Computer & Communications Industry Association

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Written Testimony of

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"Artificial Intelligence and Intellectual Property, Part III - IP Protection for AI-Assisted Inventions and Creative Works"

Subcommittee on Courts, Intellectual Property, and the Internet

Committee on the Judiciary, U.S. House of Representatives

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I. Introduction

Chairman Issa, Ranking Member Johnson, distinguished members of the Subcommittee, on behalf of the Computer and Communications Industry Association and its members, thank you for this opportunity to share our views on IP protection for AI-assisted works and inventions.[1] My name is Joshua Landau and I serve as the Association's Senior Counsel for Innovation Policy, handling patent and AI issues. I also teach intellectual property as an Adjunct Associate Professor at American University Washington College of Law.

CCIA commends the Judiciary Committee's thorough efforts to study the exciting innovations stemming from artificial intelligence, or AI. As the Subcommittee on Courts, Intellectual Property, and the Internet now looks at rights related to AI-assisted inventions and creative works, we appreciate the opportunity to provide some industry perspectives.

CCIA wishes to highlight its recent white paper, "Understanding AI: A Guide to Sensible Governance."[2] The paper is intended to serve as a guide for policymakers to craft rules that maximize the benefits of AI while reducing the potential risks. With smart regulation and governance, the United States can continue to lead the world in AI innovation. AI is not a single technology, but rather a family of related, but distinct, technologies, each of which may be applied in significantly different contexts. Responsible AI deployment can be best achieved through flexible, considered regulation that avoids unintended consequences.

CCIA has been at the forefront of technology policy issues for more than 50 years, and our members are at the forefront of artificial intelligence technology today. Our members are involved in every facet of AI. They make the chips that AI runs on. They develop leading-edge AI models. And they apply AI to solve problems. These solutions range from helping small businesses operate more efficiently by automating the description of items for sale on Shopify[3] to Google's work on forecasting natural disasters like floods and wildfires.[4] They're also frequent users of the patent system, representing some of the top recipients of U.S. patents each year, and create a significant number of copyrighted works as well. Intellectual property protections are essential to the businesses of CCIA members.

The question of whether to permit intellectual property protection on the output of AI systems, and how much to permit, is a critical one. While patents and copyright can promote creativity and innovation, over-protection can block those same goals. In the patent system, over-issuance of low-quality patents has created significant negative impacts on innovators.[5] And in the

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[1] CCIA is an international, not-for-profit trade association representing a broad cross section of communications and technology firms. For more than 50 years, CCIA has promoted open markets, open systems, and open networks. CCIA members employ more than 1.6 million workers, invest more than $100 billion in research and development, and contribute trillions of dollars in productivity to the global economy. A full list of CCIA's members is available at https://www.ccianet.org.

[2] CCIA, *Understanding AI: A Guide to Sensible Governance* (June 2023), https://ccianet.org/wp-content/uploads/2023/06/CCIA_Understanding-AI.pdf.

[3] Joe Price, *Introducing AI-Generated Product Descriptions Powered by Shopify Magic*, Shopify Blog (Apr. 19, 2023), https://www.shopify.com/blog/ai-product-descriptions.

[4] Yossi Matias, *How we're using AI to combat floods, wildfires and extreme heat*, The Keyword (Oct. 10, 2023), https://blog.google/outreach-initiatives/sustainability/google-ai-climate-change-solutions/.

[5] Michael Frakes & Melissa Wasserman, *Irrational Ignorance at the Patent Office*, 72 Vand. L. Rev. 975 (2019).

creative industries, over-protection of copyright has created negative impacts on individuals and artists.[6]

Fortunately, both copyright and patent law have long-standing principles that require human authorship and invention. The courts have followed those principles, finding that a purely AI-generated work is neither patentable nor copyrightable.[7] And the Copyright Office and Patent & Trademark Office have both recently issued guidance on AI-generated works and inventions that reflects this long-standing tradition, protecting human creativity and innovation from over-protection of machine-generated work.

In 1966, the Register of Copyrights was facing a difficult issue. Computer technology was becoming more widespread and sophisticated. People were beginning to apply for copyright in creative works made by computers. As the Register noted, "it is certain that both the number of works proximately produced or 'written' by computers and the problems of the Copyright Office in this area will increase."[8]

Fortunately, the Register also had an answer—and it was a good one. The Register identified the crucial question: "whether the 'work' is basically one of human authorship, with the computer merely being an assisting instrument, or whether the traditional elements of authorship in the work (literary, artistic, or musical expression or elements of selection, arrangement, etc.) were actually conceived and executed not by man but by a machine."[9]

II. Are Statutory Changes Required to Address AI-Generated Work?

The approach the Register took 60 years ago remains the right approach today. While discussed in reference to copyright, the same inquiry applies to patentable inventions—was the invention one conceived of by human ingenuity with the AI operating as an assistive tool, or was the invention generated exclusively by the AI system? When a machine is responsible for the traditional elements of creation—the expression of an artistic work or the generation of an invention—then intellectual property rights are inappropriate. When the machine simply supports human authorship or invention, then copyright or patent protection should remain available.

With that guiding principle in mind, many questions regarding AI output and intellectual property protection become easier to answer. Completely human creations remain protectable; completely AI creations do not. There will be difficult questions in the center of that continuum, where humans and AI collaborate to create and invent, but the answers there lie in existing law—in the law of inventorship and authorship—and in the Register's guiding principle of focusing on whether a human was truly the creative or inventive entity.

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[6] Kristelia García, *The Emperor's New Copyright*, 103 B.U. L. Rev. 837 (2023).
[7] *Thaler v Perlmutter*, No. 22-1564, 2023 WL 5333236 (D.D.C. Aug. 18, 2023); *Thaler v Vidal*, 43 F.4th 1207 (Fed. Cir. 2022).
[8] U.S. Copyright Office, Sixty-Eighth Annual Report of the Register of Copyrights, for the Fiscal Year Ending June 30, 1965, at 5, *available at* https://www.copyright.gov/reports/annual/archive/ar-1965.pdf.
[9] *Id.*

A. Inventorship

Difficult questions regarding how to determine the true inventor or inventors will require attention, but there is no need for revision of current inventorship laws. The existing law of inventorship should guide us.

When a human creates an invention that either improves AI or applies AI as the solution to some kind of problem, it is already—and should remain—eligible for patent protection. But if an inventor uses AI as a tool to develop a new invention, when does it cross the line from the use of a tool to solely the AI system generating aspects of the invention? The law of inventorship provides helpful guidance as to how to evaluate whether a human made sufficient contribution to the invention to qualify as an inventor. Inventorship requires that one "(1) contribute in some significant manner to the conception or reduction to practice of the invention, (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 art."[10] So long as the human has significantly contributed to the conception of at least one independent claim of the invention, they will be named as an inventor on the patent, even if the AI contributed any number of dependent claim limitations.[11] And if the human contributed significantly only to dependent claims, those can be rewritten in independent form to become patentable. In the experience of CCIA's members, many of whom already use AI as a tool in their innovation process, there are always humans involved that would qualify as an inventor under these requirements.

Only if there is no human involved who meets these requirements will there be nothing patentable. But in that circumstance, there is no reason to issue a patent. The AI would not be motivated by the prospect of a reward of exclusivity—it would have no motivation at all. It would produce the idea upon being run regardless of the availability of a patent, suggesting that the essential value of a patent as an "encouragement to [] ingenious discoveries"[12] is absent and suggesting that the "embarrasment [sic] of an exclusive patent"[13] is unnecessary to cause the idea to be created. The creation of an idea-creating machine would still be incentivized, as it would be patentable (unless it was itself solely the output of an AI system), but there is no need for the economic incentive of a patent to sufficiently incentivize operation of such a machine.

In fact, the Supreme Court has suggested that a solely economic incentive is not a permissible rationale for providing exclusive rights—they must promote the progress of science or the useful arts as required by the Constitution, even if they do so via economic means.[14] Other incentives outside of intellectual property, such as first-mover advantage, network effects, and competitive necessity will be sufficient to justify any resources expended in operating such a machine. And

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[10] *Pannu v. Iolab Corp.*, 155 F.3d 1344, 1351 (Fed. Cir. 1998); *cf. Ethicon, Inc. v. U.S. Surgical Corp.*, 135 F.3d 1456 (Fed. Cir. 1998); *Nartron Corp. v. Schukra USA Inc.*, 558 F.3d 1352 (Fed. Cir. 2009).

[11] *Nartron* at 1358 (one "does not necessarily attain the status of co-inventor by providing the sole feature of a dependent claim").

[12] Letter from James Madison to Thomas Jefferson (Oct. 17, 1788), https://founders.archives.gov/documents/Madison/01-11-02-0218.

[13] Letter from Thomas Jefferson to Isaac McPherson (Aug. 13, 1813), https://founders.archives.gov/documents/Jefferson/03-06-02-0322.

[14] *See Feist Publ'ns, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340 (1991) (rejecting "sweat of the brow" justification for IP protection); U.S. Const. Art. I, § 8, cl. 8.

there is no need to incentivize disclosure by the operator of such a machine as any other operator of a similar machine would be able to obtain the same invention, suggesting that the disclosure-based justification for the patent bargain is weak at best with respect to AI-generated inventions. Similar to any other obvious but worthwhile invention or activity, there is simply no need to provide the extreme incentive of a patent monopoly for AI-generated inventions.

Assigning inventorship to the owner of the AI—assuming they have not themselves contributed an inventive concept—is unjustified as well. The owner of the machine that outputs an invention has not themselves performed any act worthy of recognition as inventive and would receive a windfall extracted from others based on the output of something that anyone could have bought or operated.

Given the available protection for human innovations, the consistent legal approach of treating only human creativity as subject to patent, and the negative policy implications of allowing patents over purely AI-generated works, CCIA believes that the inventorship requirements of the patent system are sufficient to incentivize innovation using AI as a tool and that no statutory adjustments are required.

B. Authorship

CCIA believes that existing U.S. copyright law is capable of addressing issues related to artificial intelligence and serves to promote creative activity in AI technology. Although unique issues might arise in the future that may require additional legislation or regulation, the technology-neutral nature of the Copyright Act is sufficient to address present issues regarding AI and copyright.

Under current Copyright Office guidelines, humans who use AI to create a work "may claim copyright protection for their own contributions to that work," excluding any AI-generated content that is more than de minimis.[15] A work produced by an AI algorithm or process, without the involvement of a natural person contributing to the resulting work, does not qualify as a work of authorship protectable under U.S. copyright law. This interpretation follows in a long line of cases and guidance finding that only a natural person can create a work of authorship protectable by copyright, including the Register's 1966 Report.

So long as a human exercised sufficient creative control over the work's expression, and "actually formed" the traditional elements of authorship, it would be copyrightable. Sufficient contribution could occur either via a human author significantly changing the AI's output into a final work, or by a human author exerting sufficient control over the output of a generative AI; however, so-called "prompt engineering" should per se be insufficient for a human to obtain copyright in the output.

The Office currently refuses to register a work that was not created by a human being. The most recent version of the Compendium of U.S. Copyright Office Practices cites several cases from the 1880s in explaining that "copyright law only protects 'the fruits of intellectual labor' that 'are founded in the creative powers of the mind,'" and "because copyright law is limited to 'original intellectual conceptions of the author,' the Office will refuse to register a claim if it determines

[15] 88 Fed. Reg. 16190, 16193 (Mar. 16, 2023).

that a human being did not create the work."[16] The Office adds that it "will not register works produced by a machine or mere mechanical process that operates randomly or automatically without any creative input or intervention from a human author."[17]

There is no need for this provision to change. Artists who incorporate technology into their artistic process can still obtain a copyright on their works, so long as the human artist has contributed a sufficient amount of original material to the combined work. Work created by AI systems should be held to the same standards as any other work.

There is also no necessity to provide the economic incentive of copyright to AI-generated work. Computers don't need incentives. People might.[18] And existing incentives—both legal, such as copyrights and patents, and non-legal, such as first-mover advantages and a desire to supply a commercial need—will suffice to ensure the development of generative AI technologies even if their output remains non-copyrightable in and of itself. Indeed, current generative AI technology was developed without any assumption or belief that its output would be eligible for copyright, and new generations continue to be developed even though the Copyright Office has made clear those outputs, standing alone, are ineligible for copyright protection.

Finally, it is far from certain that the meaning of "author"[19] at the time of the Founding would have included a machine. Congress thus may entirely lack the power to grant copyright protection to the output of an AI.

Given our nation's consistent legal approach of treating only human creativity as eligible for copyright protection, and the negative policy implications of providing copyright to purely AI-generated works, CCIA suggests that this Subcommittee should not reject this longstanding approach to copyrightability.

III. Impacts on Other Areas of Intellectual Property Law

Beyond the question of the availability of protection for AI output, AI tools will impact other areas of intellectual property law. For example, in patent law, the question of obviousness rests on whether a person of ordinary skill in the art with all relevant prior art available to them could have come up with the same invention. Fundamentally, large language models operate in a very similar way. They take in all relevant knowledge and try to provide an answer to a human's prompt. The availability of AI as a tool to aid in invention thus raises the level of ordinary skill in the art in those fields where it is being leveraged.

Much like the availability of computation and computer-aided design tools has affected what is reasonable to treat as ordinary skill, the availability of AI tools will affect what is reasonable to treat as the ordinary skill in the art. An ordinary artisan, relying on the output of an AI tool, has not created anything beyond the ordinary skill unless they contribute something to the combination that rises above what any ordinary artisan could do with the same AI tool. If I can

[16] Compendium of U.S. Copyright Office Practices, Third Edition, at § 306 (internal citations omitted).
[17] *Id.* at § 313.2.
[18] *Cf.* Rebecca Tushnet, *Economies of Desire: Fair Use and Marketplace Assumptions*, 51 Wm. & Mary L. Rev. 513 (2009), https://scholarship.law.wm.edu/wmlr/vol51/iss2/6.
[19] U.S. Const., art. I, § 8, cl. 8.

ask an AI tool for the answer to a problem and get the same answer as Albert Einstein or my six-year-old son, it is hard to argue that any of us deserves a patent on the output.

If AI-generated inventions one day become a realistic possibility, they should by definition be treated as inventions that fall within the ordinary skill in the art. Even "ordinary creativity" is considered to be within the scope of a person of ordinary skill, and "the results of ordinary innovation are not the subject of exclusive rights under the patent laws."[20] And as ordinary creativity exceeds the creativity of "an automaton"—exactly what an AI-generated invention is the result of—the results of an automaton's innovation are likewise not the subject of exclusive rights under the patent laws.[21]

Further, the creation of an invention by an AI in itself requires the pre-existence of an invention-creating AI. The pre-existing AI is itself part of the prior art and the mechanical output of a prior art invention created to mechanically output ideas is by definition obvious. Sufficient patent protection is already available to novel and non-obvious AI systems that generate inventions as AI applications devised by humans remain patentable.

IV. Policy Implications of IP Protection for AI-Generated Work

Outside of the legal system itself, there are potential policy problems if we allow patents and copyrights on AI output. Already, more than half of U.S. patents are issued to foreign inventors. These entities can and do assert their patents against American companies. The Patent Office was even forced to change its trademark rules to deal with a flood of inaccurate and potentially fraudulent trademark applications coming from overseas, particularly from China. If AI output is patentable, a foreign adversary might flood the Patent Office with AI-generated output. If that output is low-quality, then the Office will face resource constraints; if it's high quality, we could see even more instances of foreign entities weaponizing patents against the American economy. In either case, patentability of AI output presents significant concerns.

A. Foreign Use of U.S. Patents

More than half of U.S. patents issue to foreign inventors. This has been the case every year since 2008.[22] Many of those patents are issued to inventors from allies like Japan, South Korea, and Germany. However, an increasing number each year are issued to Chinese inventors. This is no accident—the Chinese government has openly stated that their goal is to increase overseas patents issued to Chinese inventors.[23] This is buttressed by China having for the first time exceeding the U.S. in the number of international Patent Cooperation Treaty applications filed in 2023.[24]

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[20] *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 421, 427 (2007).
[21] *Id.* at 421.
[22] U.S. Patent Statistics Chart, Calendar Years 1963 - 2020, https://www.uspto.gov/web/offices/ac/ido/oeip/taf/us_stat.htm.
[23] Steve Lohr, *When Innovation, Too, Is Made in China*, New York Times (Jan. 1, 2011), https://www.nytimes.com/2011/01/02/business/02unboxed.html; cf. Zhen Lei, Zhen Sun, & Brian Wright, *Are Chinese Patent Applications Politically Driven?*, OECD (Nov. 2012), https://www.oecd.org/site/stipatents/4-3-lei-sun-wright.pdf.
[24] Alison Snyder, *Patent applications from Chinese inventors pass U.S. for first time*, Axios (Mar. 1, 2024), https://www.axios.com/2024/03/01/china-us-patents-science-tech.

Because patents are territorial, U.S. patents convey no advantage to Chinese entities except with respect to activities and sales conducted in the U.S. itself. In other words, when a Chinese company patents some piece of technology in the U.S., they can only use that patent to extract licensing fees from a U.S. company—or block it from the market entirely. This is not a meaningless concern. After Huawei was excluded from the U.S. market in 2019,[25] it turned to patent litigation. Huawei filed lawsuits against American companies like Verizon[26] seeking $1 billion in damages.[27] Ultimately, Verizon settled under undisclosed terms.

Other foreign entities have taken different tacks, with one tactic being the use of sovereign wealth funds to provide funding for patent litigation. One example is that of Fortress Investment Group, a private equity fund that funds shell companies who pursue patent litigation against American innovators like Intel.[28] Last year, Fortress was purchased by Emirati state-owned enterprise Mubadala Investment Company.[29] Fortress subsidiary VLSI even elected to drop litigation years into a case rather than disclose who funds it.[30]

No matter the approach, it is clear that the U.S. intellectual property system can be weaponized against U.S. innovators.

B. Chinese Abuse of the U.S. Intellectual Property System

As this Subcommittee heard five years ago, Chinese entities were flooding the trademark system with low-quality and potentially fraudulent trademark applications. Then-Commissioner for Trademarks Mary Boney Denison said that the Office was increasingly receiving trademark applications "involving false or inaccurate use claims and submission of fake or digitally altered specimens that do not actually show use of the mark in U.S. commerce," and that "a significant and increasing number of these come from overseas, primarily from mainland China."[31]

In response, the Patent and Trademark Office was forced to update its rules, requiring that all trademark applicants be represented by U.S. counsel, and to conduct additional operations such

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[25] David Shepardson & Karen Freifeld, *Trump administration hits China's Huawei with one-two punch*, Reuters (May 16, 2019), https://www.reuters.com/article/idUSKCN1SL2QX/.
[26] Drew FitzGerald, *Huawei Settles Two Patent Lawsuits It Filed Against Verizon*, Wall Street Journal (July 12, 2021), https://www.wsj.com/articles/huawei-settles-two-patent-lawsuits-it-filed-against-verizon-11626105146.
[27] Mike Masnick, *Huawei Now Using Patent Claims To Demand $1 Billion From Verizon, As The US Tries To Chase Huawei Out Of The US Market*, Techdirt (June 17, 2019), https://www.techdirt.com/2019/06/17/huawei-now-using-patent-claims-to-demand-1-billion-verizon-as-us-tries-to-chase-huawei-out-us-market/.
[28] Josh Landau, *One Case, All The Problems: VLSI v. Intel Exemplifies Current Issues In Patent Litigation*, Patent Progress (Mar. 15, 2021), https://www.patentprogress.org/2021/03/one-case-all-the-problems-vlsi-v-intel-exemplifies-current-issues-in-patent-litigation/.
[29] Press Release, Fortress Management and Mubadala to Acquire Fortress Investment Group (May 22, 2023), https://www.businesswire.com/news/home/20230522005259/en/Fortress-Management-and-Mubadala-to-Acquire-Fortress-Investment-Group.
[30] Scott Graham, *VLSI Drops Claim Amid Transparency Demands*, Delaware Business Court Insider (Dec. 28, 2022), https://www.law.com/delbizcourt/2022/12/28/theyve-had-enough-of-judge-connolly-vlsi-drops-claim-amid-transparency-demands/.
[31] Counterfeits and Cluttering: Emerging Threats to the Integrity of the Trademark System and the Impact on American Consumers and Businesses: Hearing Before the Subcomm. on Courts, the Internet, and Intellectual Property, 116 Cong. (2019) (Statement of Mary Boney Denison).

as increasing the number of audits they perform and creating a task force to combat fraudulent filings.

C. Implications for Patentability and Copyrightability of AI-Generated Work

The USPTO's experience with fraudulent trademark applications from overseas should give pause to any desire to provide intellectual property protections for the output of AI systems. If patent protection is available for the output of AI systems, it will become trivial for malicious actors to flood the Patent Office with AI-generated inventions. If those inventions are, as seems likely to be the case, of low-quality, then they will represent a significant burden on the examination resources of the USPTO. And because the USPTO is statutorily required to fund its operations via user fees, with the majority of the cost recovered only after a patent is issued, this burden will be borne by American innovators using the patent system to protect human innovations. And the low-quality applications that manage to slip through will go on to be fodder for abusive patent litigation—including that funded by sovereign wealth funds.

The solution is for the USPTO to conduct a robust examination of all patent applications, including affirmatively asking if AI was used in the creation of the invention as part of the initial filing process, and for the USPTO to employ a fee structure that both ensures the USPTO has the resources needed to conduct such an examination. By disincentivizing low-quality, fraudulent, and abusive applications in this way, the USPTO can ensure that patents only issue for true technological advances created by human ingenuity.

Copyright in AI-generated output presents similar concerns. The Copyright Office lacks the resources to register the millions of AI-generated works that would likely be submitted if registration were available for those works. And American creators might face a chilling effect if their original, human-created work is subjected to the potential of endless lawsuits based on automatically generated AI works. Rather than write the next generation of pop music or take a stunning photograph of the natural world, creators may simply opt out of creation.

Finally, we should bear in mind that the purpose of copyright and patent protection is not to provide economic rewards—it is to "promote the progress of science and the useful arts." The economic rewards are only a means to that end. But AI does not require the same economic incentives that people may require.[32] Once the investment in designing and creating an AI system has been made—an investment that is, and remains, patentable—further economic incentives are not required to ensure that that system will be used.

V. Conclusion

AI will undoubtedly become a part of the ordinary process of invention and creation. But, as the Register recognized 60 years ago, it is essential that we ensure it remains an adjunct to human creativity, not a replacement for it. Our current statutory law, the work conducted by the Copyright Office and the U.S. Patent and Trademark Office, and the decisions handed down in our courts all provide the correct balance between scope for human creativity and innovation and protection for intellectual works. We appreciate the Subcommittee's continuing attention to the issues raised by the interaction of AI and intellectual property, and suggest continued monitoring of the application of existing law to ensure that the proper balance is maintained.

[32] *See* Tushnet, *Economies of Desire*, *supra* n. 18.