The Intellectual Property Students' Association's Comments on the Impact of Artificial Intelligence on Intellectual Property Policy

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Introduction

This comment is a submission by the Intellectual Property Students' Association ("**IPSA"**) in response to the World Intellectual Property Organization ("**WIPO**")'s call for comments on the Draft Issues Paper relating to the Impact of Artificial Intelligence on Intellectual Property Policy (hereinafter referred to as the "Draft Issues Paper").

Relevant sections of the Draft Issues Papers have been reproduced for ease of reference. Our comments and suggestions can be found in various tables below each section. Suggested changes to the questions have been indicated in red.

IPSA will be providing comments on questions 7, 10, 12, 16, and 23 of the following issues:

Patents

Issue 1: Inventorship and Ownership

6. In most cases, AI is a tool that assists inventors in the invention process or constitutes a feature of an invention. In these respects, AI does not differ radically from other computer-assisted inventions. However, it would now seem clear that inventions can be autonomously generated by AI, and there are several reported cases of applications for patent protection in which the applicant has named an AI application as the inventor.

7. In the case of inventions autonomously generated by AI:

(i) Should the law permit or require that the AI application be named as the inventor or should it be required that a human being be named as the inventor? In the event that a human inventor is required to be named, should the law give indications of the way in which the human inventor should be determined, or should this decision be left to private arrangements, such as corporate policy, with the possibility of judicial review by appeal in accordance with existing laws concerning disputes over inventorship?

(ii) The inventorship issue also raises the question of who should be recorded as the owner of a patent involving an AI application. Do specific legal provisions need to be introduced to govern the ownership of autonomously generated AI inventions, or should ownership follow from inventorship and any relevant private arrangements, such as corporate policy, concerning attribution of inventorship and ownership?

(iii) Should the law exclude from the availability of patent protection any invention that has been generated autonomously by an AI application? See also Issue 2, below.

Comments:

Commentators should further explore whether the basis for labelling and identifying an inventor is premised on a liability-attribution scheme or an ownership-attribution premise.

An alternative proposition which should be explored would be whether inventions which are autonomously generated by AI should be made available on the public domain (e.g. via a public database). Note that in doing so, everyone would automatically lose rights to patenting and protecting such inventions: which might consequently dis-incentivise the development of such AI which can autonomously generate inventions.

Suggestions:

Modify question 7(iii) as follows:

(iii) Should the law exclude from the availability of patent protection any invention that has been generated autonomously by an AI application? If so, should such autonomous inventions be made available on the public domain via a public database? How would this be managed?

Issue 4: Disclosure

10. A fundamental goal of the patent system is to disclose technology so that, in the course of time, the public domain may be enriched and a systematic record of humanity's technology is available and accessible. Patent laws require that the disclosure of an invention be sufficient to enable a person skilled in the relevant art to reproduce the invention.

(i) What are the issues that AI-assisted or AI-generated inventions present for the disclosure requirement?

(ii) In the case of machine learning, where the algorithm changes over time with access to data, is the disclosure of the initial algorithm sufficient?

(iii) Would a system of deposit for algorithms, similar to the deposit of microorganisms, be useful?

(iv) How should data used to train an algorithm be treated for the purposes of disclosure? Should the data used to train an algorithm be disclosed or described in the patent application?

(v) Should the human expertise used to select data and to train the algorithm be required to be disclosed?

Comments:

With regard to 10(iv), if training data is disclosed, this could potentially fall afoul the requirements of confidentiality, data protection and privacy laws. For instance, in the context of ediscovery software, emails and whatsapp messages could form part of the data used to train models. In the context of contract review software, contractual precedents from various law firms could be part of the training data to use models.

Consequently, this begs the question: if there is such a disclosure scheme, what measures and safeguards are put in place to ensure the privacy and confidentiality of such training data?

This also goes back to examining the purpose of such a disclosure: if the disclosure was intended for the purposes of facilitating others to test and refine the algorithm; or if the disclosure was intended for the purposes of liability control, auditability of algorithms and quality monitoring.

Suggestions:
Amend question 10(iv) to state as follows :

> (iv) How should data used to train an algorithm be treated for the purposes of disclosure? Should the data used to train an algorithm be disclosed or described in the patent application? Are there any data and/or privacy and/or security issues associated with the disclosure ? If so, should there be additional safeguards and procedures for disclosure of such data, if any?

Copyright and Related Rights

Issue 6: Authorship and Ownership

12. AI applications are capable of producing literary and artistic works autonomously. This capacity raises major policy questions for the copyright system, which has always been intimately associated with the human creative spirit and with respect and reward for, and the encouragement of, the expression of human creativity. The policy positions adopted in relation to the attribution of copyright to AI-generated works will go to the heart of the social purpose for which the copyright system exists. If AI-generated works were excluded from eligibility for copyright protection, the copyright system would be seen as an instrument for encouraging and favoring the dignity of human creativity over machine creativity. If copyright protection were accorded to AI-generated works, the copyright system would tend to be seen as an instrument favoring the availability for the consumer of the largest number of creative works and of placing an equal value on human and machine creativity. Specifically,

(i) Should copyright be attributed to original literary and artistic works that are autonomously generated by AI or should a human creator be required?

(ii) In the event copyright can be attributed to AI-generated works, in whom should the copyright vest? Should consideration be given to according a legal personality to an AI application where it creates original works autonomously, so that the copyright would vest in the personality and the personality could be governed and sold in a manner similar to a corporation?

(iii) Should a separate sui generis system of protection (for example, one offering a reduced term of protection and other limitations, or one treating AI-generated works as performances) be envisaged for original literary and artistic works autonomously generated by AI?

Comments:
In answering the questions, one should examine what the "originality" requirement for "authorship"/"ownership" entails, and whether in the context of computer-generated works, these requirements should be revised.

Suggestions:
Modify question 12(i) as follows:

(i) Should literary and artistic works that are autonomously generated by AI be seen as "original" works to which copyright protection should be afforded? If so, should copyright be attributed to original literary and artistic works that are autonomously generated by AI or should a human creator be required?

Issue 9: General Policy Issues

16. Comments and suggestions identifying any other issues related to the interface between copyright and AI are welcome. Specifically,

(i) Are there seen or unforeseen consequences of copyright on bias in AI applications? Or is there a hierarchy of social policies that needs to be envisaged that would promote the preservation of the copyright system and the dignity of human creation over the encouragement of innovation in AI, or vice versa?

Comments:
While the majority of the focus of the questions posed by this paper reflect the growing concerns of IP policymakers vis-a-vis AI in the context of IP administration and policy, the question seems to center around what *rights*, if any, and under what theoretical paradigm or construct, should be granted over works of AI. Such works of AI may include works produced by a deep learning algorithm. These questions are not easy to answer but very important, as AI challenges the extant IP institutions and the theoretical justifications that underpin them and go into the root of why such institutions exist. For example, copyrights protect works of authorship and patents incentivize invention through granting protection to the owner, in exchange for its public disclosure.

However, beyond finding a doctrinal or conceptual basis to recognize the *rights* of AI inventions or works, the subsequent issue that IP policy must grapple with is that of *liability.* This is especially when AI is increasingly rolled out into the real-world, and may invariably or inevitably fail to perform, thereby resulting in damage. For instance, when a driverless car collides into a pedestrian, or when an AI medical software programme misdiagnoses a patient and leads to wrongful medical treatment.

At present, where there is such damage, the liability may fall onto different actors, depending on the circumstance or nature of the damage. For instance, there are some suggestions that where the AI system responsible for damage is provided by an open source software, liability may befall its programmer(s). However, when the damage is caused by an AI system while it is still in a 'learning' phase, liability may befall on its developer or data provider. The approach to liability attribution and damage may fall under a 'duty of care' analysis under the law of tort, and the result will also invariably vary between jurisdictions.

Indeed, as it stands, IP institutions seek to protect authors and inventors by conferring ownership of rights, to incentivize, inter alia, creativity, innovation and invention, with the broader view for the public good. However, these IP institutions do not seem to contemplate liability attribution. Arguably, with the rapid development of AI technology and its potential both for social good and damage, it is now incumbent on policy-makers to consider new or sui generis paradigms under which liability for works of AI can be attributed. Intellectual property may be one such paradigm under which the issue of liability can be conceptually based on.

Accordingly the question of liability is worth consideration and may be raised to the world IP community to gather their minds.

Suggestions:
To elicit additional sub-questions under question 16 on the sub-issue of liability vis-a-vis IP institutions.

E.g. How could, and should, IP Policy account for the liability of creative works in the application of emerging technologies such as artificial intelligence and deep learning?

Data

17. Data are produced in increasingly abundant quantities, for a vast range of purposes, and by a multiplicity of devices and activities commonly used or undertaken throughout the whole fabric of contemporary society and the economy, such as computing systems, digital communication devices, production and manufacturing plants, transportation vehicles and systems, surveillance

and security systems, sales and distribution systems, research experiments and activities, and so on.

18. Data are a critical component of AI since recent AI applications rely upon machine learning techniques that use data for training and validation. Data are an essential element in the creation of value by AI and are, thus, potentially economically valuable. Comments on appropriate access to data protected by copyright used for training AI models should be included in Issue 7 above.

19. Since data are generated by such a vast and diverse range of devices and activities, it is difficult to envisage a comprehensive single policy framework for data. There are multiple frameworks that have a potential application to data, depending on the interest or value that it is sought to regulate. These include, for example, the protection of privacy, the avoidance of the publication of defamatory material, the avoidance of the abuse of market power or the regulation of competition, the preservation of the security of certain classes of sensitive data or the suppression of data that are false and misleading to consumers.

20. The present exercise is directed only at data from the perspective of the policies that underlie the existence of IP, notably, the appropriate recognition of authorship or inventorship, the promotion of innovation and creativity, and the assurance of fair market competition.

21. The classical IP system may be considered already to afford certain types of protection to data. Data that represent inventions that are new, non-obvious and useful are protected by patents. Data that represent independently created industrial designs that are new or original are likewise protected, as are data that represent original literary or artistic works. Data that are confidential, or have some business or technological value and are maintained as confidential by their possessors, are protected against certain acts by certain persons, for example, against unauthorized disclosure by an employee or research contractor or against theft through a cyber intrusion.

22. The selection or arrangement of data may also constitute intellectual creations and be subject to IP protection and some jurisdictions have a sui generis database right for the protection of the investment made in compiling a database. On the other hand, copyright protection is not extended to the data contained in a compilation itself, even if the compilations constitute copyrightable intellectual creations.

23. The general question that arises for the purposes of the present exercise is whether IP policy should go further than the classical system and create new rights in data in response to the new significance that data have assumed as a critical component of AI. The reasons for considering such further action would include the encouragement of the development of new and beneficial classes of data; the appropriate allocation of value to the various actors in relation to data, notably, data subjects, data producers and data users; and the assurance of fair market competition against acts or behavior deemed inimical to fair competition.

Issue 10: Further Rights in Relation to Data

(i) Should IP policy consider the creation of new rights in relation to data or are current IP rights, unfair competition laws and similar protection regimes, contractual arrangements and technological measures sufficient to protect data?

(ii) If new IP rights were to be considered for data, what types of data would be the subject of protection?

(iii) If new IP rights were to be considered for data, what would be the policy reasons for considering the creation of any such rights?

(iv) If new IP rights were to be considered for data, what IP rights would be appropriate, exclusive rights or rights of remuneration or both?

(v) Would any new rights be based on the inherent qualities of data (such as its commercial value) or on protection against certain forms of competition or activity in relation to certain classes of data that are deemed to be inappropriate or unfair, or on both?

(vi) How would any such rights affect the free flow of data that may be necessary for the improvement of AI, science, technology or business applications of AI?

(vii) How would any new IP rights affect or interact with other policy frameworks in relation to data, such as privacy or security?

(viii) How would any new IP rights be effectively enforced?

Comments:

In commercial settings, data may be obtained from individuals or competitors and subsequently be profited from them. Should such individuals or competitors be provided with certain rights in relation to data obtained from them? For example, individuals may have consented to have their data to be collected, and processed by a company. Should such individuals be provided an enforceable IP right in relation to the data (e.g. anecdotes, comments on e-commerce websites) they provide?

Suggestions:

Amend question 23(iv) as follows:

> (iv) If new IP rights were to be considered for data, what IP rights would be appropriate, exclusive rights or rights of remuneration or both? Also, should IP rights be extended to parties apart from the author(s) of the creative work? How should this be done?