Submission to UK Government: Artificial intelligence call for views on patents

By Paul Sugden, Monash Business School, Monash University, Australia

Questions

1. What role can/does the patent system play in encouraging the development and use of AI technologies?

The same as it currently does for all areas of invention, providing an incentive and exclusive rights for methods, processes and devices for an invention in return for disclosure. Given my comments to further questions below, I believe the current system is able to accommodate this form of technology, as it is creation of inventions through advanced computing algorithms.

The difficulties, costs and expenses of patenting have led some organisations to believe that a confidential information approach is better than an issue of patenting. Myriad Inc after *Association for Molecular Pathology v. Myriad Genetics*[1] and D'Arcy v Myriad Genetics Inc[2], expressed a belief that going forward they would rather utilise a secrecy/confidential information strategy for future developments. This was an option as Myriad had obtained a databank of information of gene sequencing from patients during the period of the monopoly that were not available to others. The advantage of the confidential information is that so long as the information is not disclosed by the devices, process, or products used it provides longer protection that can develop independently of the constructions required in the disclosure process to obtain a patent.

2. Can current AI systems devise inventions? Particularly:

a) to what extent is AI a tool for human inventors to use?

b) could the AI developer, the user of the AI, or the person who constructs the datasets on which AI is trained, claim inventorship?

c) are there situations when a human inventor cannot be identified?

3. Should patent law allow AI to be identified as the sole or joint inventor?

4. If AI cannot be credited as inventor, will this discourage future inventions being protected by patents? Would this impact on

[1] 569 U.S. 576 (2013)
[2] [2015] HCA 35.

innovation developed using AI? Would there be an impact if inventions were kept confidential rather than made public through the patent system?

Invention historically requires human intervention as a necessary element of creation of an invention.[3] AI's ability to create and develop ideas independent of training, and to find links independent of programing is conceptually acting as a human mind. The recognition of a persona to AI in recognition of its ability to create through independent thought independent of human involvement focuses on the machine being the creator not the human. This is where the community fear of robots controlling life arises. This is the issue, I am most concerned about as it challenges what it means to be human. The ability to think and choose between right and wrong links these questions with the ethical moral issues raised in question 5 below. Does thought itself justify recognition of rights of persona, or does persona require the thought to be linked to the solution to a recognised problem? The granting of legal persona to thought itself or to a machine itself currently would not be acceptable to the general community, but recognition of persona also gives wider rights in law relating to property existence, employment, funding, and liability for actions created or committed in the name of the persona.

Given the recent, decision of *Thaler v The Comptroller-General of Patents* [2020] EWHC 2412 the easy answer for these questions would be that the machine is not a human and so not the inventor follows this accepted legal construct. Such a determination follows the accepted patent considerations of ownership and creation. Currently the only method for providing property rights to AI is to identify and create AI as a legal person. This could legally be created in a similar manner to the legal recognition of a company. The difficulty though is who should be recognised as the entity? When should the entity be recognised- when it comes up with the solution to a problem, or upon creation as a machine or as software? What element of AI is to be recognised as giving rise to a separate entitity? Who is to operate the functions of the legal persona?

Options for solutions:

(a) create a legal persona for AI restricted to the issue of identification of invention for the purposes of the Patent Act. For example recognise "AI assistance" in creation of the invention for purposes of establishing that invention has occurred;
(b) Recognise AI as a legal person for all purposes, just like a company with all the independent rights and responsibilities.
(c) Recognise existing legal entity or person who created the AI as the inventor.
(d) Recognise the team of people involved in establishing/creating the AI including the trainers who develop the data training methods as joint inventors;
(e) only the person who developed the idea for the AI.
(f) The person who directed the AI.

The difficulty here is that these solutions still require linkages to a human still in the creation for the purposes of invention. Invention links to ownership in patent law and if AI is recognised as an inventor, it is recognised as an owner. The complexity of developing and independent restricted legal person for one specific role means that at present the existing law requiring linkage to human involvement is still the wisest option.

5. Is there a moral case for recognising AI as an inventor in a patent?

[3] *National Research Development Corporation v Commissioner of Patents* (1959) 102 CLR 252.

No. The moral argument presupposes that AI is thinking, rational and has choice between right and wrong. Rather it is what the AI is used for that makes the moral judgment and that often is through human intervention. The arguments for a moral case based on creation by an AI and return for creation, but in the arena of AI it is the use of the invention that can be for moral or immoral purposes. The moral argument relates to the subsequent uses of the invention not the thought itself or scientific development created by AI. Scientific inquiry leading to inventions is in essence not a moral construct the adoption of a moral argument is a societal normative argument, which changes as societal norms change.[4]

6. If AI was named as sole or joint inventor of a patented invention, who or what should be entitled to own the patent?

If AI is recognised as its own legal entity then the issue of joint ownership can be covered by the existing arrangements that recognise joint ownership within, the existing legal framework. If AI is not given independent legal persona but options relating to creator of the AI being a person then still this issue does not cause problems as the existing rules enable a resolution to arise. The essence to the issue is can AI be recognised as an independent legal person for the purposes of recognition and rights. If it can then joint ownership issues fall under existing legal structures.

7. Does current law or practice cause problems for the grant of patents for AI inventions in the UK?

8. Could there be patentability issues in the future as AI technology develops?

Taking a historical examination of patenting AI is just the new form of science that has led to challenges to the patent system, just like stocking frames during the reign of Queen Elizabeth 1; inorganic chemistry during the 1800's; gene patents; business methods; computer programs etc. The essence of a patent system being the considerations of invention, novelty and inventive step remain guiding parameters that can adapt to new science, as they are scientifically neutral terms, but identifiable legal constructs. It is a case of applying the existing tools to a new medium not in my view a reason for a reinvention of the complete system of patenting for a new form of technology. Conceptually AI is a computer program that can think independently through programing parameters based on training from data sets etc. The patent system dealt with fuzzy logic in the first waves of computing so now it can still cope with issues of more advanced computing.

9. How difficult is it to secure patent protection for AI inventions because of the list of excluded categories in UK law? Where should the line be drawn here to best stimulate AI innovation?

10. Do restrictions on the availability of patent rights cause problems for ethical oversight of AI inventions?

---

[4] See examples and discussions of these issues generally by Yves Gingras, *Bibliometrics and Research Evaluation: Uses and abuses*, MIT Press, 2016 and *Science and Religion: An impossible dialogue*, Polity Press, 2018; and *The moralisation of science is challenging its autonomy,* University World News, *23 March 2019 at https://www.universityworldnews.com/post.php?story=20190320145639758 (accessed 4/11/20)*

The AI as the use of algorithms within the structure of the "as such" exceptions can still lead to the invention being patentable subject matter. No conceptual change is required.

11. Does the requirement for a patent to provide enough detail to allow a skilled person to perform an invention pose problems for AI inventions?

Yes if it cannot be replicated by the skilled person from the material detailed in the specification. Same rule should apply to AI inventions as to other patent specifications.

13. Does or will AI challenge the level of inventive step required to obtain a patent? If yes, can this challenge be accommodated by current patent law?

14. Should we extend the concept of "the person skilled in the art" to "the machine trained in the art"?

With respect to Question 13 and 14. The essence of inventive step and its difficulties of verification arise from the AI's ability to think and be independent of the programing that developed it. The challenge is ability to verify the creation, invention and this is none by the ability to replicate.

The difficulty that arises with the test is the fact that at the beginning there are few who can really assess is there are few that could assess the levels of complexity as a person skilled in the art, to assess has an inventive step occurred. A "machine trained in the art" conceptually is no different to a "person trained in the art" if the machine is given the status of a person. The important part of the test is being able to assess is the invention obvious. This obviousness should still be assessed on the basis of the reasonable person skilled in the relevant art of AI.

15. Who is liable when AI infringes a patent, particularly when this action could not have been predicted by a human?

This will ultimately be determined on the basis of who is the "owner" of the AI under patent law. If AI is given the status of a legal person separate to any natural person involved, or corporations involved in investment/licencing/use. Then only the AI could be sued, which would ultimately lead to a legal shell being sued but with no means of obtaining satisfaction of a judgement. If on the other hand the owner is a natural person or a legal person such as a corporation exploiting the AI invention then the party exploiting would be the appropriate party to sue. The right of action should follow the party who exploited the invention or the party who can insure against the risk within a business context.

16. Could there be problems proving patent infringement by AI? If yes, can you estimate the size and the impacts of the problem?

The problems with proving patent infringement by AI relate to the documentation of the free thought of the intelligence for both proof of the original patented invention and establishing the essential integers of the infringed claim have been replicated. Further the issues with considerations of the issue of the purposive approach in patent infringement[5] to establish that the competitors AI does and functions etc like the applicants AI will require verification. This is very difficult as the problem I have witnessed in the arena of DNA patenting is that the scientists/patent attorney's in

[5] (Catniic case)

the early days of developments for gene patents managed to "pull the proverbial wool over the eyes of lawyers" to obtain patent registrations for techniques that twenty years later were identified as being common knowledge by scientists at the time of claiming the invention. The scientists said: "we claimed it because we could and no-one knew anything to stop us," "we just did it a because that was what you did to get funding" or "it was just standard practice".

The proof of infringement for patent litigation becomes a battle of the experts and also a battle of who can afford to run the litigation, or who can afford to pay for the litigation insurance against the possibility of infringement actions over the term of the invention.

These issues are not new, as the cost of patent litigation and the technical difficulties of identifying and verifying breach, has been identified by many throughout history as being the major problem for owners and for governments.[6] The costs of patent litigation have been the reasons for many actions settling, but and even successful litigants have subsequently gone into liquidation due to the costs.

Paul T Sugden

Department of Business Law and Taxation
Monash Business School
Monash University
W913 Menzies Building, Clayton Campus
Wellington Road,
CLAYTON, Vic 3168.
Australia

Horace Ode II-XVI –

Joyful let the soul be in the present,
let it distain to trouble about what is beyond
and temper bitterness with a laugh.

[6] See for example discussions of issues experienced by William Perkins in Simon Garfield, *Mauve –How one man invented a colour that changed the world,* Faber and Faber, London, 2000