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The Honorable Chris Coons, Chair
The Honorable Thom Tillis, Ranking Member
Subcommittee on Intellectual Property
Committee on the Judiciary
United States Senate United States Senate
Washington, DC 20510

Dear Chairman Coons and Ranking Member Tillis:

My name is Ryan Abbott, I am Professor of Law and Health Sciences at the University of Surrey School of Law, Adjunct Assistant Professor of Medicine at the David Geffen School of Medicine at University of California, Los Angeles (UCLA), partner at Brown, Neri, Smith & Khan, LLP, and a mediator and arbitrator with JAMS, Inc. I submit these written comments for the record in conjunction with my oral testimony for the June 7th, 2023 hearing entitled "Artificial Intelligence and Intellectual Property – Part I: Patents, Innovation, and Competition."

My research has focused on the intersection of AI and the law, and on what legal rules will best help the United States and other jurisdictions maximize the social benefits of AI while minimizing its risks. Among other publications, I am the author of *The Reasonable Robot: Artificial Intelligence and the Law*, Cambridge University Press (2020). I have also written specifically on issues related to AI and IP and patent law, including as the editor of the *Research Handbook on Intellectual Property and Artificial Intelligence*, Edward Elgar (2022), and the author of Everything is Obvious, UCLA Law Review (2019) and *I Think, Therefore I Invent: Creative Computers and the Future of Patent Law*, Boston College Law Review (2016). I am a licensed physician and patent attorney in the United States, and a solicitor advocate in England and Wales.[1]

I also lead the Artificial Inventor Project, which includes a series of pro bono legal test cases seeking intellectual property rights for AI-generated output in the absence of a traditional human inventor or author. This includes acting as lead counsel for *Thaler v.*

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[1] www.ryanabbott.com.

Vidal, 43 F.4th 1207 (Fed. Cir. 2022) (cert denied), which regards the patentability of AI-Generated Inventions, and *Thaler v. Perlmutter*, 1:22-cv-01564 (D.D.C.), which regards the copyrightability of AI-generated works. I directly lead or manage the foreign analogs of these cases in 17 foreign jurisdictions worldwide. This project is intended to, among other things, promote dialogue about the social, economic, and legal impact of frontier technologies such as AI and to generate stakeholder guidance on the protectability of AI-generated output.[2]

Interest in AI and patent law has blossomed in recent years, due to advances in AI functionality and the increased adoption of AI across a range of industries. These issues have become a focus of industry, policy makers, and even the public.[3] Artificial intelligence (AI) is expected to drive substantial economic growth, with one report estimating that AI could contribute up to $15.7 trillion to the global economy by 2030, with approximately $3.7 trillion of that growth in North America.[4] The National Security Commission on Artificial Intelligence has noted that, "[t]he United States must recognize IP policy as a national security priority critical for preserving America's leadership in AI and emerging technologies."[5]

To summarize my comments below, I make three sets of recommendations. First, that AI should be defined functionally for purposes of regulatory efforts and regulated in a technologically neutral manner. Second, that the Patent Act should be amended so that AI-Generated Inventions are patentable, and so that patentability shall not be denied based on how an invention is discovered. Third, that in the case of an AI-Generated Inventions lacking a traditional human inventor, the AI system that has functionally invented should be listed as the inventor and the AI's owner should be the owner of any intellectual property generated by their system. This would facilitate the incentive structure of the patent system, promote integrity and transparency, and protect the moral rights of human inventors.

I.   Regulating Artificial Intelligence

It is important to regulate using standardized definitions. In the almost 70 years since the term "artificial intelligence" was introduced, it still lacks a generally accepted definition. While this ambiguity has not negatively impacted the work of computer scientists, it is necessary to have clarity in laws to ensure that statutory text achieves its purpose.

I recommend the Subcommittee adopt the following definition of AI: "Artificial intelligence" means an algorithm or machine capable of completing tasks that would otherwise require cognition.[6]

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[2] http://artificialinventor.com/.
[3] Alexandra George & Toby Walsh. Artificial intelligence is breaking patent law. Nature. 24 May 2022.
[4] "Sizing the prize: What's the real value of AI for your business and how can you capitalize?," PwC, https://www.pwc.com/gx/en/issues/data-and-analytics/publications/artificial-intelligence-study.html.
[5] https://www.nscai.gov/wp-content/uploads/2021/03/Full-Report-Digital-1.pdf.
[6] Ryan Abbott, The Reasonable Robot: Artificial Intelligence and the Law (2020), at 22.

A functional definition of AI is preferrable to one that attempts to distinguish between AI and other sorts of software or computer systems based on specific programming techniques. That is because policy makers should be concerned with the capabilities and behavior of AI, rather than the specific way an AI is programmed or designed. It should make no difference whether an autonomous vehicle operates according to a machine-learning based algorithm or good-old-fashioned AI, just whether the car negligently strikes a pedestrian.

For example, the evolving draft EU AI Act takes a non-neutral approach to AI regulation by prohibiting the use of AI for social scoring.[7] This approach is misguided, because the underlying mischief to be solved is the use of social scoring generally rather than AI-enabled social scoring specifically. A jurisdiction could have a human-centric government agency devoted to social scoring each citizen by paper and pencil, and that would be equally offensive to European values as having that work automated. EU law should thus prohibit social scoring without regard to the use of particular technology to better improve social outcomes.

II.   Artificial Intelligence and Patent Law

AI raises important challenges in the context of patent law. My comments will focus on those related to the patentability of AI-Generated Inventions, related ownership and inventorship issues, and the test for non-obviousness including the standard of the person having ordinary skill in the art (PHOSITA or the "skilled person").

I recommend the Subcommittee adopt the following definitions:

- "AI Inventions" means an invention functionally conceived or reduced to practice using AI.
- "AI-Generated Invention" means an invention functionally conceived of by an AI under circumstances in which no person traditionally qualifies as an inventor.
- "AI/Human-Generated Invention" means an invention functionally co-invented by an AI and a human being.
- "AI-Assisted Invention" means an invention is which an AI functionally assists with reduction to practice.

"Conception," as distinguished from "reduction to practice," is the test for inventorship under US law.[8] AI Inventions also raise a different group of issues from other inventions related to AI, such as patents claiming, in some fashion, algorithms or computers ("software patents" or "computer-implemented inventions").

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[7] https://www.europarl.europa.eu/resources/library/media/20230516RES90302/20230516RES90302.pdf.
[8] Conception is "the complete performance of the mental part of the inventive act". It is "the formation in the mind of the inventor of a definite and permanent idea of the complete and operative invention as it is thereafter to be applied in practice…." *Townsend v. Smith,* 36 F.2d 292, 295 (CCPA 1929). "[C]onception is established when the invention is made sufficiently clear to enable one skilled in the art to reduce it to practice without the exercise of extensive experimentation or the exercise of inventive skill." *Hiatt v. Ziegler,* 179 USPQ 757, 763 (Bd. Pat. Inter. 1973). See also *Coleman v. Dines,* 754 F.2d 353 (Fed. Cir. 1985) (to establish conception, a party must show possession of every recited feature and that every limitation was known to the inventor at the time of conception).

As a matter of patent policy, the use of AI should not render an invention unpatentable. Patentability should be based on whether an invention objectively meets substantive requirements rather than how the invention is created. The purpose of patent law is to provide an incentive for innovation, disclosure of confidential information, and the commercialization of inventions. Denying patent protection for inventions based on the use of AI would run counter to the purpose of the patent system.

Whether and to what extent AI is automating the inventive process remains controversial.[9] In some ways, this mirrors historic debates over whether and to what extent AI is automating the creative process. AI has been creative for decades, but recent advancements in AI over the past year or two have largely put this debate to rest. There are now dozens of publicly accessible large language models and generative AI systems that are occupying the role of a traditional human author on a widespread scale.

Similarly, there have been credible claims of AI inventing for decades made by entities ranging from academics to large enterprises.[10] Yet in discussions about inventive AI, AI is sometimes referred to as "just a tool" like a pencil or a microscope to suggest that it is not capable of invention. This can be misleading. In some sense, any AI is a tool. It is made by human beings (perhaps a step(s) removed if another AI is generating code), and it completes tasks as directed by human beings. To use an autonomous vehicle again as an example, the AI that drives the vehicle was programmed by people, and it only drives (hopefully) to where a person directs. On the other hand, the AI automates a task that was once something only people could do, namely driving a vehicle from one place to another. The AI is thus stepping into the shoes of a person and performing an activity that historically was exclusively human. In that sense, it is autonomous.

In the inventive context, the use of an AI system can differ significantly from something like a pencil or a microscope. That is because, certain AI systems, in certain contexts, can automate aspects of the inventive process—whether that is identifying: 1) a problem to be solved, 2) a technical solution to a technical problem, or 3) the utility of a particular solution. These are activities that if performed by a human being (depending on specific facts) make that person an inventor. In essence then, some systems are stepping into the shoes of traditional human inventors and automating some or all of the inventive process.

Most of the time, of course, humans are still very much involved in AI Inventions and can directly qualify as inventors. In some instances, a person may qualify as an inventor

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[9] See response to the USPTO Request for Comments on AI and Inventorship, https://www.regulations.gov/docket/PTO-P-2022-0045.

[10] See, e.g., Ryan Abbott, The Reasonable Robot: Artificial Intelligence and the Law (2020), Ch 4 & 5, (describing claims of AI-Generated Inventions from the 1980s and 1990s); https://c.connectedviews.com/05/SitePlayer/wipo?session=31245, Beat Weibel, AI Created Inventions – Digital Inventor Computer-Implemented Simulations – Digital Twin, WIPO CONVERSATION ON INTELLECTUAL PROPERTY (IP) AND ARTIFICIAL INTELLIGENCE (AI), Sept. 30, 2019 (describing Siemen's inability to file for patents on AI-Generated Inventions in the 2010s); https://www.supremecourt.gov/DocketPDF/22/22-919/263320/20230412115821327_No.%2022-919_Brief.pdf (describing more recent possible AI-Generated Inventions).

by identifying a problem to be solved, programing/training an AI to solve a particular problem, interpreting/iterating AI output, or recognizing the utility of AI output.

Some of the time however, such individuals will not qualify as inventors. A programmer/developer/trainer who merely develops to an AI with problem-solving capabilities without specifically conceiving of a particular output should not qualify as an inventor under US law. Treating a programmer as an inventor is particularly problematic in cases where the programmer creates an AI without expectation or knowledge of the specific problems the AI will go on to solve. It is also more problematic in cases where an AI has been developed by a large and distributed group of programmers over a significant time frame. Further challenging programmer-based inventorship, some AI systems such as neural networks can behave unpredictably, such that their programmers may not understand precisely how they generate specific and unexpected output. By analogy to human inventorship, a human inventor's teachers, mentors and even parents do not qualify as inventors on their patents—at least, not without directly contributing to the conception of a specific invention.

Attributing inventorship to an AI user, rather than a programmer, may also be problematic. It may sometimes be the case that a user makes an inventive contribution through the way that instructions or prompts are provided to an AI, or that a user otherwise makes a significant contribution to an AI's output. However, it may also be the case that a user simply asks an AI to solve a problem, and the AI proceeds to independently generate an answer. Again, by analogy to human inventorship, simply instructing another person to solve a problem does not usually qualify for inventorship.

Finally, it may be the case that an individual conceives of an invention by recognizing the utility of an AI's output. That may be appropriate where an AI generates numerous outputs and human judgment is needed to select a particular solution from a group of outputs. It may also be appropriate where inventive skill is needed to understand the importance of specific AI output. However, it may also be the case that the value of AI output is obvious, identified directly by the AI, and does not require inventive skill for a person to recognize. In these cases, it would be inappropriate to make a user an inventor.

Thus, in at least some instances, AIs are generating output traditionally entitled to patent protection under circumstances in which no natural person qualifies as an inventor according to traditional criteria. Or, an AI is acting as a co-inventor together with a person.[11] In practice, it may be difficult to determine when a person or an AI, or both, have invented. However, this is not unlike making sense of human inventorship for joint inventions where individuals make diverse contributions.

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[11] https://www.federalregister.gov/documents/2023/02/14/2023-03066/request-for-comments-regarding-artificial-intelligence-and-inventorship. As the United States Patent and Copyright Office (USPTO) is exploring under its recent Request For Comments, if an AI system is not eligible to be an inventor under US patent law, this presumably includes a joint inventor. As a result, there will be circumstances in which an AI contributing as a joint inventor renders an invention unpatentable, or at least certain claims unpatentable. That may occur where natural person inventors only conceive of part of an invention, and conception of the complete invention requires, at least functionally, partial conception by an AI. This may also occur where an AI entirely generates the content of certain claims.

Inventorship is a very fact specific inquiry and frankly a muddled one in US law even without AI in the picture. Plus, even without an AI acting as an inventor, inventorship determinations involving the very large number of people who may be involved in building and using modern AI systems, spread over time and space, may be a complex exercise.

III.   Patentability of AI-Generated Inventions

The most serious, and fixable, current problem with AI and patent law is the Federal Circuit's recent decision in *Thaler v. Vidal* to prohibit patents on AI-Generated Inventions. This puts the United States at a major disadvantage in terms of industrial strategy and international competition compared to jurisdictions that currently allow such patents or that will allow them in the future, and it sends a signal that the US does not respect intellectual property rights.

Congress should amend the Patent Act so that patentability cannot be denied based on how an invention is made. In fact, in 1952, Congress did change patent law so that, "[p]atentability shall not be negated by the manner in which the invention was made." 35 U.S.C. § 103. As the Supreme Court recognized long ago in Graham v. John Deere Co., 383 U.S. 1 (1966), this was intended to abolish the so-called "flash of genius" test for patentability, instead making it possible to achieve patent protection for an invention resulting from the mechanical process of investigating possibilities until hitting upon a new and workable invention (the second sentence of § 103 makes it "immaterial whether [the invention] resulted from long toil and experimentation or from a flash of genius"). The text of § 103, though falling within a section pertaining to whether an invention is obvious in light of existing knowledge, is not expressly limited by its language to the nonobviousness requirement. However, the Federal Circuit has now held for the first time that this statutory provision only applies to nonobviousness. The Federal Circuit's decision has effectively resurrected the flash of genius test by categorically denying patentability to inventions conceived by an AI system rather than a human being.[12]

Allowing patents on AI-Generated Inventions will incentivize innovation by making AI output more valuable, thus encouraging people to use and develop inventive AI to generate inventions. These patents have value independently of patents directly on AI systems or computer-implemented inventions. In addition, patents on AI-Generated Inventions will incentivize the disclosure of confidential information and trade secrets. If AI-Generated Inventions cannot be patented, this may force AI owners to keep their inventions confidential thus limiting beneficial public disclosures. Finally, patents on AI-Generated Inventions will encourage the commercialization of inventions. It is often the case, particularly in the life sciences, that the cost of developing a commercial product is incurred primarily after the initial act of invention. For example, patents play a critical role in encouraging pharmaceutical companies to invest in clinical trials to obtain marketing approvals for new drugs.

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[12] https://www.supremecourt.gov/DocketPDF/22/22-919/259306/20230317125139087_Thaler%20Cert%20Petition.pdf.

It is particularly important for the US to protect AI-Generated Inventions because the US is likely to be a net exporter of AI-Generated Inventions given its current status as a leader in AI use and development. By failing to protect these inventions domestically, the US will not only be freeriding on AI-Generated Inventions made in other jurisdictions such as the European Union, but the US will not be able to require that foreign jurisdictions respect the property rights of US enterprises abroad.

Finally, it is not only vital to ensure the protection of AI-Generated Inventions based on the current state of AI, but to encourage today's investment in the AI of tomorrow. AI is only going to continue to improve in terms of its capabilities, and having appropriate rules in place will accelerate the use and development of AI to generate tremendous social value—ranging from the development of new life-saving drugs to new forms of clean energy. All of this is threatened by a regime that denies patent protection for AI-Generated Inventions in violation of the purpose of the Patent Act.

IV.   Inventorship and Ownership of AI-Generated Inventions

US law requires an invention to have an inventor, so in cases without a human inventor, or if joint inventorship presents a problem for patentability, a person could be a deemed inventor and proxy for AI activity. In other words, the law could treat, for example, an AI's user as responsible for any inventive work done by the AI, even if the user has not directly exhibited any inventive skill. This has so far been the approach suggested by the European Patent Office (EPO) Legal Board of Appeal in the European analog of *Thaler v. Vidal*. J 0008/20 (Designation of inventor/DABUS) of 21.12.2021. It has also been the approach adopted by the intermediate federal German court, the Bundespatentgerict, in the German analog of *Thaler v. Vidal*. 11 W (pat) 5/21 (currently under appeal by the German Patent Office (DPMA) to the German Supreme Court). Alternately, no inventor could be listed in cases lacking a traditional human inventor, as has been advocated to the United Kingdom Supreme Court in the United Kingdom analog of *Thaler v. Vidal* (pending judgment). Case ID: 2021/0201. Different jurisdictions have significantly different rules regarding patent inventorship. For instance, Israel and Austria do not require an inventor to be listed in a patent application, and Cypress and Monaco, both EPO Member States, have reported they do not require inventors to be natural persons. The net of this is that major foreign markets will likely allow patents on AI-Generated Inventions, but not the United States.

While any of the above approaches would be preferable to being unable to patent an invention based on how it was created, it would be optimal to list an AI as an inventor or joint inventor where the AI is factually responsible for conception or partial conception. This would promote transparency and the integrity of the patent system, and it would facilitate the incentive function of patents by allowing rewards to flow directly to the owners of inventive AI systems. This has been the approach of South Africa which has issued the patents in the South African analog of *Thaler v. Vidal* naming an AI system as an inventor and granting the patents to the AI's owner. Similarly, the

Saudi Arabian patent office has accepted the designation of an AI inventor in the Saudi analog of *Thaler v. Vidal* with the AI system's owner as the patent applicant.[13]

Although AI can factually invent and could be a legal inventor if the Patent Act is amended, AI is not a legal person and cannot own property. It would also be undesirable for an AI to be a legal person or own property as a matter of policy. This means that property generated by AI needs to be owned by someone, and there are several obvious candidates for ownership including the AI system's owner, programmer, or user.

So long as there is a clear property right in an AI-Generated Invention and an initial allocation of that right, then in cases in which the owner/programmer/user of an AI are different parties, they can contract among themselves to an optimal ownership solution. However, as a default, the system's owner should be the owner of intellectual property it generates. This is consistent with bedrock rules of property ownership, namely that a person owns property made by their property. As far back as Roman law this principle has applied so that a person owns fruit from their tree, or a calf from their cow. Modernly, the rule generally applies to tangible property produced by machines such that, for example, the owner of a 3D printer owns physical property created by their printer. There is no reason why the owner of an inventive or creative AI should be any less entitled to intangible property made by their machine. This is a common law principle that exists in numerous jurisdictions including the United States, and an appropriate basis for statutory ownership.[14]

Listing an AI as an inventor is not a matter of crediting an AI but rather of appropriate attribution of patent ownership, informing the public of how an invention was generated, and preventing a person from taking undeserved credit. Taking credit for work done by an AI would not be unfair to the AI, which has no self-interests, but it would dilute the meaning and significance of inventorship, equating the work of a person who has exhibited genuine ingenuity with someone who has simply asked a machine to solve a problem.

The consequence of changing patent law to protect AI-Generated Inventions would be that businesses and inventors would not have to be concerned that their use of AI would jeopardize obtaining intellectual property rights.

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[13] The patents at issue in *Thaler v. Vidal* were filed in 18 jurisdictions. They have been granted in South Africa and allowed in Saudi Arabia, and rejected on a final, non-appealable basis in the United States, Australia, and Taiwan. Initially, Justice Beach in the Federal Court of Australia (FCA) held that under the Australian Patent Act an AI could be an inventor, and that the AI's owner had the best claim of entitlement. *Thaler v Commissioner of Patents* [2021] FCA 879. This decision was reversed in an *en banc* appeal to the FCA and the High Court subsequently declined to hear the case. *Commissioner of Patents v Thaler* [2022] FCAFC 62 (cert denied). In the remaining jurisdictions, the patent applications are either pending examination by patent offices or under appeal from patent office denials. See www.artificialinventor.com (for an updated status of foreign cases).

[14] Alternately, the United Kingdom's Copyright Act explicitly protects AI-generated works which are owned by the person by whom the arrangement necessary for the creation of the work are undertaken. Copyright, Designs and Patents Act 1988, §9 (3). These works are defined as those "generated by a computer in circumstances such that there is no human author of the work[s]." *Id*.

V.   Artificial Intelligence and Obviousness

To obtain a patent, an invention needs to be, among other requirements, novel, nonobvious, and useful. Nonobviousness requires that an invention should not have been obvious to a hypothetical person having ordinary skill in the art (PHOSITA or the "skilled person"). The skilled person essentially represents an average worker in the field of an invention, and specifically does not represent what an inventor would find obvious (this would be too high a bar). This test is the designed to ensure that only meaningful technological advances are protected, rather than trivial ones that do not require patent incentives to come about. It is, however, a challenging test to administer because it requires subjective reasoning about what a hypothetical person would find obvious, and this reasoning takes place in hindsight with the benefit of a patent application that has already solved a technical problem.

Because the skilled person essentially represents the average worker in the field of an invention, the standard should evolve as the characteristics of average workers change over time. In particular, as AI comes to commonly augment the average researcher, the skilled person should be conceptualized as an average worker using AI. AI can make a person more knowledgeable and sophisticated, which in turn should raise the obviousness bar. With respect to making a person more knowledgeable, the skilled person is deemed to have knowledge of certain information in their field (analogous art) for purposes of nonobviousness, but some AI can usefully access a superhuman amount of information across fields. With respect to making a person more sophisticated, certain activities that once required inventive skill may become routine with the use of AI, such as modeling protein folding.[15]

Given continued advancements in AI it is likely that, at some point in the medium to long term future, AI will transition from routinely augmenting human researchers to automating R&D—at least in some fields. This may happen, initially, in areas where AI has a comparative advantage such as discovering new uses of existing drugs from pattern recognition in large data sets. If the skilled person standard fails to reflect the capability possessed by AI, then once the average worker routinely uses inventive AI, or inventive AI replaces the average worker, then inventive activity will be normal instead of exceptional. This will result in too lenient a standard for patentability. Allowing the average worker to routinely patent their outputs would cause social harm. As the U.S. Supreme Court has articulated, "[g]ranting patent protection to advances that would occur in the ordinary course without real innovation retards progress and may . . . deprive prior inventions of their value or utility." KSR Int'l Co. v. Teleflex Inc., 550 U.S. 398, 402 (2007).

Once inventive AI becomes the standard means of research in a field, considering the skilled person as a skilled person using AI would also encompass the routine use of inventive AI by average workers. Taken a step further, once inventive AI becomes the standard means of research in a field, the skilled person should be an inventive AI. Specifically, the skilled person should be an inventive AI when the standard approach to

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[15] See, e.g., https://www.nature.com/articles/d41586-021-03499-y.

research in a field or with respect to a particular problem is to use an inventive AI (the "Inventive AI Standard"). Conceptualizing the skilled person as using a skilled person using AI might be administratively simpler but replacing the skilled person with the inventive AI would be preferable because it emphasizes that the AI is engaging in inventive activity, rather than a natural person directly.

To obtain the necessary information to implement this test, the USPTO should establish a new requirement for applicants to disclose when an AI contributes to the conception of an invention, which is the standard for qualifying as an inventor. Applicants are already required to disclose all human inventors. Similarly, applicants should need to disclose whether an AI has done the work of a human inventor. This information could be aggregated to determine whether most invention in a field is performed by people or AI. This information would also be useful for determining appropriate inventorship, and more broadly for formulating innovation policies.

Yet simply substituting an inventive AI for a skilled person might exacerbate existing problems with the inventive step inquiry. With the current skilled person standard, decisionmakers, in hindsight, need to reason about what another person would have found obvious. This results in inconsistent and unpredictable nonobviousness determinations. In practice, the skilled person standard bears unfortunate similarities to the "Elephant Test"—I know it when I see it. This may be even more problematic in the case of inventive AI, as it is likely to be difficult for human decisionmakers to theoretically reason about what an AI would find obvious.

An existing vein of critical scholarship has already advocated for nonobviousness inquiries to focus more on economic factors or objective "secondary" criteria, such as long-felt but unsolved needs, the failure of others, and real-world evidence of how an invention was received in the marketplace. Inventive AI may provide the impetus for such a shift. Nonobvious inquiries utilizing the Inventive AI Standard might also focus on reproducibility, specifically whether standard AI could reproduce the subject matter of a patent application with sufficient ease. This could be a more objective and determinate test that would allow the Patent Office to apply a single standard consistently, and it would result in fewer judicially invalidated patents. A nonobviousness inquiry focused on either secondary factors or reproducibility may avoid some of the difficulties inherent in applying a "cognitive" Inventive AI Standard.

However the test is applied, an Inventive AI Standard will raise the current benchmark for patentability. Inventive AI will be significantly more capable than skilled persons and able to productively engage with a broader range of prior art. An Inventive AI Standard would thus make obtaining patents more difficult: A person or AI might need to have an unusual insight that other inventive AI could not easily recreate, developers might need to create increasingly capable AI that could outperform other models, or, perhaps most likely, invention will be dependent on leveraging specialized, non-public sources of data. The nonobviousness bar will continue to rise as AI inevitably becomes increasingly sophisticated.

Taken to its logical extreme, and given there may be no limit to how intelligent AI will become, it may be that every invention will one day be obvious to commonly used AI. That would mean no more patents should be issued without some radical change to current patentability criteria. But in a (likely distant) future world where superintelligent AI can automate the solving of technical problems with ease, there would be less need for incentives to innovate and to disclose confidential information (as inventions could be more easily independently discovered or reverse engineered). There may still be similar needs for encouraging the commercialization of new inventions. For example, even if an AI could easily develop a new cancer treatment, costly clinical trials may still be needed to have the Food and Drug Agency (FDA) allow that treatment to be provided to patients. Long term, this may require a shift from patents to other sorts of incentives such as market/data exclusivity based on FDA approvals of pharmaceutical and biological drugs.

VI.   Closing

Thank you for the opportunity to provide these comments. I support the Subcommittee's efforts to improve the patent system, welcome the opportunity to answer any questions these comments may raise, and look forward to a continuing dialogue on this very important subject.

Respectfully Submitted,