and Inventorship" (RFC) on February 14, 2023.[4] This RFC asked 11 questions, mostly regarding the issues involving AI and patent inventorship. On April 25 and May 8, 2023, the USPTO held public listening sessions at the USPTO headquarters and Stanford University, respectively. During these listening sessions, the USPTO heard from 32 public speakers, and the events were attended by over 800 attendees, both in person and virtually. The USPTO has received 69 written comments from a diverse group of stakeholders. Comments received in response to the RFC can be viewed on the Regulations.gov docket page.[5] As illustrated above, the USPTO has actively engaged with our stakeholders and has received extensive input from the public on inventorship for AI-assisted inventions. Notably, numerous commenters expressly agreed that the

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[1] Request for Comments on Patenting Artificial Intelligence Inventions, 84 FR 44889 (August 27, 2019). AI-assisted inventions are inventions created by natural persons using one or more AI systems. The AI system's contribution is not inventorship, even if the AI system's contributions were instrumental in the creation of the invention. *Thaler v. Vidal*, 43 F.4th 1207 (Fed. Cir. 2022).

[2] The full report is available at www.uspto.gov/sites/default/files/documents/USPTO_AI-Report_2020-10-07.pdf.

[3] The recording is available at www.uspto.gov/about-us/events/aiet-partnership-series-1-kickoff-uspto-aiet-activities-and-patent-policy.

[4] 88 FR 9492 (February 14, 2023).

[5] Comments are viewable at www.regulations.gov/docket/PTO-P-2022-0045/comments.

USPTO should provide guidance regarding inventorship and the patentability of AI-assisted inventions.

Recognizing that "[r]esponsible AI use has the potential to help solve urgent challenges while making our world more prosperous, productive, innovative, and secure," while "[a]t the same time, irresponsible use could exacerbate societal harms such as fraud, discrimination, bias, and disinformation; displace and disempower workers; stifle competition; and pose risks to national security," President Biden issued the "Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence" on October 30, 2023 (Executive Order). The Executive Order sets forth policy and principles, including that:

> Promoting responsible innovation, competition, and collaboration will allow the United States to lead in AI and unlock the technology's potential to solve some of society's most difficult challenges. This effort requires investments in AI-related education, training, development, research, and capacity, while simultaneously tackling novel intellectual property (IP) questions and other problems to protect inventors and creators. . . . The Federal Government will promote a fair, open, and competitive ecosystem and marketplace for AI and related technologies so that small developers and entrepreneurs can continue to drive innovation. Doing so requires stopping unlawful collusion and addressing risks from dominant firms' use of key assets such as semiconductors, computing power, cloud storage, and data to disadvantage competitors, and it requires supporting a marketplace that harnesses the benefits of AI to provide new opportunities for small businesses, workers, and entrepreneurs.

Under section 5.2(c)(i) of the Executive Order (Promoting Innovation and Competition), the Executive Order provides that:

(c) To promote innovation and clarify issues related to AI and inventorship of patentable subject matter, the Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and Trademark Office (USPTO Director) shall:

(i) within 120 days of the date of this order, publish guidance to USPTO patent examiners and applicants addressing inventorship and the use of AI, including generative AI, in the inventive process, including illustrative examples in which AI systems play different roles in inventive processes and how, in each example, inventorship issues ought to be analyzed.

In accordance with the Executive Order, and to continue its mission to drive U.S. innovation, inclusive capitalism, and global competitiveness, the USPTO is providing guidance on the determination of inventorship for AI-assisted inventions to provide clarification and consistency when it comes to the evaluation of such issues. Section II of this notice provides an overview of the recent Federal Circuit decision in *Thaler v. Vidal* and its applicability to joint inventorship. Section III provides an assessment of the inventorship of AI-assisted inventions and its impact on patentability, and concludes such inventions are not categorically unpatentable due to improper inventorship if one or more natural persons significantly contributed to the invention. Section IV provides guidance and principles for determining the inventorship of an AI-assisted invention. Section V explains the impact the inventorship determination for AI-assisted inventions has on other aspects of patent practice.

In conjunction with issuing this guidance, the USPTO is issuing examples to provide assistance to the public and examiners on the application of this guidance in specific situations. The examples are posted to public at www.uspto.gov/initiatives/artificial-intelligence/artificial-intelligence-resources. The USPTO is seeking public comments on the guidance as well as the examples. Based on

the feedback received from its stakeholders and any relevant additional judicial decisions, the USPTO may issue further guidance, modify the current guidance, or issue additional examples. The USPTO views the inventorship guidance on AI-assisted inventions as an iterative process and may continue with periodic supplements as AI technology continues to advance and/or as judicial precedent evolves. The USPTO invites the public to submit suggestions on topics related to AI-assisted inventorship so it can address them in future guidance supplements.

The USPTO recognizes that AI gives rise to other questions for the patent system besides inventorship, such as subject matter eligibility, obviousness, and enablement. In addition to addressing inventorship, section 5.2(c)(ii) of the Executive Order also provides that the USPTO Director shall,

> (ii) subsequently, within 270 days of the date of this order, issue additional guidance to USPTO patent examiners and applicants to address other considerations at the intersection of AI and IP, which could include, as the USPTO Director deems necessary, updated guidance on patent eligibility to address innovation in AI and critical and emerging technologies.

The USPTO has been exploring issues at the intersection of AI and IP and is planning to continue to engage with our stakeholders as we move forward, issuing guidance as appropriate.

A. Impact on Examination Procedure and Prior Examination Guidance

While this guidance is focused on AI-assisted inventions, portions of the guidance can apply to other types of inventions. To the extent that earlier guidance from the USPTO, including certain sections of the Manual of Patent Examining Procedure (9th Edition, rev. 07.2022, February 2023) (MPEP), is inconsistent with the guidance set forth in this notice, USPTO personnel are to follow these guidelines. The MPEP will be updated in due course.

Disclaimer: This guidance does not constitute substantive rulemaking and does not have the force and effect of law. The guidance sets out agency policy with respect to the USPTO's interpretation of the inventorship requirements of the Patent Act in view of decisions by the Supreme Court of the United States (Supreme Court) and the United States Court of Appeals for the Federal Circuit (Federal Circuit). The guidance does not create any right or benefit, substantive or procedural, enforceable by any party against the USPTO. Rejections will continue to be based on the substantive law, and it is those rejections that are appealable to the PTAB and the courts.

II. Inventors and Joint Inventors Named on U.S. Patents and Patent Applications Must Be Natural Persons

On April 22, 2020, the USPTO issued a pair of decisions denying petitions to name the Device for the Autonomous Bootstrapping of Unified Sentience (DABUS), an AI system, as an inventor on two patent applications. The USPTO's decisions explained that under current U.S. patent laws, inventorship is limited to a natural person(s).[6] The USPTO's decisions were upheld on September 2, 2021, in a decision from the United States District Court for the Eastern District of Virginia.[7] On appeal, the Federal Circuit affirmed in *Thaler v. Vidal* (*Thaler*) the holding "that only a natural person can be an inventor, so AI cannot be."[8] Specifically, the Federal Circuit stated that 35 U.S.C. 100(f) defines an inventor as "the *individual* or, if a joint invention, the *individuals* collectively who invented or discovered the subject matter of the invention." (emphasis in original) The court found that based on Supreme Court precedent, the word "individual," when used in statutes, ordinarily means a human being unless Congress provided some indication that a different meaning was intended.[9] The court further found that there is

[6] The decision is available at www.uspto.gov/sites/default/files/documents/16524350_22apr2020.pdf.
[7] *Thaler v. Hirshfeld*, 558 F.Supp.3d 238 (E.D. Va. 2021).
[8] *Thaler v. Vidal*, 43 F.4th 1207, 1213 (Fed. Cir. 2022), *cert denied*, 143 S. Ct. 1783 (2023).
[9] *Id*. at 1211 (citing *Mohamad v. Palestinian Auth*., 566 U.S. 449, 454 (2012)).

nothing in the Patent Act to indicate Congress intended a different meaning, and the Patent Act includes other language to support the conclusion that an "individual" in the Patent Act refers to a natural person.[10] The court therefore concluded that an inventor must be a natural person.[11] The court explained, however, that it was not confronted with "the question of whether inventions made by human beings with the *assistance* of AI are eligible for patent protection."[12] (emphasis in original)

35 U.S.C. 100(g) defines the terms "joint inventor" and "coinventor" as "any 1 of the individuals who invented or discovered the subject matter of a joint invention." Based on the holding in *Thaler* that an "individual" must mean a natural person, it is clear that a "joint inventor" or "coinventor" must also be a natural person. In February of 2023, the USPTO published the R-07.2022 revision of the MPEP, which included revisions to section 2109. This section reiterates the USPTO's position, and the position expressed by the Federal Court in *Thaler*, that an inventor must be a natural person, and by extension, any joint inventor must be a natural person. As such, patent applications that name a machine on an application data sheet (37 CFR 1.76), an inventor's oath or declaration (37 CFR 1.63), or a substitute statement (37 CFR 1.64) as either an inventor or joint inventor will be considered by the USPTO to have improper inventorship.

Further, the USPTO recognizes that while an AI system may not be named an inventor or joint inventor in a patent or patent application, an AI system—like other tools—may perform acts that, if performed by a human, could constitute inventorship under our laws. The *Thaler* decisions around "inventorship" are not a recognition of any limits on the current or future state of AI, but rather are an acknowledgment that the

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[10] *Id.*
[11] *Id.*
[12] *Id.* at 1213.

statutory language clearly limits inventorship on U.S. patents and patent applications to natural persons.

III. AI-assisted Inventions Are Not Categorically Unpatentable for Improper Inventorship

While AI systems and other non-natural persons[13] cannot be listed as inventors on patent applications or patents, the use of an AI system by a natural person(s) does not preclude a natural person(s) from qualifying as an inventor (or joint inventors) if the natural person(s) significantly contributed to the claimed invention, as explained in section IV of this notice. Patent 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 (i.e., meeting the *Pannu*[14] factors as explained in section IV). Additionally, applications and patents must not list any entity that is not a natural person as an inventor or joint inventor, even if an AI system may have been instrumental in the creation of the claimed invention. This position is supported by the statutes, court decisions, and numerous policy considerations.

A. Statutory Framework

The requirements that a patent application name an "inventor" and that each individual who is named an "inventor" of a claimed invention execute an oath or declaration are available in 35 U.S.C. 115(a).[15] These inventorship requirements are extended to joint inventorship in 35 U.S.C. 116(a).[16] Under 35 U.S.C. 115(b), the oath or declaration must state, among other things, that "such individual believes himself or

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[13] "Non-natural person" used in this notice refers to those entities that would not qualify as a natural person under the law (e.g., sovereigns, corporations, or machines).
[14] *Pannu v. Iolab Corp*., 155 F.3d 1344, 1351 (Fed. Cir. 1998).
[15] "An application for patent that is filed under section 111(a) or commences the national stage under section 371 shall include, or be amended to include, the name of the inventor for any invention claimed in the application. Except as otherwise provided in this section, each individual who is the inventor or a joint inventor of a claimed invention in an application for patent shall execute an oath or declaration in connection with the application."
[16] "When an invention is made by two or more persons jointly, they shall apply for patent jointly and each make the required oath, except as otherwise provided in this title."

herself to be the original inventor or an original joint inventor of a claimed invention in the application." Failure by the applicant to name the proper "inventors" is a ground for rejection under 35 U.S.C. 101 and 35 U.S.C. 115.[17]

The term "inventor" is defined in 35 U.S.C. 100(f) as "the ***individual*** or, if a joint invention, the ***individuals*** collectively who invented or discovered the subject matter of the invention" (emphases added). Additionally, the term "joint inventor" is found in 35 U.S.C. 100(g) and is defined as "any 1 of the ***individuals*** who invented or discovered the subject matter of a joint invention" (emphasis added). As stated in *Thaler*, the term "individual" ordinarily means a human being, and Congress did not provide any indication it intended a different meaning.[18] The terms "inventor" and "joint inventor" have a specific meaning in the Patent Act: those natural persons who invent or discover the claimed invention. Therefore, the statutory requirement in 35 U.S.C. 115 and 116 to name the inventor or joint inventors and require each to sign an oath or declaration is limited only to the natural persons who invented or discovered the claimed invention. These statutes do not provide for recognizing contributions by tools such as AI systems (or other advanced systems) for inventorship purposes, even if those AI systems were instrumental in the creation of the invention.

Additionally, there are no other sections of the Patent Act that support a position that inventions that are created by natural person(s) using specific tools, including AI systems, result in improper inventorship or are otherwise unpatentable. The statutes only require the naming of the natural persons who invented or discovered the claimed invention, irrespective of the contributions provided by an AI system or any other advanced system. Accordingly, the inability to list an AI system, used to create an

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[17] MPEP 2157 ("Note that a rejection under pre-AIA [America Invents Act] 35 U.S.C. 102(f) should not be made if the application is subject to examination under the first inventor to file (FITF) provisions of the AIA.").

[18] *Thaler v. Vidal*, 43 F.4th at 1211.

invention, as a joint inventor does not render the invention unpatentable due to improper inventorship.

B. Judicial Interpretation and Policy Considerations

The Supreme Court has indicated that the meaning of "invention" in the Patent Act refers to the inventor's conception.[19] Similarly, the Federal Circuit has made clear that conception is the touchstone of inventorship.[20] Conception is often referred to as a mental act or the mental part of invention.[21] Specifically, "[i]t is 'the formation in the mind of the inventor, of a definite and permanent idea of the complete and operative invention, as it is hereafter to be applied in practice.'"[22] Because conception is an act performed in the mind, it has to date been understood as only performed by natural persons. The courts have been unwilling to extend conception to non-natural persons.[23] Hence, when a natural person invents using an AI system, the conception analysis should focus on the natural person(s).

The patent system is designed to encourage *human* ingenuity.[24] From its very inception, patents were intended to incentivize human individuals to invent and thereby

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[19] *Pfaff v. Wells Elecs., Inc.*, 525 U.S. 55, 60 (1998) ("The primary meaning of the word 'invention' in the Patent Act unquestionably refers to the inventor's conception rather than to a physical embodiment of that idea.").

[20] *Sewall v. Walters*, 21 F.3d 411, 415 (Fed. Cir. 1994) ("Determining 'inventorship' is nothing more than determining who conceived the subject matter at issue, whether that subject matter is recited in a claim in an application or in a count in an interference."); see also *Ethicon, Inc. v. U.S. Surgical Corp.*, 135 F.3d 1456, 1460 (Fed. Cir. 1998) ("Because '[c]onception is the touchstone of inventorship,' each joint inventor must generally contribute to the conception of the invention.") (quoting *Burroughs Wellcome Co. v. Barr Labs., Inc.*, 40 F.3d 1223, 1227-28 (Fed. Cir. 1994)).

[21] *Univ. of Utah v. Max-Planck-Gesellschaft Zur Forderung Der Wissenschaften E.V.*, 734 F.3d 1315, 1323 (Fed. Cir. 2013); *Fina Oil & Chem. Co. v. Ewen*, 123 F.3d 1466, 1474 (Fed. Cir. 1997).

[22] *Burroughs Wellcome*, 40 F.3d at 1228 (*citing Hybritech Inc. v. Monoclonal Antibodies, Inc*., 802 F.2d 1367, 1376 (Fed. Cir. 1986) (quoting 1 *Robinson on Patents* 532 (1890)).

[23] See *Univ. of Utah*, 734 F.3d at 1323 ("To perform this mental act, inventors must be natural persons and cannot be corporations or sovereigns."); *Beech Aircraft Corp. v. EDO Corp.*, 990 F.2d 1237, 1248 (Fed. Cir. 1993) ("EDO could never have been declared an 'inventor,' as EDO was merely a corporate assignee and only natural persons can be 'inventors.').

[24] See, e.g., U.S. Const. art. 1, s. 8, cl. 8 ("The Congress shall have Power . . . To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries."); Committee Reports on the 1952 Patent Act, S. Rep. No. 1979, 82d Cong., 2d Sess., 5 (1952); H. R. Rep. No. 1923, 82d Cong., 2d Sess., 6 (1952) (Inventions eligible for patenting "include anything under the sun *made by man*.") (emphasis added)); *Graham v. John Deere Co*., 383 U.S. 1, 9 (1966) ("The patent monopoly was not designed to secure to the inventor [their] natural right in [their] discoveries. Rather, it was a reward, an inducement, to bring forth new knowledge. The grant of

promote the progress of science and the useful arts.[25] Focusing the patentability of AI-assisted inventions on the human contributions supports this policy objective by incentivizing human-centered activities and contributions, and by providing patent protections to inventions with significant human contributions while prohibiting patents on those that are not invented by natural persons. This approach supports the USPTO's goal of helping to ensure our patent system strikes the right balance between protecting and incentivizing AI-assisted inventions and not hindering future human innovation by locking up innovation created without human ingenuity.

IV. Naming Inventors for AI-assisted Inventions

The patent statutes require the naming of all inventors who contributed to at least one claim of a patent.[26] The threshold question in determining the named inventor(s) is who contributed to the conception of the invention.[27] 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.[28] In these situations, each named inventor in a patent application or patent, including an application or a patent

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an exclusive right to an invention was the creation of society—at odds with the inherent free nature of disclosed ideas—and was not to be freely given. Only inventions and discoveries which furthered human knowledge, and were new and useful, justified the special inducement of a limited private monopoly."); *Diamond v. Chakrabarty*, 447 U.S. 303, 309-310 (1980) (Under the Patent Act, a claim is considered patentable subject matter if it is to "a nonnaturally occurring manufacture or composition of matter—*a product of human ingenuity* having a distinctive name, character and use.") (emphasis added).

[25] See, e.g., *Thaler v. Perlmutter*, 2023 WL 5333236 at *4 (D.D.C. 2023) ("At the founding, both copyright and patent were conceived of as forms of property that the government was established to protect, and it was understood that recognizing exclusive rights in that property would further the public good by incentivizing individuals to create and invent. The act of human creation—and how to best encourage human individuals to engage in that creation, and thereby promote science and the useful arts—was thus central to American copyright from its very inception. Non-human actors need no incentivization with the promise of exclusive rights under United States law, and copyright was therefore not designed to reach them.").

[26] *Vapor Point LLC v. Moorhead*, 832 F.3d 1343, 1348-49 (Fed. Cir. 2016).

[27] MPEP 2109 (subsection II).

[28] MPEP 2109.01.

for an AI-assisted invention, must have made a "significant contribution"[29] to the claimed invention.[30]

A. Significant Contribution

When evaluating the contributions made by natural persons in the invention creation process, it is important to keep in mind they may apply for a patent jointly, "even though (1) they did not physically work together or at the same time, (2) each did not make the same type or amount of contribution, or (3) each did not make a contribution to the subject matter of every claim of the patent."[31] Instead, each inventor must contribute in some significant manner to the invention. In making this determination, the courts have looked to several factors, such that each inventor must: "(1) contribute in some significant manner to the conception or reduction to practice of the invention,[32] (2) make a contribution to the claimed invention that is not insignificant in quality, when that contribution is measured against the dimension of the full invention, and (3) do more than merely explain to the real inventors well-known concepts and/or the current state of the

[29] *Fina Oil*, 123 F.3d at 1473 ("[A] joint inventor must contribute in some significant manner to the conception of the invention.").

[30] The USPTO recognizes there are divergent views on the level of contribution AI systems can make in the invention creation process. See, e.g., Response to the RFC from American Intellectual Property Law Association at 3 ("[E]ven if AI were considered or categorized as equivalent to a human, its contributions would not rise to the level of joint inventorship, as the core inventive concepts and decisions remain within the purview of the human inventors."); Response to the RFC from International Federation of Intellectual Property Attorneys (FICPI) at 3 ("FICPI takes the position that AI is becoming powerful and creative enough to generate patentable contributions to inventions to which a human has arguably not made an inventive contribution but instead has directed the AI to endeavor towards the solution to a problem."). Comments are viewable at www.regulations.gov/docket/PTO-P-2022-0045/comments.

[31] 35 U.S.C. 116(a).

[32] While these factors do refer to reduction to practice, applicants are reminded that the main inquiry is who conceived of the invention. Reduction to practice, per se, is generally irrelevant to this inquiry. MPEP 2109(II) (citing *Fiers v. Revel*, 984 F.2d 1164, 1168 (Fed. Cir. 1993)). The mention of reduction to practice in the *Pannu* factors is an acknowledgement of the simultaneous conception and reduction to practice doctrine used in unpredictable technologies. See, e.g., *Amgen, Inc. v. Chugai Pharm. Co.*, 927 F.2d 1200, 1206 (Fed. Cir. 1991). The *Pannu* factors are not a basis to conclude that reduction to practice, alone, is sufficient to demonstrate inventorship.

art" (*Pannu* factors).[33] Courts have found that a failure to meet any one of these factors precludes that person from being named an inventor.[34]

As for the first *Pannu* factor, "[a] person who shares in conception of a claimed invention is a joint inventor of the invention."[35] In other words, each named inventor must have significantly contributed to the "definite and permanent idea of the complete and operative invention as it is thereafter applied in practice."[36]

In addition to inventorship disputes, the courts have extensively addressed the issue of conception in connection with interference proceedings under pre-America Invents Act 35 U.S.C. 102(g), and the USPTO views that body of caselaw as instructive. In particular, interference proceedings involve determining the date of conception for competing inventions. That inquiry, in turn, requires determining what activities are sufficient for conception and by whom.[37] In these decisions, the courts have recognized there must be a contemporaneous recognition and appreciation of the invention for there to be conception.[38] Put simply, conception does not occur when there is only an "unrecognized accidental creation."[39] While recognition and appreciation are generally required for complete conception, there is no requirement that each inventor recognize and appreciate the invention. Therefore, each inventor must make a significant

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[33] *Pannu*, 155 F.3d at 1351.
[34] *HIP, Inc. v. Hormel Foods Corp.*, 66 F.4th 1346, 1353 (Fed. Cir. 2023) (citing *Pannu*, 155 F.3d at 1351 ("a joint inventor must contribute in a significant manner to the conception or reduction to practice of the invention, make a contribution to the invention that is not insignificant, *and* do more than explain well-known concepts or the current state of the art")) (emphasis in original).
[35] MPEP 2138.04(I) (citing *In re VerHoef*, 888 F.3d 1362, 1366-67, 126 F.2d 1561, 1564-65 (Fed. Cir. 2018).
[36] *Townsend v. Smith*, 36 F.2d 292, 295 (CCPA 1929).
[37] 35 U.S.C. 102(g)(1) ("In determining priority of invention under this subsection, there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other.").
[38] *Silvestri v. Grant*, 496 F.2d 593, 597 (CCPA 1974); *Heard v. Burton*, 333 F.2d 239, 244 (CCPA 1964) ("In the present case it is the recognition and appreciation of the invention which was lacking to Dr. Heard prior to April 23, 1952 [appellees' filing date].").
[39] *Invitrogen Corp. v. Clontech Labs., Inc.*, 429 F.3d 1052, 1063 (Fed. Cir. 2005).

contribution to the conception of the invention, and at least one inventor must have recognition and appreciation.[40]

The fact that a human performs a significant contribution to reduction to practice of an invention conceived by another is not enough to constitute inventorship. It is settled law that such contributions are insufficient to demonstrate inventorship.[41] Although the first *Pannu* factor refers to "the conception or reduction to practice of the invention," the court did so by citing an earlier Federal Circuit decision concerning "the doctrine of simultaneous conception and reduction to practice."[42] Pursuant to that doctrine, "in some instances, an inventor may only be able to establish a conception by pointing to a reduction to practice through a successful experiment."[43] This concept of simultaneous conception and reduction to practice is sometimes pertinent in unpredictable arts, where, for example, the inventor does not have a reasonable expectation that they would produce the claimed invention.[44] Under those circumstances, the conception of a specific chemical compound does not occur until the reduction to practice occurs.[45] Therefore, the reference to reduction to practice in the first *Pannu* factor is simply an acknowledgement of this doctrine, and it does not imply that reduction to practice is sufficient for invention or is a substitute for conception.

In the context of AI-assisted inventions, natural person(s) who create an invention using an AI system, or any other advanced system, must contribute significantly to the invention, as specified by the *Pannu* factors.[46] Although the *Pannu* factors are generally

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[40] *Amgen, Inc. v. Chugai Pharm. Co*., 927 F.2d 1200, 1206 (Fed. Cir. 1991) ("Conception requires both the idea of the invention's structure and possession of an operative method of making it.") (citing *Oka v. Youssefyeh*, 849 F.2d 581, 583 (Fed. Cir. 1988)).
[41] MPEP 2109(II) (citing *Fiers v. Revel*, 984 F.2d 1164, 1168 (Fed. Cir. 1993)).
[42] See *Pannu*, 155 F.3d at 1351 (citing *Fina Oil*).
[43] *Fina Oil*, 123 F.3d at 1473; see also, e.g., *Amgen*, 927 F.2d at 1206.
[44] *Hitzeman v. Rutter*, 243 F.3d 1345, 1357-58 (Fed Cir. 2001) (Inventor's "hope" that a genetically altered yeast would produce antigen particles having the particle size and sedimentation rates recited in the claims did not establish conception, since the inventor did not show a "definite and permanent understanding" as to whether or how, or a reasonable expectation that, the yeast would produce the recited antigen particles.).
[45] *Id*.
[46] *Pannu*, 155 F.3d at 1351.

applied to two or more people who create an invention (i.e., joint inventors), it follows that a single person who uses an AI system to create an invention is also required to make a significant contribution to the invention, according to the *Pannu* factors, to be considered a proper inventor.

There is no requirement for a named inventor to contribute to every claim in an application or patent; a contribution to a single claim is sufficient.[47] However, each claim must have been invented by at least one named inventor.[48] In other words, a natural person must have significantly contributed to each claim in a patent application or patent. In the event of a single person using an AI system to create an invention, that single person must make a significant contribution to every claim in the patent or patent application. 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.

When applying the *Pannu* factors to determine whether natural persons significantly contributed to an AI-assisted invention, one must remember this determination is made on a claim-by-claim and case-by-case basis, and each instance turns on its own facts.[49] Generally, the USPTO presumes those inventors named on the application data sheet or oath/declaration are the actual inventor or joint inventors of the

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[47] MPEP 2109.01.

[48] 35 U.S.C. 115(a) ("An application for patent that is filed under section 111(a) or commences the national stage under section 371 shall include, or be amended to include, ***the name of the inventor for any invention claimed*** in the application.") (emphasis added).

[49] *Fina Oil*, 123 F.3d at 1473 ("The determination of whether a person is a joint inventor is fact specific, and no bright-line standard will suffice in every case."); see also *In re Jolley*, 308 F.3d 1317, 1323 (Fed. Cir. 2002) ("[T]he conception inquiry is fact-intensive. . . ").

application.[50] However, examiners and other USPTO personnel should carefully evaluate the facts from the file record or other extrinsic evidence when making determinations on inventorship. When the facts or evidence indicates that the named inventor or joint inventors did not contribute significantly to the claimed invention, i.e., their contributions do not satisfy the *Pannu* factors for a particular claim, a rejection under 35 U.S.C. 101 and 115 is appropriate.[51] While inventorship may be correctable in certain situations under 37 CFR 1.48 or 1.324,[52] a new inventor cannot be named if no natural person made a significant contribution to an AI-assisted invention. Additionally, a rejection under 35 U.S.C. 101 and 115, or other appropriate action, should be made for all claims in any application that lists an AI system or other non-natural person as an inventor or joint inventor.

Given the increasing use of AI systems in the invention creation process, applicants should take extra care in ensuring each named inventor in a patent application or patent provided a significant contribution to a claimed invention as described by the *Pannu* factors.

B. Guiding Principles

Determining whether a natural person's contribution in AI-assisted inventions is significant may be difficult to ascertain, and there is no bright-line test. To assist applicants and USPTO personnel in determining proper inventorship, the USPTO provides the following non-exhaustive list of principles that can help inform the application of the *Pannu* factors in AI-assisted inventions:

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[50] See MPEP 2157; see also MPEP 602.01 ("The inventorship of a nonprovisional application under 35 U.S.C. 111(a) is the inventor or joint inventors set forth in the application data sheet in accordance with [37 CFR] § 1.76 filed before or concurrently with the inventor's oath or declaration.").
[51] MPEP 2157.
[52] See section V(C) below.

1. A natural person's use of an AI system in creating an AI-assisted invention does not negate the person's contributions as an inventor.[53] The natural person can be listed as the inventor or joint inventor if the natural person contributes significantly to the AI-assisted invention.
2. Merely recognizing a problem or having a general goal or research plan to pursue does not rise to the level of conception.[54] A natural person who only presents a problem to an AI system may not be a proper inventor or joint inventor of an invention identified from the output of the AI system. However, a significant contribution could be shown by the way the person constructs the prompt in view of a specific problem to elicit a particular solution from the AI system.
3. Reducing an invention to practice alone is not a significant contribution that rises to the level of inventorship.[55] Therefore, a natural person who merely recognizes and appreciates the output of an AI system as an invention, particularly when the properties and utility of the output are apparent to those of ordinary skill, is not necessarily an inventor.[56] However, a person who takes the output of an AI system and makes a significant contribution to the output to create an invention may be a proper inventor. Alternatively, in certain situations, a person who conducts a successful experiment using the AI system's output could demonstrate that the person provided a significant contribution to the invention even if that

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[53] Cf. *Shatterproof Glass Corp. v. Libbey-Owens Ford Co.*, 758 F.2d 613, 624 (Fed. Cir. 1985) ("An inventor 'may use the services, ideas, and aid of others in the process of perfecting [their] invention without losing [their] right to a patent.'") (quoting *Hobbs v. U.S. Atomic Energy Comm.*, 451 F.2d 849, 864 (5th Cir. 1971)).

[54] *Burroughs Wellcome*, 40 F.3d at 1228 ("An idea is definite and permanent when the inventor has a specific, settled idea, a particular solution to the problem at hand, not just a general goal or research plan [the inventor] hopes to pursue."); see also *Hitzeman*, 243 F.3d 1345, 1357-58; *In re Verhoef*, 888 F.3d 1362, 1366 (Fed. Cir. 2018) (Verhoef's recognition of the problem of connecting the cord of the harness to the dog's toes did not make Verhoef the sole inventor; Lamb's proposed solution to that problem was a significant contribution).

[55] MPEP 2109 (subsection III).

[56] See e.g., *Solvay S.A. v. Honeywell Intern. Inc.*, 622 F.3d 1367, 1378-79 (Fed. Cir. 2010) (finding that deriving the invention of another and appreciating what was made did not rise to the level of conception).

person is unable to establish conception until the invention has been reduced to practice.[57]

4. A natural person who develops an essential building block from which the claimed invention is derived may be considered to have provided a significant contribution to the conception of the claimed invention even though the person was not present for or a participant in each activity that led to the conception of the claimed invention.[58] In some situations, the natural person(s) who designs, builds, or trains an AI system in view of a specific problem to elicit a particular solution could be an inventor, where the designing, building, or training of the AI system is a significant contribution to the invention created with the AI system.
5. Maintaining "intellectual domination" over an AI system does not, on its own, make a person an inventor of any inventions created through the use of the AI system.[59] Therefore, a person simply owning or overseeing an AI system that is used in the creation of an invention, without providing a significant contribution to the conception of the invention, does not make that person an inventor.

V. Patent Practice

A. Applicability of This Guidance to Design and Plant Patent Applications and Patents

35 U.S.C. 171 provides that a patent for a design may be obtained by "[w]hoever invents any new, original, and ornamental design for an article of manufacture" and that the provisions related to utility patents are applicable to design patents, except as

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[57] See MPEP 2138.04 (subsection II); see also *Dana-Farber Cancer Inst., Inc. v. Ono Pharm. Co.*, 964 F.3d 1365, 1373-74 (Fed. Cir. 2020) (Dr. Freeman's identification of the 292 sequences in the BLAST database (an automated search tool for finding similarity between biological sequences) and subsequent immunohistochemistry experiments to identify several types of tumors that express PD-L1 were found sufficient to make him a joint inventor.).

[58] *Dana-Farber*, 964 F.3d at 1372-74 (Drs. Freeman and Wood were found to be joint inventors even though they did not conceive of the claimed invention of using anti-PD-1 antibodies to treat tumors but instead discovered the expression of PD-L1 in human tumors and that PD-1/PD-LI interaction inhibits the immune response.).

[59] *Verhoef*, 888 F.3d at 1367 (court refused to endorse the "intellectual domination" language and emphasized that the person who conceives of the invention is the inventor).

otherwise provided (e.g., in 35 U.S.C. 172-173).[60] The Federal Circuit has interpreted 35 U.S.C. 171 such that the inventorship inquiry is the same for a design patent and a utility patent.[61]

35 U.S.C. 161 provides that a plant patent may be obtained by "[w]hoever invents or discovers and asexually reproduces" a distinct and new variety of plant.[62] 35 U.S.C. 161 limits patent protection to plants "that were created as a result of plant breeding or other agricultural and horticultural efforts *and* that were created by the inventor" (emphasis in original).[63] That is, to be entitled to patent protection, the inventor of a plant must have contributed to the creation of the plant in addition to having appreciated its uniqueness and asexually reproduced it.[64] This is true for new and distinct plant varieties invented with the assistance of AI. The use of an AI system by a natural person(s) does not preclude the natural person(s) from qualifying as an inventor (or joint inventors) of the claimed plant as long as the plant was created with significant contribution(s) from the natural person(s).

Therefore, this guidance regarding AI-assisted inventions applies not only to utility patents and patent applications but also to design and plant patents and patent applications.

B. Duties Owed to the USPTO

(i) Duty of disclosure

"Each individual associated with the filing and prosecution of a patent application" and "[e]ach individual associated with the patent owner in a reexamination

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[60] See 35 U.S.C. 171.
[61] *Hoop v. Hoop*, 279 F.3d 1004, 1007 (Fed. Cir. 2002) ("We apply the same standard of inventorship to design patents that we require for utility patents.") (citing *In re Rousso*, 222 F.2d 729, 731 (CCPA 1955)).
[62] See 35 U.S.C. 161.
[63] *In re Beineke*, 690 F.3d 1344, 1352 (Fed. Cir. 2012).
[64] *Id.* at 1348.

proceeding" has a duty of candor and good faith in dealing with the USPTO.[65] Included within the duty of candor and good faith is the duty to disclose all known information that is material to patentability.[66] This duty extends to parties and individuals associated with proceedings before the PTAB and the Office of the Commissioner for Patents.[67] 37 CFR 1.56(b) states that "[I]nformation is material to patentability when it is not cumulative to information already of record or being made of record in the application, and (1) [i]t establishes, by itself or in combination with other information, a prima facie case of unpatentability of a claim; or (2) [i]t refutes, or is inconsistent with, a position the applicant takes in: (i) [o]pposing an argument of unpatentability relied on by the Office, or (ii) [a]sserting an argument of patentability."

The USPTO is not changing or modifying its duty of disclosure. However, applicants and patent owners are reminded of their existing duty of disclosure and its applicability to the inventorship determination. Because improper inventorship is a ground of rejection under 35 U.S.C. 101 and 115,[68] parties identified in 37 CFR 1.56(c), 1.555(a), and 42.11(a) have a duty to disclose to the USPTO information that raises a prima facie case of unpatentability due to improper inventorship or that refutes, or is inconsistent with, a position an applicant takes in opposing an inventorship rejection or asserting inventorship. For example, in applications for AI-assisted inventions, this information could include evidence that demonstrates a named inventor did not

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[65] See 37 CFR 1.56, 1.555. For patent applications, including reissue applications, these individuals include each inventor named in the application, each attorney or agent who prepares or prosecutes the application, and "[e]very other person who is substantively involved in the preparation or prosecution of the application and who is associated with the inventor, the applicant, an assignee, or anyone to whom there is an obligation to assign the application." 37 CFR 1.56(c); see 37 CFR 1.171. For reexamination proceedings, these individuals include "the patent owner, each attorney or agent who represents the patent owner, and every other individual who is substantively involved on behalf of the patent owner in a reexamination proceeding." 37 CFR 1.555(a).

[66] 37 CFR 1.56(a), 1.555(a).

[67] See 37 CFR 42.11; see also *Lectrosonics, Inc. v. Zaxcom, Inc*., IPR2018-01129, 01130, Paper 15 at 9-10 (PTAB Feb. 25, 2019) (precedential) ("Under 37 CFR § 42.11, all parties have a duty of candor, which includes a patent owner's duty to disclose to the Board information of which the patent owner is aware that is material to the patentability of substitute claims, if such information is not already of record in the case.").

[68] MPEP 2157.

significantly contribute to the invention because the person's purported contribution(s) was made by an AI system.

At this time, to meet their duty of disclosure, applicants rarely need to submit information regarding inventorship. The USPTO does not believe this inventorship guidance will have a major impact on applicants' disclosure requirements. However, special care should be taken by those individuals subject to this duty to ensure all material information is submitted to the USPTO to avoid any potential negative consequences.[69]

(ii) Duty of reasonable inquiry

37 CFR 1.4(d)(4)(i) states that "[t]he presentation to the Office (whether by signing, filing, submitting, or later advocating) of any paper by a party, whether a practitioner or nonpractitioner, constitutes a certification under § 11.18(b)." Section 11.18(b) includes § 11.18(b)(2), which calls for an "inquiry reasonable under the circumstances" to ensure that the paper is not being presented for any improper purpose, the legal contentions are warranted by law, the allegations and other factual contentions have evidentiary support, and the denials of factual contentions are warranted on the evidence.[70] The duty of reasonable inquiry pursuant to 37 CFR 11.18(b)(2) is identical to that in Fed. R. Civ. P. 11(b).[71] Accordingly, each party presenting a paper to the USPTO, whether a practitioner or non-practitioner, has a duty to perform an inquiry that is reasonable under the circumstances. A duty of reasonable inquiry may exist based on circumstances known to the party presenting the paper to the USPTO. Failing to inquire

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[69] See MPEP 2016.

[70] See 37 CFR 11.18(b)(2): "To the best of the party's knowledge, information and belief, formed after an inquiry reasonable under the circumstances, (i) The paper is not being presented for any improper purpose, such as to harass someone or to cause unnecessary delay or needless increase in the cost of any proceeding before the Office; (ii) The other legal contentions therein are warranted by existing law or by a nonfrivolous argument for the extension, modification, or reversal of existing law or the establishment of new law; (iii) The allegations and other factual contentions have evidentiary support or, if specifically so identified, are likely to have evidentiary support after a reasonable opportunity for further investigation or discovery; and (iv) The denials of factual contentions are warranted on the evidence, or if specifically so identified, are reasonably based on a lack of information or belief."

[71] Compare 37 CFR 11.18(b)(2) with Fed. R. Civ. P. 11(b) (2007). See also MPEP 410.

when the circumstances warrant such an inquiry may jeopardize the validity of the application or document, or the validity or enforceability of any patent or certificate resulting therefrom, and could result in sanctions or other actions under 37 CFR 11.18(c).[72]

The USPTO is not changing or modifying its duty of reasonable inquiry. The USPTO has previously provided examples of possible procedures that could help avoid problems with the duty of disclosure.[73] These examples should be carefully considered because they may be helpful in ascertaining what a reasonable inquiry may require. For example, patent practitioners who are preparing and prosecuting an application should inquire about the proper inventorship.[74] Given the ubiquitous nature of AI, this inventorship inquiry could include questions about whether and how AI is being used in the invention creation process. In making inventorship determinations, it is appropriate to assess whether the contributions made by natural persons rise to the level of inventorship as discussed in section IV above.

C. Naming the Inventors

35 U.S.C. 115 requires that an application filed under 35 U.S.C. 111(a) shall include the name of the inventor or each joint inventor.[75] As provided in 37 CFR 1.41(b), an applicant may name the inventorship for a non-provisional application under 35 U.S.C. 111(a) in the application data sheet in accordance with 37 CFR 1.76, or in the inventor's oath or declaration in accordance with 37 CFR 1.63.[76] Once the inventorship has been established in an application, a correction of inventorship must be made

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[72] MPEP 410.
[73] See MPEP 2004.
[74] *Id*. ("2. It is desirable to ask questions about inventorship. Who is the proper inventor? Are there disputes or possible disputes about inventorship? If there are questions, call them to the attention of the U.S. Patent and Trademark Office.").
[75] See MPEP 2109.
[76] See MPEP 602.01 for more information on naming the inventor or joint inventor in an application.

pursuant to 37 CFR 1.48(a). After the patent has issued, a correction of inventorship must be made according to 37 CFR 1.324 or by reissue.[77]

In situations in which it is determined that contributions by a named inventor to the claimed subject matter do not rise to the level of inventorship, inventorship should be corrected in accordance with 37 CFR 1.48 or 1.324. Although 37 CFR 1.48 does not contain a diligence requirement for filing the request, once an inventorship error is discovered, timeliness requirements under 37 CFR 1.116 and 1.312 apply.[78] Correction of inventorship may also be obtained without the need for filing a request under 37 CFR 1.48 by the filing of a continuing application under 37 CFR 1.53 and subsequently abandoning the parent application.[79]

In situations in which inventorship with respect to a particular claim cannot be corrected (i.e., no natural person significantly contributed to the claimed invention), the claim must be canceled or amended. Parties under §§ 1.56(c) and 1.555(a) who become aware of material information on inventorship should submit the information as early as possible in prosecution and not wait until after allowance.[80] Applicants should continue to ensure that the proper inventors are listed as prosecution progresses (e.g., due to amendments to claims).[81]

D. Requirements for Information

Patent examiners and other USPTO employees have the ability to require the submission of information that may be reasonably necessary to properly examine or treat a matter in a pending or abandoned application, in a patent, or in a reexamination proceeding.[82] The information that must be submitted to comply with a requirement for information under 37 CFR 1.105 may not necessarily be material to patentability in itself

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[77] See MPEP 1481.02 and 1402 (subsection II).
[78] See MPEP 602.01(c).
[79] See *id.* for more information on correction of inventorship.
[80] See MPEP 2003.
[81] See, e.g., MPEP 602.09.
[82] 37 CFR 1.105(a)(l).

under 37 CFR 1.56, but is reasonably necessary to obtain a complete record from which a determination of patentability can be made.[83] In other words, the threshold for requiring information under 37 CFR 1.105 is substantially lower than the threshold for disclosing information under 37 CFR 1.56. Therefore, when an examiner or other USPTO employee has a reasonable basis to conclude that an individual identified under 37 CFR 1.56(c) or 37 CFR 1.555(a) or any assignee has information reasonably necessary to the examination of the application or treatment of some matter, the examiner or other USPTO employee may require the submission of information that is not necessarily material to patentability.[84] This would apply in the context of applications or patents for AI-assisted inventions such that if an examiner or other USPTO employee has a reasonable basis to conclude that one or more named inventors may not have contributed significantly to the claimed subject matter, the examiner or other USPTO employee may request information from the applicant regarding inventorship even if the information is not material to patentability.[85]

E. Inventor's Oath or Declaration

There is no change in oath or declaration practice for the named inventors in a patent application. Those named inventors must execute an oath or declaration unless a substitute statement is submitted on their behalf.[86] As explained in section III above, only a natural person(s) can be listed as the inventor or joint inventors. Therefore, no oath, declaration, or substitute statement should be filed on behalf of an AI system, even if the AI system made contributions to one or more claims in a patent application.

F. Applicant and Ownership

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[83] See MPEP 704.12(a).
[84] MPEP 704.10.
[85] See *id.* (Examiners can request information under 37 CFR 1.105 in accordance with the policies and practices set forth by their respective Technology Centers).
[86] See 35 U.S.C. 115(d).

The word "applicant," when used in 37 CFR, refers to the inventor or all joint inventors, or to the person applying for a patent as provided in 37 CFR 1.43, 1.45, or 1.46.[87] The original applicant is presumed to be the owner of the patent application unless there is an assignment.[88] As the ownership of a patent or application for a patent initially vests in the named inventors[89] and is thereafter transferrable through assignments, there is no change in practice for AI-assisted inventions with regard to the applicant or assignment of ownership rights.[90] The named inventor or joint inventors may seek patent rights as the applicant under § 1.45. Alternatively, the named inventor or joint inventors may assign their ownership rights to an assignee (e.g., employer, owner or developer of the AI system, or other appropriate party), who may then file a patent application under § 1.46 or take action in a patent matter under § 3.73.

"Assignment," in general, is the act of transferring to another the ownership of one's property, i.e., the interest and rights to the property.[91] Because an AI system cannot be a named inventor, it has no rights to assign; therefore, assignments from AI systems should not be recorded with the USPTO. This guidance only applies to recording the assignments and other documents related to interests in patent applications and patents in the USPTO and does not apply to contractual or licensing agreements between parties owning and using AI systems in the invention creation process. Applicants should keep in mind that the recording of assignments and other related documents by the USPTO is a ministerial act, and assignments and other related documents are contracts that are governed by the relevant jurisdictional law.[92]

G. Benefit/Priority Claims to Prior-filed Applications

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[87] 37 CFR 1.42(a).
[88] See 37 CFR 3.73(a); see also MPEP 301(I).
[89] See *Beech Aircraft*, 990 F.2d at 1248 ("At the heart of any ownership analysis lies the question of who first invented the subject matter at issue, because the patent right initially vests in the inventor who may then, barring any restrictions to the contrary, transfer that right to another, and so forth.").
[90] See MPEP 301.
[91] See MPEP 301 (subsection II).
[92] See MPEP 301 (subsections II and V).

Applications and patents claiming the benefit of, or priority to, a prior application filed in the United States or a foreign country under 35 U.S.C. 119, 120, 121, 365, or 386 must name the same inventor or have at least one joint inventor in common with the prior-filed application.[93] For all applications and patents, including those that cover AI-assisted inventions, the prior-filed application and the United States application or patent claiming the benefit of, or priority to, the prior-filed application must name the same natural person as the inventor, or have at least one joint inventor who is a natural person in common. Therefore, a priority claim to a foreign application that names an AI system as the sole inventor will not be accepted. This policy also applies to U.S. patent applications and patents claiming priority to foreign applications that allow the naming of non-natural persons as joint inventors. For a U.S. application claiming priority to a foreign application that names both a natural person(s) and a non-natural person as a joint inventor, the application data sheet accompanying the application filed in the United States must list as inventor(s) only the natural person(s) who significantly contributed to the invention, including one in common with the foreign application. Similarly, for an application entering the national stage under 35 U.S.C. 371 where the international application indicates a joint inventor that is not a natural person, applicants can comply with the U.S. inventorship requirement by naming the natural person(s) who significantly contributed to the invention in an application data sheet accompanying the initial submission under 35 U.S.C. 371.[94]

Katherine Kelly Vidal,

Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and Trademark Office.

[FR Doc. 2024-02623 Filed: 2/12/2024 8:45 am; Publication Date: 2/13/2024]

[93] See MPEP 213.02 (subsection II), 211.01, 1895, 2920.05(e).
[94] See 37 CFR 1.76; MPEP 1893.01(e).