INTERNATIONAL JOURNAL OF LAW MANAGEMENT & HUMANITIES

[ISSN 2581-5369]

Volume 4 | Issue 5

2021

Can Current Patent Laws Keep Up with the Trajectory of AI Technology?

RUTUJA RAGHUSHE[1] AND APARNA YADAV[2]

ABSTRACT

The purpose of this article is to analyze the current patent laws in various nations and can these laws keep up with the increasing AI technology and our dependence on them. From past twenty years, AI has grown astronomically and has made a massive impact on our lives. It has made our lives a lap of luxury. But with rising AI inventions one major obstacle that is put forth is can current patent law keep pace with soaring AI technology and its inventions. We will also further discuss patent laws from various nations and their approach towards patenting AI and the reasons due to which the patent applications get rejected. With ever-increasing AI inventions, it is crystal clear that it is inevitable for AI to reach heights in terms of development with each passing day, therefore we need apt and systematic legislation for upcoming AI inventions. Hence, lastly, we will also discuss the solutions that can be put into effect to develop adequate guidelines for the legal safeguarding of AI inventions. Thus, this article discusses the issue with current patent laws and puts across few solutions that could help improve the legislation and ultimately help the AI world in growing and flourishing.

I. INTRODUCTION

In the past two decades, the information technology sector has seen tremendous advancement. When the internet was being brought to the mainstream, the crux of the debate was how technology could never be a substitute for the physical work done by humans. Space travel, robots, machines playing doctors or doing mundane human tasks, that were, once, only reserved for science fiction movies and novels, are now becoming our reality. Humans have become progressively reliant on technology. It has made everything possible, from something as symbolic as exploring the universe to something as trivial as getting information about anything in the world just at a voice command and the major contribution in taking technology to every stratum of society is Artificial Intelligence (thereafter referred as AI). It is a broad field of computer science concerned with creating intelligent machines that can perform tasks

[1] Author is a student at ILS Law College, Pune, India.
[2] Author is a student at Shankarrao Chavan Law College, Pune, India.

 [ISSN 2581-5369]

that would normally require human intelligence. A prime example of AI is Sophia which is a social humanoid robot who can see by cameras embedded in her eyes and computer algorithms. She can keep track of people's faces, maintain eye contact, and recognize them. Using a natural language subsystem, she can process speech and have conversations. She has been given the citizenship of Saudi Arabia, becoming the first robot to receive citizenship. This shows how AI systems are evolving at a breakneck pace today, with increasingly sophisticated software being incorporated.

AI-enabled systems have progressed from simple calculation to the creation of poetry, art, and other forms of more complex creative work. This highlights the question of whether such work, like any other form of work fabricated by an unidentified human source that is protected under Patent laws, can be accorded any special status under Patent laws.

Hence, this essay focuses on the question of can current patent laws keep up with the rapid innovation in the field of AI.

II. WHAT IS ARTIFICIAL INTELLIGENCE?

Computers have evolved to the point that they can make choices of their own when combined with human intelligence. According to John McCarthy, father of AI, Artificial Intelligence is "*the science and engineering of making intelligent machines, especially intelligent computer programs. It is related to the similar task of using computers to understand human intelligence, but AI does not have to confine itself to methods that are biologically observable*."[3] Artificial intelligence (AI) is a fascinating area of technology that allows machines or computer systems to perform activities that involve human thought and intellect, such as visual processing, voice comprehension, decision-making, and language understanding. Apart from these, AI machines still have listening, logic, and self-correction capabilities. Before we delve into the particulars of AI, we shall be looking at how AI was invented, how it evolved around the time and became an integral and inseparable part of our life. Since the inception of AI began when the term "Artificial Intelligence" was first concocted at a Dartmouth Conference in 1956 and AI was established as an academic discipline. Alan Turning, a British Mathematician (1950) was one of the founders of modern computer science and AI.[4] AI is tremendously affecting everything around us and humans are becoming highly reliable on AI and it's technological innovations, such as computer programs, robots, IT sector and the ever-complex medical sector. Indeed AI has become an integral part of our life and our reliance on them has only increased over the

[3]WIPO Technology Trends 2019: Artificial Intelligence. World Intellectual Property Organization. P. 13–14. Retrieved from https://www.wipo.int/edocs/pubdocs/en/wipo_pub_1055.pdf.
[4] https://www.cs.mcgill.ca/~dprecup/courses/AI/Materials/turing1950.pdf

time, a brilliant example of it could be Covid-19 pandemic. Eversince the occurrence of Covid-19 pandemic, AI technology has been on the forefront to help combat the outspread virus. In order to protect such innovations, every country has their own patent laws which will give protection to such innovations. In present times, the reciprocity between patent laws and AI is rapidly increasing. While this is a significant technical advancement, it raises new and complex legal issues, specifically in the context of patent law.

III. PATENTING APPROACH FOR AI ACROSS VARIOUS NATIONS

1. **European Approach**-Though Europe may not be the pioneer in terms of AI-related patent applications, the number of applications has risen considerably in recent years. Exclusions for patentability in Europe are specified in Article 52(2) of the European Patent Convention, which include mathematical methods, computer programmes, and business methods. The European Patent Organisation (EPO) has published guidelines for patenting artificial intelligence technologies in Europe. The EPO, like the US, examines AI inventions under the same premises as computer-implemented inventions. The EPO's two-step process allows innovations to meet the following criteria:

   possess a technological character; and make a technical contribution or have a technical impact.[5]

2. **US's Approach**- Many of the obstacles experienced by patent applications trying to secure AI-related inventions in the United States are similar to those outlined in other jurisdictions. Under US Patent law, there are two broad types of AI inventions:

   Firstly, the latest and improved AI techniques and secondly, the applications of the AI. The AI technique must be novel, non-obvious and should not be an aftermath of an abstract idea. An AI technique or software is apropos of getting a patent when it automates a job that was traditionally done by humans using a modern and different procedure.[6]

3. **Indian approach**- India is emerging as a new hotspot for patent filings in the field of Artificial Intelligence. In India, the Patents Act of 1970 is the law that governs patents. It directs and assists the Indian Patent Office and courts in determining whether a device

[5]Yann Ménière, *AI Inventions and the Fourth Industrial Revolution*, EPO Patenting Artificial Intelligence Conference, May 30, 2018, https://www.epo.org/learning-events/events/conferences/2018/ai2018.html.
[6] Muskan Saxena, *"Patenting AI and its Legal Implications",* DPIIT, MCI Chair on Intellectual Property Rights & Centre for Intellectual Property Rights Research and Advocacy National Law School of India University, Bangalore, "https://iprlawindia.org/wp-content/uploads/2021/04/Muskan-Saxena.pdf.

 [ISSN 2581-5369]

or procedure is patentable or not. There are three levels of parameters for patentability of inventions:

i) absolute novelty, ii) inventive step and iii)industrial application are all put to test.

The patentability of software innovations in India must be decided in light of Section 3(k) of the Patents Act, 1970, as well as the Office of the Controller General of Patents, Designs, and Trademarks' Guidelines for Review of Computer Related Inventions (CRIs). Section 3(k) proscribes a computer program from being patented. But, softwares are patentable if they meet the following criteria:

i) There is technical amelioration in the invention over the extant prior arts

ii) The invention yields a technical result to a technical issue by having a practical implementation or an enhanced technical effect of the underlying software.[7]

IV. IMPLICATIONS POSED DUE TO PATENT LAW AND AI

As reported by WIPO, for AI-related inventions, there are over 340,000 patent families.[8] With proliferation in AI patent applications over the recent years, many applications have been turned down. The most disapprovals occur due to subject-matter eligibility, inventorship, followed by novelty and nonobviousness about which we will discussing below:

1. **Subject matter eligibility**- Subject matter eligibility is one of the essential obligations for securing a patent. In order to gain patent rights, an invention must contain patent-eligible subject matter. Further, patentable subject matter usually excludes abstract theories, management processes, statistical equations, and computer programmes.[9] Each nation has its own sets of requirements for subject eligibility matter for granting a patent. The US Supreme Court case of 'Mayo Collaborative Servs v. Prometheus Lab,' the court explained that "they are the basic tools of scientific and technological work," and that granting monopolies on those tools through patent rights might impede innovation.[10] Patents should not be awarded to claims that are merely a replica of human behaviour and do not require any imaginative measure, according to others. It must be determined whether or not the current legal system encourages the release of

[7] Indian Patent Act, 1970.
[8] Patents, World Intellectual Property Organization, available at http:// www.wipo.int/patents/en/, last seen on 25/9/2018.
[9] Tamara-el-Shibibi, *"Patenting Artificial Intelligence 'AI'",* CWB Legal(7th June. 2020), Available on https://www.cwblegal.com/patenting-artificial-intelligence-ai/.
[10] Mayo Collaborative Servs v. Prometheus Lab, 566 U.S. 66 (2012).

new data and fosters innovation. Owners of AI patents are likely to gain a competitive edge. AI might make many people's jobs obsolete, with more disruptive economic repercussions than previous technical developments. New technical advances have enhanced inequalities and to reduce the contribution of the labour force.

2. **Inventorship issues for AI inventions**- The present patent system provides the inventor with a finite monopoly over the invention of the inventor. As the transition is being made from weak AI to strong AI, and possibly towards superintelligence, a very pressing issue is raised that can AI technology be named as an 'inventor' since it is the technology (ie, not a human) that additionally invents more innovations and who will be the owner of patent rights of the AI creation? The current law stipulates that the inception of an idea must be conceived in the mind. There should be a person listed as an inventor if all the innovative ideas take place in the mind of an AI. To consider AI inventions as patentable and to acknowledge AI as an inventor, it is a necessity to treat AI as a legal individual. As a legal individual, AI will be entitled to the rights and responsibilities that come with that title. The next choice we have is to not list anyone as an inventor. However, this would change the patent law system to allow patents to be awarded to AI without naming the inventor. In the situation outlined above, appropriate steps must be taken to offer benefits to those engaged in the development and maintenance of AI. So that they will continue to grow AI and come up with new ideas.[11]

3. **Liability Issues**

Another major indeterminacy in patent law is liability in cases where AI violates patent laws by infringement. With the evolving landscape of technology, it is quite attainable for most AIs to infringe other patent claims. The issue of liability raises pertinent questions of who should be held liable for AI's actions - the AI itself, the AI's developer, or its consumer- and how AI's liability will be assessed.

The European Parliament Resolution, proponents holding a human accountable for infringement rather than an AI.[12] This opens up two possibilities as to which human can be held liable; one possibility would be holding AI customers accountable, which can create apprehensions among software users and would also be unfair on various

[11]*Patenting AI and its Legal Implications supra* note 4.
[12]Civil Law Rules on Robotics, European Parliament Resolution of 16th February, 2017, (2015/2103(INL)), Eur. Parl. Doc. P8 TA 0051, Available on https://flia.org/notice-state-council-issuing-new-generation-artificial-intelligence-development-plan/.

occasions, given that end users are oblivious to patent infringement especially if they are individuals instead of a cosmopolitan corporation.

This directs us to the other option which would be holding the manufacturer of AI liable, which is an ordinary practice in patent litigation. This may be the most viable option as the developers are the ultimate creator of the AI and are usually better equipped to detect infringement and have likely acquired monetary value from the Al. But even so, with a self governing AI, is it conceivable for a human to anticipate infringement? The more pertinent question here is would holding people accountable for uncertain acts discourage AI's development and use because of developer's concern of being held responsible for unanticipated patent infringement and consequently impending innovation. Therefore, the traditional way of charging the developer for infringement also has its own set of drawbacks.

The last option would be to hold the AI responsible, which would require acknowledging AI as a legal person or entity which is not the case in many countries around the globe.

Once determining who is responsible for patent infringement caused by AI, contemplation of how liability should be assessed is vital. According to the European Parliament Resolution, future legislative instruments should not seek to limit damages solely because an infringement was caused by a non-human agent.[13]If a human agent is held liable for infringement, the penalty should be proportional to the amount of power delegated to AI.

4. Non-obviousness Standard

Out of every patentability requirement, the nonobviousness is the prime barrier for patent applications. It demands to maintain a "penumbra" around the technology sector to verify that patents rights are not granted to inconsequential or obvious extensions of what is already acknowledged.[14] But the standard has faced many obstacles and convolutions because of the difficulties in detecting what accounts for "obvious" and who the hypothetical "*person of ordinary skill in the art"* (POSITA) should be.[15] Now the pertinent question that arises is, what is 'obvious' in the times of AI as for a superintelligent technology which is capable of constant self- improvement, will it not

[13] European Parliament Resolution, *supra* note 10.
[14] Robert P. Merges, *"Uncertainty and the Standard of Patentability"*, Berkeley Tech. L.J. 7, 1, 14 (1992).
[15] Gregory Mandel, *"The Non-Obvious Problem: How the Indeterminate Nonobviousness Standard Produces Excessive Patent Grants"*, U.C. Davis L. Rev. 42(57), 59 (2008).

add another level of uncertainness by creating standards for nonobviousness and "ordinary skill in the art" for AI?

5. Novelty

According to the concept of novelty in intellectual property law, only what is new while filing the patent application is eligible to claim a patent. Novelty is of core value in determining the patent eligible subject-matter.[16] In context to inventions by AI enabled systems, the biggest challenge in obtaining a patent is satisfying the novelty standards.

To indicate novelty, inventions should not be revealed prior to the time a patent application is filed. It would be contemplated as new if it does not form a part of state of the art. The "state of the art" refers that before the patent was filed, the invention had not been made public by written or oral description, use, or any other means. Hence, in patenting AI system novelty becomes a challenge as AI systems will surely have an approach towards prior art, due to its overseeing human scientists depositing information. Thus, it raises the question of AI being truly independent and on the ability to invent something that can account for being novel. In terms of an innovative step, if novelty is difficult ascertained by an AI system, chances of making rearrangement on existing models or concepts that are not clear to a person skilled in the art are likely to be even more difficult.

V. POSSIBLE SOLUTIONS TO THE ABOVE CHALLENGES

It is crystal clear that it is inevitable for AI to reach heights in terms of development with each passing day. With organisations like Apple, IBM, GE etc., moving forward with their attempts toward transforming technologies related to dispensing software solutions, revolutionary technologies based on AI are bound to grow numbers of such 'inventions'. With increasing numbers, it creates the opportunity for lawmakers to develop adequate guidelines for legal safeguarding. Hence, the authors suggest following possible solutions to help enhance the legislations :

(A) Uniform acknowledgement of AIs

Despite the fact that AIs are a reality all over the world, they are only recognized in a few countries, such as the United States[17], England, and New Zealand.[18] A positive action towards

[16] Elizabeth Verkey, Law of Patents 27, (Eastern Book Company, 2012).
[17] .Annemarie Bridy, *"Coding Creativity: Copyright and the Artificially Intelligent Author"*, STAN. TECH. L. RE. 5(26, 2012), Available on https://web.law.columbia.edu/sites/default/files/microsites/kernochan/09.materials-Bridy.pdf..
[18] Copyright, Designs and Patents Act, § 178, 1988 (UK); Copyright Act, § 2, 1994 (New Zealand).

the acknowledgement of AI in uniformity could be that all multilateral trading forum members begin to perceive the same, for an example, in the form of an initiative step of an amendment to TRIPS.

(B) To legislate an Artificial Intelligence Data Protection Act

In today's time, AI executes human-like functions in every facet of our lives. It would not be surprising if tomorrow it surpasses humans and performs functions more efficiently and takes decisions by themselves. Therefore, a legislation governing AIs should be drafted to keep track of the situation, namely the Artificial Intelligence Data Protection Act.[19] It could consist of legal remedies for offenses committed by an AI to humans and could also direct a regulatory structure to control and artribate the acts of AIs.

(C) Fixing the Loopholes in Criminal Liability of AIs' actions.

Presently, any act performed by an AI is copyrighted by its creator. Correspondingly if any criminal liability is to be detected, the same would be credited to the creator too, who might be oblivious of the action of the AI. Such loopholes should be corrected, so as to prohibit the technology behind its creation from being utilized, or may be to provide a particular penalty for the AI and that penalty could be served in the form of destruction of that AI. . These measures could be a major step towards protecting innocent creators from being punished.

(D) Clearing the vagueness around the Application of Patent Laws.

While there is a clear distinction between the inventor and the invention, with the emergence of AI systems, legislators must consider whether AI-enabled systems should be included in this category. As these technologies become more widely used, and the solutions they generate become more widespread, protection becomes an important consideration.Questions of inciting human scientists to create more AI systems beside the danger of granting complete independence to these highly intellectual systems is an sphere wherein the proper legislations are the urgent need.

VI. CONCLUSION

The new IP laws are in desperate need of updating in order to keep up with the rapid

[19]Bradford K. Newman, *"Artificial Intelligence Poses a Greater Risk to IP than Humans Do"*, TechCrunch (31st December, 2015), Available on https://techcrunch.com/2015/12/31/artificial-intelligence-poses-a-greater-risk-to-ip-than-humans-do/?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2xlLmNvbS8&guce_referrer_sig=AQAAAMAwORhGRIHC4XxDymqwzagnLAas6gXFub7214EaNJ3sQWDg91RFvs0FuM9eFHUC9Ef1H2AzL0iWVXzxS03dFRuDw_YHJfBgWCHXA94ihQgpgw0Mcas5vEtL7WMpS7TTF6PVq3YiI09ABD9DQp-LojbK5juRsewJ7UEiDTTA0KnY.

advancement of artificial intelligence. If they are not improved, artificial intelligence will continue to improve to the point that existing rules will no longer be able to meet human needs. It is critical that the patent system be properly prepared to cope with potential technical advances such as AI in order to maintain a balance between society's interests and an individual's motivation for invention.This necessitates a dynamic approach to law that allows for reforms that are required to further society's interests. The patent system, as well as the justice system, must be evaluated with enough expertise and tools to deal with AI-generated inventions and how they can be handled under the patent system.

*****

 [ISSN 2581-5369]