January 10, 2020

The Honorable Andrei Iancu
Under Secretary of Commerce for Intellectual Property and
  Director of the United States Patent and Trademark Office
P.O. Box 1450,
Alexandria VA 22313–1450

Via email: AIPartnership@uspto.gov

Re: Comments on Intellectual Property Protection for Artificial Intelligence Innovation

Dear Director Iancu:

Intellectual Property Owners Association (IPO) submits the following comments and suggestions in response to the USPTO's notice entitled "Request for Comments on Intellectual Property Protection for Artificial Intelligence Innovation," published in 84 Fed. Reg. 58141 (Oct. 30, 2019).

IPO is an international trade association representing companies and individuals in all industries and fields of technology who own, or are interested in, intellectual property rights. IPO's membership includes 175 companies and close to 12,000 individuals who are involved in the association either through their companies or as inventor, author, law firm, or attorney members. IPO advocates for effective and affordable IP ownership rights and provides a wide array of services to members, including supporting member interests relating to legislative and international issues; analyzing current intellectual property issues; information and educational services; and disseminating information to the general public on the importance of intellectual property rights.

IPO agrees that artificial intelligence will only continue to become more important to industry and supports the USPTO's exploration of whether existing intellectual property law and policy create the proper incentives and rewards to support innovation in this area. We appreciate the ability to provide feedback and look forward to future opportunities to continue this discussion. Our answers to each of the questions posed in the request for comments are below. Each response discusses AI in the context of the current state of the technology. Perspectives might change with the eventual development of Artificial General Intelligence.

1. Should a work produced by an AI algorithm or process, without the involvement of a natural person contributing expression to the resulting work, qualify as a work of authorship protectable under U.S. copyright law? Why or why not?

This question should be addressed carefully to avoid the conclusion that all AI-related works of authorship are not copyrightable, particularly where it is unclear whether a natural person "contributed" to the work. Certainly, AI systems that include an algorithm or process developed by AI researchers or data scientists are powerful tools that may be used by the owner of the AI system or others who have access to it to create another useful application or work. Such AI systems or AI tools should be copyrightable in the same manner as any software program or data model

when "fixed in a tangible medium of expression" because they involve a natural person in the creation of the AI system or AI tool. Similarly, if the AI tool (such as an AI "untrained model") is an original work fixed in a tangible medium, current copyright law provides the same level of protection provided to any software program and provides protection of the AI "trained model" tool for a specific application of the AI system as a derivative copyrightable work.

However, AI tools can be used to create a new product or an original work (e.g., written works and translations of existing works, simple objects such as furniture or complex structures such as airplane parts, and new materials, pharmaceuticals, or images of stars in deep space). A new product or original work produced by an AI tool or system arguably may not qualify as a work of authorship protectable by U.S. copyright law where the AI tool created the new product or work independently without the involvement of a natural person.

Current U.S. law provides that only a natural person can be granted copyrights in a work of authorship, then expands on a possible exception related to a level of involvement by a natural person in the creation of a work an AI system or tool.

The rationales typically given for granting exclusive rights to authors and inventors include (1) protecting the natural right an author or inventor has in their creation, including compensation for giving up some of that natural ownership by disclosing it to the public; and (2) incentivizing new creations by an author or inventor by providing a means of generating revenue. Lincoln famously encapsulated this latter rationale by explaining that the patent system "added the fuel of interest to the fire of genius."

The U.S. Constitution provides Congress the power "[t]o 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." U.S. Const. Art. I, Sec. 8. The use of the possessive pronoun "their" indicates a pre-existing ownership right or interest—an exclusive right in something that is already owned by the author or inventor—that is applicable to only natural persons. Machines, algorithms, or processes (all of which may be comprised in an AI tool) cannot have a natural or antecedent right to own anything outside of positive law.

AI tools do not require external motivations to function or perform. An AI tool will perform its functions regardless of any legislative rights that it might be granted. Thus, the promotion basis for granting exclusive rights is also weak. Generally speaking, a work produced by an AI system or tool alone, without the involvement of a natural person, should not qualify as a work of authorship protectable under current U.S. copyright law. The level of involvement of a natural person in the production of a work by an AI system or tool is explored next as an exception.

Natural persons are involved in the creation of AI tools, in deciding what AI algorithms and related components (such as particular AI models) to use for a specific AI tool and how to set up, train and manage that tool. This work by a natural person could be regarded as creating natural ownership interests or as activity that can be incentivized by the grant of exclusive rights. Therefore, the answer to this question heavily depends on the meaning of "without the involvement."

Consideration should be given to creators and companies that use AI tools to create specific works. Cases in the photography context reject the idea that merely because a work is produced through

mechanical means it is less deserving of copyright protection. *See Time Incorporated v. Bernard Geis Associates*, 293 F. Supp. 130 (S.D.N.Y. 1968) (holding that the Zapruder film was protectable despite camera creating images based on Zapruder placing camera in location that captured Kennedy assassination by chance). Courts and regulators should consider and explore to what degree the selection of particular AI algorithms and processes for an AI tool, the selection of input data to the AI tool, and the selection of subject matter to use with the AI tool indicate authorship—in the same way analogous choices are made by photographers and other authors that use other tools to create works.

AI tools that are embodied in software that can be improved without further direction, through automated learning, raise additional considerations. The particular values or priorities given to certain types of data or outcomes, determined at the outset by a natural person, might be sufficient to consider the AI system or tool an agent of the natural person, carrying out laborious computing tasks based on that person's creative and value choices from the outset. The degree to which a natural person can alter and change the operation of the AI tools to produce a particular work might also be a consideration. If the ability to alter the operation or outcome of an AI tool is high, the decision to exercise that optioncould be a significant indicator of authorship for determining whether U.S. copyright protection should apply.

2. Assuming involvement by a natural person is or should be required, what kind of involvement would or should be sufficient so that the work qualifies for copyright protection? For example, should it be sufficient if a person (i) designed the AI algorithm or process that created the work; (ii) contributed to the design of the algorithm or process; (iii) chose data used by the algorithm for training or otherwise; (iv) caused the AI algorithm or process to be used to yield the work; or (v) engaged in some specific combination of the foregoing activities? Are there other contributions a person could make in a potentially copyrightable AI-generated work in order to be considered an "author"?

As discussed in the answer to Question 1, all the ways that a person creates a work using AI algorithms or processes should be considered. Any one of the examples given, or some combination, could be enough if the resulting work is an "original" work involving at least "minimal creativity" and is not a mere compilation of facts. Because it is highly likely that there is some involvement of natural persons at each stage of using or creating AI algorithms or processes—even the mere use of values or categories initially set by a natural person—registration need not involve a searching inquiry into whether a natural person was sufficiently involved in the creation of a work. Nuanced analysis, especially in borderline cases, can be more thoroughly addressed through the adversarial process in the courts.

Where an AI tool is created by a first entity and sold, leased, or licensed to a second entity (the "transaction"), ownership of any copyright produced by the AI tool after the transaction should be determined in accordance with the terms of the transaction agreement. Following the transaction, a natural person involved with the AI tool could be considered as a potential author in connection with any potentially copyrightable AI-generated work.

3. To the extent an AI algorithm or process learns its function(s) by ingesting large volumes of copyrighted material, does the existing statutory language (e.g., the fair use doctrine) and

related case law adequately address the legality of making such use? Should authors be recognized for this type of use of their works? If so, how?

The U.S. Copyright Act and corresponding case law provide a sufficient legal framework for determining whether "machine learning" use constitutes a fair use in the U.S. AI tools that require "machine learning" to train algorithms for particular applications may process large volumes of copyrighted material or compilations of data in order to derive the applicable algorithm coefficients or model for the particular application. The purpose and character of such a "machine learning" use would likely be viewed as substantially "transformative" for creating something new (e.g., applicable algorithm coefficients), and thus protected under the fair use doctrine in the U.S. Moreover, unless a substantial portion of the copyrighted material was stored for operational use by the "trained" AI tool, the portion retained and included in the applicable algorithm or process could be viewed as "de minimis" rather than an important part of the copyrighted material.

In another aspect, the more data used to train an AI tool, the better the AI tool. Even if a copyrighted work (such as a photo or a poem) were fully used to train the AI tool, the training data will often encompass a large volume of additional material (whether copyrighted or not). The resulting work from the AI tool might be considered to rely on a "de minimis" amount of the particular copyrighted work within the context of all the training data. For example, there might be a distinction between the use of individual photos to derive components of an AI tool algorithm (transformative and likely a fair use) and a compilation of photos captured and used by the AI tool for operational comparative purposes (i.e., to identify a sick person from a compiled database of photos), which might not be properly be considered fair use where the compilation of photos is not transformative but stored for use by the AI tool.

4. Are current laws for assigning liability for copyright infringement adequate to address a situation in which an AI process creates a work that infringes a copyrighted work?

Given the current state of technology, new laws addressing copyright infringement by AI processes are not required. The *Sony Betamax* case and its progeny provide adequate guidance concerning how the courts should assess the potential liability of creators and users of technology that might be used to infringe copyrights. For example, if the AI process itself infringes, the creator and distributor of that AI process would liable for infringement under current law. If the AI process does not itself infringe but could be used to infringe, the person who uses it to create an infringing work would be liable. In other scenarios, further liability might be assigned under existing secondary infringement doctrines.

Perhaps in the future AI systems will develop in ways that require changes to the law, but these new developments should be addressed in the first instance by the courts based on the facts and issues presented by such developments. Predictions of exactly how technology will develop in the future are often incorrect. It would be unwise to promulgate laws based on speculation.

5. Should an entity or entities other than a natural person, or company to which a natural person assigns a copyrighted work, be able to own the copyright on the AI work? For example: Should a company who trains the artificial intelligence process that creates the work be able to be an owner?

Generally, a company that trains an AI system that creates a work should be able to be an owner. However, this depends on the type of work being created, the involvement of the company, and how the company is using the AI process.

This question appears to presume that the "AI work" is an AI-Generated Work, such as a poem written by an AI system, and that the AI system is therefore the "creator" of the work. AI works not created by an AI system that relate to an AI system or copyrightable algorithm, applications of AI systems, and the development of core AI systems are all presumed to be created by humans. Thus, the human is the original owner and can assign the work to any appropriate entity.

Generally, a natural person who writes the code for the AI process that creates an AI-Generated Work should be able to be an owner. Similarly, a company that owns the copyright to AI process source code should be able to be an assignee of such a work like any other company.

6. Are there other copyright issues that need to be addressed to promote the goals of copyright law in connection with the use of AI?

Current copyright registration applications for derivative works include a list of the preexisting works on which the new work is based or that it incorporates. If an AI system is trained using existing works, how should it be determined whether the new work is a derivative of the existing work or merely "influenced" by it? One possible answer could be to program the AI system to certify that a work it creates is not derived from existing work(s) used to train the system.

In other countries, including the UK, the rights to an invention transfer from the employee to the employer under statutory provisions (e.g., *See*, the UK Patents Act 1977). Should U.S. laws be changed to adopt a similar statutory framework so that an AI system's creations (if any) transfer by law to the company that employs or owns the AI system? Would U.S. Copyright laws governing how employee "work for hire" works are transferred to the applicable employer appropriately apply to AI Works? To the extent that works produced by an AI system owned or "employed" by a company can be treated as a "work for hire," can the three factors identified by the Supreme Court in *Community for Creative Non-Violence v. Reid*, 490 U.S. 730 (1989) (1. Control by the employer over the work; 2. Control by employer over the employee; and 3. Status and conduct of the employer) be relied upon to confirm that an AI system should be considered an "employee" for purposes of attributing the AI produced work as a "work for hire" under U.S. copyright law?

Other issues to be addressed include:

- Can a valid contract be established between the developer, builder, user, and/or licensee of the AI system that governs who an original owner is of an AI work?
- Can a valid contract be established between the developer, builder, user, and/or licensee of the AI system that governs who has a contractual right to be assigned an AI work?
- Must a copyright statement (© 2019 Great Company, LLC) identify which elements of a work were created by an AI system? Is there any specific statement that would need to be made or affirmation regarding the AI system contribution to the work? (The answer to this issue is related to the comments on issues (1), (2) and (9).)

7. Would the use of AI in trademark searching impact the registrability of trademarks? If so, how?

The use of AI in trademark searching could impact the registrability of trademarks positively or negatively depending on the quality of the search results and whether those results supplement or supplant traditional trademark searches. Like other forms of technology, AI should be viewed as a tool that can help humans, such as examining trademark attorneys, perform tasks. AI-based trademark searching may generate search results that differ from those obtained by traditional trademark searching. Combining AI-produced search results with traditional search results could enable examining trademark attorneys to improve the quality of trademark examination and registration. For example, if AI-produced search results identified similar marks that would have otherwise been undiscovered during examination using traditional trademark searching, an examining trademark attorney would be able to conduct more thorough examinations and improve trademark registrability.

Were AI-based trademark searching to replace traditional trademark searching, however, examining trademark attorneys might sometimes be provided with inferior search results that would negatively impact trademark examinations and registration. For example, using only AI-produced search results that failed to identify similar marks that would have otherwise been discovered using traditional searching would be detrimental to trademark registrability.

The perceived quality of AI-based trademark searches could also have a *de facto* effect on whether AI-produced search results would be ignored in favor of traditional search results, used to supplement traditional search results, or used to supplant traditional search results during examination. Selecting how to use AI-produced search results or whether to even conduct traditional trademark searches would need to be managed to alleviate any potentially harmful impact to trademark examination and registrability.

IPO believes that IP Offices around the globe should share AI tools, including search tools, to promote consistency in examination across offices and to reduce the cost of developing such tools. IPO also suggests that the public should be made aware which AI tools are being used by the Offices both for purposes of transparency and to allow the user community to prepare higher quality applications.

8. How, if at all, does AI impact trademark law? Is the existing statutory language in the Lanham Act adequate to address the use of AI in the marketplace?

Although the use of AI tools does raise trademark law issues, those issues appear to be resolvable under current trademark law. As AI continues to develop, the legal framework should be monitored to ensure that appropriate property rights are available and that consumers can rely on trademarks as reliable source identifiers.

The registration of marks in connection with AI goods and services is already contemplated by the USPTO. For example, the identification of goods/services manual provides for downloadable software using artificial intelligence for [function of the software] in class 9 and advanced product research in the field of artificial intelligence in class 42.

If an AI tool creates or selects a mark, the adoption of that mark can then be exercised by the applicant (individual or corporation). The Lanham Act provides that an applicant shall not be refused registration except for certain enumerated reasons. The statute further provides that "applicant" embraces the legal representatives, predecessors, assigns, and successors of the applicant. An applicant must be a recognized legal entity, which AI software is not. In contrast to the ownership of an invention by a patent owner, the use of a trademark mark by an applicant in commerce creates rights that are owned by the applicant.

An AI tool may provide services in connection with a mark. The Federal Circuit stated in *In re JobDiva* that even though a service may be performed by a company's software, the company itself may well be rendering the service. Additionally, the USPTO permits registration of Software as a Service (SAAS) (e.g., Software as a service (SAAS) services featuring software for [describe services] in class 42). Whether the SAAS is AI-based or non-AI-Based should be irrelevant.

9. How, if at all, does AI impact the need to protect databases and data sets? Are existing laws adequate to protect such data?

Existing laws are adequate to protect AI-related databases and data sets. For example, data created by an AI tool or AI model may be protectable as a derivative copyrightable work, assuming that it is an original work fixed in a tangible medium. In the AI context, curated data sets and trained models based on the curated data sets could be highly valued IP. If copyright (or patent) protection is ultimately not afforded to training data sets, trained AI systems, and/or data produced by AI systems, trade secret protection may become the only available form of IP protection. Trade secret protection could be impractical or impossible for many business models, for example where the AI-based data is distributed in a product or where the results produced by the AI will be made public. For open source AI projects, data sets may be protected by open source style contracts that limit commercial use or distribution and likewise prohibit any claim of proprietary protection.

The idea or function that may exist in select data forms (such as the numerical AI weights stored in a file or metadata that is factual) is not protectable under copyright law. Specifically, certain compilations or arrangements of AI data in a database or file might have copyright protection when fixed in a tangible medium, but the data values themselves would not be protected. Any different compilation or arrangement of the same data may not be considered a derivative work. This may drive the need for some form of *sui generis* IP protection for select data forms, for example where the AI tool algorithms or model may be reverse engineered from the applicable select data form. Precedent for this exists in protection of mask works, 17 U.S.C. §§ 901-914. However, we must carefully consider the pros and cons of introducing new forms of IP.

Although copyright protection for compilations is generally weak in the U.S., providing *sui generis* database rights similar to those that exist in Europe might not necessarily promote innovation. The U.S. should look to how other countries have achieved and maintained leadership in this space. For example, reports suggest that China has been a close rival to the U.S. on AI while Europe has been lagging. Thus, strong database rights arguably do not suggest a correlation with strong innovation in AI. We should also be sensitive to the fact that AI technology is developing rapidly and that any laws proposed now could be obsolete by the time they are enacted.

10. How, if at all, does AI impact trade secret law? Is the Defend Trade Secrets Act (DTSA), <u>18 U.S.C. 1836</u> et seq., adequate to address the use of AI in the marketplace?

An important means for protecting AI innovation will be trade secrets. If properly enforced, the current trade secret laws in the U.S. (DTSA and various state statutes) suffice to protect AI-related trade secrets. The key to enforcement will be for courts to strike an appropriate balance between two competing policy objectives. On the one hand, innovative AI companies need the ability to protect and benefit from their AI creations. Flexible and broad trade secret rights are a critical tool to meet this objective. On the other hand, employee mobility within the AI industry is essential for innovation, and overbroad or ambiguous trade secret rights can have a chilling effect. In particular, the threat of potential trade secret misappropriation litigation can create a significant deterrent to an employee considering a move.

One element in striking this balance is an appropriate interpretation of what constitutes a trade secret. Under the DTSA, a trade secret is information that an owner has "taken reasonable measures" to keep secret and that "derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable through proper means by, another person who can obtain economic value from the disclosure or use of the information." A flexible approach to these requirements is critical.

Due to the messy realities of AI innovation, it is not feasible to mark, catalog, monitor, and strictly control access to every trade secret within an organization. AI development is notoriously data intensive, often requiring immense corpora of data, large teams of internal and external collaborators, and distributed data processing frameworks. Rather than requiring strict marking or access controls, reasonable measures analyses should consider whether appropriate policies and agreements are in place and whether employees have appropriate notice of these policies and agreements. Employee training may be one way to demonstrate such notice.

Likewise, a determination of whether information has "independent economic value" should be broadly construed. Any valuation of information relating to fast developing technology such as AI might be speculative because it is difficult to know a priori which developments will bear fruit and which will fail, and how quickly the technology will evolve and make prior work obsolete. As such, a formulaic approach to valuing such information might be inaccurate.

11. Do any laws, policies, or practices need to change in order to ensure an appropriate balance between maintaining trade secrets on the one hand and obtaining patents, copyrights, or other forms of intellectual property protection related to AI on the other?

It is important to ensure that AI developers are afforded appropriate IP protection mechanisms. The U.S. has experienced an unprecedented explosion of AI development under the current IP system, but there are opportunities to strengthen IP protection for AI developers by improving consistency. As discussed above in relation to Question 10, flexible trade secret rights could facilitate AI innovation. In addition, the U.S. has struggled with consistency in the interpretation of subject matter eligibility for patents. The USPTO should ensure that granted patents are more predictably found valid by the courts, so AI developers have the option to rely on patents as a form of protection.

12. Are there any other AI-related issues pertinent to intellectual property rights (other than those related to patent rights) that the USPTO should examine?

Although we address above the questions of data and database protection from an IP standpoint, it would be worth paying careful attention to data privacy as it relates to AI. Data and AI are highly interdependent, and the development and advancement of AI depends on the consumption of data for initial development and training as well as any ongoing capabilities to access and analyze more data. As new laws and regulations are introduced, we should carefully observe the impact on innovation while ensuring adequate protection of the rights of data owners and users.

13. Are there any relevant policies or practices from intellectual property agencies or legal systems in other countries that may help inform USPTO's policies and practices regarding intellectual property rights (other than those related to patent rights)?

Please see responses to questions six and nine, to the extent applicable.

Thank you for considering these comments. We welcome further dialogue or opportunity to provide additional information to assist your efforts.

Best regards,

Daniel Staudt
President