Man and Machine: A discussion on Artificial Intelligence from a legal perspective

Dr. G. Subhalakshmi

subha_301@yahoo.co.in

Pondicherry University, Pondicherry

ABSTRACT

In the current technology-driven era, one can find human-like creatures called Artificial Intelligence actively helping out human by their orders and programs. Their support has proven to be indispensable in every field be it waiter at a hotel, performing a surgery, painting, and whatnot. It is a dire need to acknowledge their support but at the same time be prepared to face the challenges arising out. Artificial Intelligence can be said as innovation at its best with the support and aid of technology, developments, and computer power. Though the advancements in science and technology have contributed to a great extent easing out the complexities, the advent of the same has increased the ways to use artificial intelligence. Intellectual Property relates to intangible assets, more specifically to patents, trademarks, copyright, and industrial design. The fundamental goal of the Intellectual Property system is to encourage new technologies and creative works and to create a sustainable economic basis for invention and creation. There creeps the ambiguity as to the IPR rights of Artificial Intelligence. Like humans, artificial intelligence machines are able to create original works. Unlike humans, the original works created by machines are not protected under Intellectual property laws. This issue needs attention at the earliest both from the international as well as domestic levels, as the extent of artificial intelligence is growing at the fastest pace. This discussion tries to bring out the issues and challenges with regard to artificial intelligence, IPR legislation, and the related legal provisions.

Keywords— *Artificial Intelligence, Intellectual Property Rights, Laws, Future*

1. INTRODUCTION

In the current technology driven era, one can find human like creatures actively helping out human by their orders and programmes called Artificial Intelligence. Their support has proven to be indispensable in every field be it waiter at a hotel, performing a surgery, painting, and so on. These examples clearly state the entry of artificial intelligence in our everyday lives. Though it has a good number of positive effects and advantages, it cannot learn from its previous experiences leading to the very disruptive nature. Though it is time to acknowledge the support of Artificial Intelligence to mankind, it is equally important to be prepared to face the challenges arising out. Intellectual property rights shall be the core area to address the legal issues relating to Artificial Intelligence. Intellectual Property relates to intangible assets, more specifically to patents, trademarks, copyright and industrial design. The fundamental goals of the IP system have always been to encourage new technologies and creative works, and to create a sustainable economic basis for invention and creation. This article shall focus on patents and its relevance to Artificial Intelligence. Our legal system is not defined to confront problems arising with the rapid development of AI. The challenge is that our legal system doesn't have answers to the otherwise straightforward questions like, "Who is the author of a painting made by machine using Artificial Intelligence?" Developing high end AI systems requires substantial amount of investment. Therefore, there is a dire need of development of such IP related laws which can protect the developments of AI technology and compensate the innovators through the copyright or patent grant. There is a vital need to look into the emerging field of law in connection with the machines. The whole Intellectual property laws need to evolve and cope up with the emerging world.

1.1 Scope and objective

The study of the Artificial Intelligence and Intellectual Properties can be a learning paradigm for just anyone who is interested in technology and its future. More fully, the students of law and Intellectual property rights experts shall be benefitted through this discussion. The paper also aims to help out students in improving their academic competences in the relevant area. As the paper concentrates on the intangible rights which can arise out of machines, it also brings to light the threats anticipated which might affect the society. The work aims to help the society in general, to understand the capacity of Artificial Intelligence. For a layman,

this can be a source of useful information regarding machines and law. If there is an infringement by the artificial machines who would be liable? This is where there is a need for clarity in fixing the responsibility. In the advancing era, the role of machines creating original works should be properly addressed both in international and national set ups. As there exist lack of knowledge on conferring rights and imposing liabilities on the AI machines, this area needs a special attention to remove the ambiguity and facilitate the creators, technology and the beneficiaries. In view of these issues, some of the objectives of this discussion are as follows:

- To study and understand the concept of Artificial Intelligence.
- To analyze the impact of AI enabled technologies on innovation and creativity.
- To bring out the much needed and relevant legal provisions in this regard
- To discuss the intellectual property related issues of AI Machines.

1.2 Research methodology
The methodology adopted in this study is doctrinal and analytical on the basis of facts and data already available. This work mainly depends on the secondary sources like books, articles and journals. It is basically a theoretical work which is built up from the information gathered from books, journals, and decisions of courts of law. Important decisions of High Courts and Supreme Court have been incorporated wherever necessary, in order to throw light on this area. Internet has been a key source in collecting the views and opinions of eminent writers. Dailies and magazines are also used as valuable information for the study to understand the latest trend.

2. LITERATURE REVIEW
B.L. Wadhera in his book '*Law Relating to Intellectual Property'* has discussed elaborately the different provisions of intellectual property laws on original works and inventions by the original creator and inventors.

Kevin D. Ashley, University of Pittsburgh elaborated on the legal implications of artificial intelligence in his book "*Artificial Intelligence and Legal Analytics: New Tools for Law Practice in the Digital Age*" gives a better idea. Further the book explains about computational processes, non-programmers and describes how it affects the practice of law.

Research Handbook on the Law of Artificial Intelligence, authored by **Woodrow Barfield** (Author, Editor), UgoPagallo (Author, Editor). This research handbook helps in knowing the legal status and implications of Artificial intelligence.

Margaret A.Boden in her book *"Creativity and artificial intelligence"* has clearly defined the types of creativity and the fundamental character of Artificial intelligence machines. She says Creativity is a fundamental feature of human intelligence, and a challenge for AI. AI will have less difficulty in modeling the generation of new ideas than in automating their evaluation.

Stuart Russell and Peter Norvig, in their book *"Artificial Intelligence: A Modern Approach"* 3rd edition has discussed the concept of Artificial Intelligence. The authors have dealt with working of AI and how it can affect the society. The book goes around the communicating, perceiving and acting function of the Artificial Intelligence.

"Generating rembrandt: artificial intelligence, copyright, and accountability in the 3a era—the human-like authors are already here, a new model", an article by **Shlomit Yanisky-Ravid** gives a perfect picture on the copyright ability of AI created original work, questioning the copyright ability of artworks generated by AI systems: ownership and accountability. The Article debates who should enjoy the benefits of copyright protection and who should be responsible for the infringement of rights and damages caused by AI systems that independently produce creative works. Most importantly, this Article proposes the adoption of a new model of accountability for works generated by AI systems: the AI Work Made for Hire (WMFH) model, which views the AI system as a creative employee or independent contractor of the user. Under this proposed model, ownership, control, and responsibility would be imposed on the humans or legal entities that use AI systems and enjoy its benefits.

The Hindu published an article on *'Artificial Intelligence, the law and the future'* June 11, 2019 by GS Bajpai and Mohsina Irshad who had discussed about the issues and challenges of artificial intelligence, the threat anticipated in the future and also the need for a legal attention towards the same.

The New York Times published an article *"A.I. Joins the Campaign against Sex Trafficking"* on April 9, 2019. The writer was Tina Rosenberg. The article was about Police in New York and other cities are turning to a bot to imitate women selling sex to men looking to buy it. It's a new tool in the drive to break up trafficking rings. This article shows how an Artificial Intelligence can help the society and help the law.

3. UNDERSTANDING ARTIFICIAL INTELLIGENCE
Artificial Intelligence (AI) systems are creative, unpredictable, independent, autonomous, rational, evolving, capable of data collection, communicative, efficient, accurate, and have free choice among alternatives. Similar to humans, AI systems can autonomously create and generate creative works. The use of AI systems in the production of works, either for personal or manufacturing purposes, has become common in the 3A era of *automated, autonomous, or advanced technology*. The technology is fast moving. Already, computer scientists have conceived of a machine capable of learning on its own and creating a work of authorship without a human supplying the creativity. Before knowing the technicalities, it is necessary to know the basics of Artificial Intelligence systems and its application. Artificial Intelligence was first proposed by John McCarthy in 1956 in his first academic conference on the subject. At this juncture, it is also important to mention about Alan Turing who wanted to test if machines are capable of thinking just like humans. And after repeated testing through his pragmatic approaches it was opined that machines can think and learn just like humans. Now, is that good news on human creation or word of threat and caution!?

Artificial Intelligence (AI) can also be described as an instrument which can make solutions more efficient by using all the data available and reachable by the AI systems. But, these AI systems are quite different from simple laser printers, which can only reproduce or copy existing works, in a predictable, structural method. **E-David**, on the other hand, unlike the traditional systems, can produce new drawings in a non-anticipated and creative way. An articulated robot named *E-David* created by the University of Konstanz, Germany. This robotic artist uses a complex visual optimization algorithm to create paintings. It calculates brushstrokes from an input image and paints the image on a canvas. *E-David* does not copy other works, but instead autonomously takes pictures with its camera and draws original paintings from these photographs. Some of these artworks might be entitled to copyright protection had humans created them. Even though e-David functions through software created by its programmers, a camera embedded in its complex system allows it to independently take new pictures and generate new creative input as "its own."

Artificial intelligence have become a part of human's everyday life i.e.- self driving cars , Airplanes, AI Doctors , AI Lawyers , automated Alternative Dispute Resolution, Automated weapons, Espionage . Hence, it is hard to imagine a field where AI has not influenced human life. AI systems have created original art works like literary, poem and music. Indeed, today it is almost impossible to imagine any kind of art developed without using at least some digital means. Eventually, automated systems will replace both creators and producers of numerous types of works, products, and services. There are a variety of applications of Artificial Intelligence and some of the very prominent ones that are already in use are like machine learning (ML), an application of AI that provides computer systems with the ability to automatically learn and improve from experience without being explicitly programmed. And deep learning is a subset of machine learning that employs artificial neural networks that learn by processing data. Artificial neural networks mimic the biological neural networks in the human brain. Multiple layers of artificial neural networks work together to determine a single output from many inputs, for example, identifying the image of a face from a mosaic of tiles. Neural networks are computer systems modeled after neural connections in the human brain. The artificial equivalent of a human neuron is a perceptron. Just like bundles of neurons create neural networks in the brain, stacks of perceptron's create artificial neural networks in computer systems. Another form of deep learning is speech recognition, which enables the voice assistant in phones to understand questions. Natural Language Processing (NLP) refers to AI method of communicating with an intelligent system using a natural language such as English. Natural Language Processing, allows computers to interpret, recognize, and produce human language and speech. The ultimate goal of NLP is to enable seamless interaction with the machines example *Skype Translator*, which interprets the speech of multiple languages in real-time to facilitate communication.

Thus, it is apparent that the approaching world is undoubtedly going to witness the advancements of the self –learning machines and thinking machine just like humans. Consequently, law needs to be changed or re-evaluated in order to determine how it can address these Artificial Intelligence systems, the products they produce, and the challenges they pose for the existing copyright regime. Policymakers have to create new moral boundaries for these systems in order to avoid harm by imposing control of, and accountability for, AI generated works on recognized legal entities. The next part of the discussion in this work shall bring out in detail and enumerate the legal propositions on artificial intelligence and the need for revisit of the same.

4. ARTIFICIAL INTELLIGENCE AND LAW
Artificial Intelligence is the future of mankind and the emergence of Intellectual property laws in relation to these AI works are something that should be embraced by human race. Following the latest developments, the legal challenge in the 3A era is to decide who owns the copyright once an automated, autonomous, and advanced machine, or any form of AI system, generates original and creative works independently of the humans who created the AI system itself. Currently, in order to be protected under copyright law, work must originate from an author's own sufficient skills, labor, and judgment. This law poses a great challenge when trying to determine whether or not AI has used these factors sufficiently to produce such work.

A draft report of the European Parliament to the Commission on Civil Law Rules on Robotics mentions that in the future, AI will leave no stratum of the society untouched and also calls on the Commission to elaborate criteria for an 'own intellectual creation' for copyrightable works produced through AI. Now, there are machines which automatically create works which would qualify for a copyright protection, if it were produced by a human. A copyright is applied generally for literary and artistic works. Since one of the contemporary areas of AI's applicability is creation of literary works, the study of copyright in light of AIs, becomes relevant AI systems are commonly used to generate works for personal or industrial goals. Copyright is an integral part of intellectual property rights. It is a legal right granted to the creator of an original work, allowing him/her exclusive rights for its use and distribution. The rationale and justification behind this was the notion that the author is an originator merged with Locke's economic theory of possessive individualism. Generally, for a grant of a copyright, fulfillment of two essential features is required. Firstly, the work should be in a tangible form, and secondly, it should be original. A copyright is exercised generally for literary and artistic works. Since one of the contemporary areas of AI's applicability is creation of literary works, the study of copyright in light of AIs, becomes relevant. Copyright is a right given by the law to creators of literary, dramatic, musical and artistic works and producers of cinematograph films and sound recordings. In fact, it is a bundle of rights including, inter alia, rights of reproduction, communication to the public, adaptation and translation of the work. There could be slight variations in the composition of the rights depending on the work.

Indian Copyright law requires that in order for a "work" to qualify for copyright protection, it would firstly have to meet the "*modicum of creativity*" standard laid down in **Eastern Book Co. v. D.B. Modak** . From a reading of the test laid down in the aforementioned judgment however, there is no definitive conclusion that may have arrived at wherein it may be stated that an AI cannot meet the "modicum of creativity" as required. In addition to the above, the second requirement to be satisfied by an AI when it comes to the ownership of copyrighted works is the requirement to fall under the aegis of an "author" as is defined under the Copyright Act, 1957. This would be problematic as an AI has generally been regarded to not have a legal personality. Under

Section 2(d) of the Indian Copyright Act, 1957: 2(d) "author" means,— (vi) in relation to any literary, dramatic, musical or artistic work which is computer-generated, the person who causes the work to be created;". The first issue under the above mentioned definition is its usage of the terms "the person who causes the work to be created". Determining who "causes" a work to be created is a question of the proximity of a natural or legal person to the creation of the "expression" in the content in question — the more closely or directly a person is involved in creating the "expression", the more he or she contributes to it, and the more likely he or she is to qualify as a person "who causes the work to be created". As a result of the above, the current legal framework under the Copyright Act, 1957 may not effectively deal with/prescribe for creation of works where the actual creator or a contributor of the "expression" is not a human or a legal person. Thus, when it comes to works that are created by AI, their authorship would be contentious under Indian copyright laws. The ambiguity regarding the stance on AI is not recent and dates back to 1974, wherein the National Commission on New Technological Uses of Copyrighted Works (CONTU) in one of its report stated that, the development of an AI with the capacity of creating an independent work is theoretical and not practical. The Office of Technology Assessment (OTA) again revisited the issue in 1986 when it evaluated the implications of rapid advancements in interactive computing on IP. OTA disagreed with CONTU and suggested AIs be considered as legitimate co-authors of copyrighted works. Thirty years from then, the debate surrounding AIs is at its prime, wherein one side argues the inability of computers to be as creative as humans, whereas the other disagrees on the pretext of defining creativity.

There have been several high degree computational creative innovations until now and this has sparked debates all over the world for the re-examination of copyright standards for AIs. Recently, a San Francisco court denied a copyright to a macaque monkey who clicked selfies which went viral. With copyrights for animals out of the picture now, a similar situation has arisen for AIs. Recently, many copyright offices across the world have already mentioned that they won't register machine produced works. The blending of Artificial Intelligence and the patent laws are increasing day by day in today's advancing world. The advancement of AI from calculators and mini gadgets to self-learning performing and self-evolving machine has the capability of inventing something. While this is a huge development from a technological standpoint, it poses new challenging questions from a legal standpoint, i.e., from the perspective of patent law. In addition, for a patent to be granted, an invention must include novelty, inventive steps, and applicability. A patent is the exclusive right over an invention. The patent holder has the monopolistic right to make, sell, use the patented product and exclude others from that invention. This 'invention' can cover any product or process, which provides to users a novel way of performing a certain action, including that which offers a new solution to an existing technical problem. Therefore, it can be said that the right guaranteed in such an instance legitimizes the creation of a monopoly for the benefit of the original inventor. *Section 6 of the Patents Act, 1970* states that an application for a patent for any invention can be made only by the true and first inventor of the invention or the persons provided upon request only assigned by such person. Whereas, Section 2(y) of the Act confines the definition of "true and first inventor" to the extent of excluding the first importer of an invention into India, or a person to whom an invention is first communicated outside India, and nothing further. These provisions do not expressly impose the requirement of an inventor to be a natural person.

There is a crucial factor while granting a patent for an invention. There are certain patentability criteria to possess such as novelty, an inventive step, and be capable of industrial application. For granting patent right to AI machines firstly it has to fulfill all the three step tests. For Novelty, it is necessary that the invention should be new and different from the existing prior art. An AI system will certainly have access to prior art, due to its overseeing human scientists feeding in information, is it truly independent, let alone capable to make a judgment on whether or not its invention can account for something novel? As to the question of an inventive step, if novelty itself is difficult to determine by the AI system, chances of making innovations on existing models or concepts which is not obvious to a person skilled in the art, is certainly more difficult to achieve. Further, under Patent Law, if novel inventions are made by AI machines, issues may arise regarding the ownership of such inventions. Without any human intervention, who will own the patents on novel inventions filed by AI machines? And if an AI plagiarizes a creation or reproduces an invention, how will damages be determined?

5. CHALLENGES OF ARTIFICIAL INTELLIGENCE

Traditionally, intellectual property laws, and in particular copyright laws, have been based on human creators, who creatively, originally, and independently create works. But with the advent of AI systems, there is now the possibility that no human is behind the creative process. Instead, AI systems, as automated, autonomous, and advanced machines, create and produce works independently, unexpectedly, and creatively, with self-determination and an independent choice of what to create and how to create it. Even the wrong outcome, such as infringements of the rights of others or counterfeits, may be achieved independently, with no human to blame. This raises the pressing issue of whether the human or the AI system should be entitled to ownership rights. Traditional laws of copyright are inadequate to deal with the new technology which creates original art works. Even if countries admitted to granting copyrights to the works of an AI, the question of who gets that copyright remains cryptic and difficult to fathom. This is because the current status of law requires a legal personhood of a right holder, something which an AI lacks, unless its creator is granted that on its behalf. Subsequently, it is unclear who is entitled to the licensing rights to the product, who is entitled to the royalties, and who bears responsibility for copyright infringement and protecting rights from infringements by others (humans or otherwise). Another challenge entails figuring out who is entitled to the moral right, if anyone should be at all.

Because Artificial Intelligence is able to create works that would otherwise be recognized as IP created by a human, people have started to ask whether Artificial Intelligence deserves a special status in IP. In accordance with that, would the software developer(s) of an AI be entitled to the work created by that AI? While the argument on the recognition of AI creations is not yet settled, the topic has continually raised other consequential issues.

The main risk faced today and in the near future is that of losing control over the operation of AI systems. Moreover, the risk losing control not only of one AI system, but also two or more AI systems acting in concert "behind our backs." The first problem

entails the distribution of rights and responsibilities among human beings when non-human agents create benefits, like artistic works, or cause harms, like physical injuries. The difficulty arises from the fact that the behaviour of robotic and AI systems is "emergent," meaning their actions may be unpredictable or unconstrained by human expectations. Robotics and AI thus feature emergent behaviours that escape human planning and expectations. Balkin further cautions that we should not consider all features of a technology to be essential without first considering how the technology is used in society. It would thus be unhelpful to codify certain features as "essential" because they may in reality be transient features arising from current uses and social trends. The main difficulty and confusion is whether AI can be treated as a separate individual or corporate entity; as behind every AI is a human brain.

6. CONCLUSION

There is no denying that AI is bound to develop increasingly by every single day. The world has companies like GE, IBM, Apple, Google, Microsoft etc., advancing their attempts toward revolutionizing technologies related to providing software solutions, sophisticated technologies based on AI are bound to increase the number of such 'inventions' which may come about. As discussed above, the intellectual property laws have not discussed or laid down any set of rules or regulations as to the ownership of the content created by Artificial Intelligence. As AIs only mimic and lack the somatic existence, they do not fall under entity. The essence of legal personhood lies in whether such entity has the right to own property and the capacity to sue and be sued. Unfortunately, courts in India have not yet adjudicated on the matter relating to works generated by A.I machines. Although legal personhood has not been granted exclusively to humans only, Indian law has granted the status of legal personality to Non-human entities also such as companies' corporate houses and other legal persons. Up until now copyright has been granted only to natural or legal persons only, and any machine or tool used for creating any original work is only considered as a mere tool and thus have not been granted any copyright in the programs name. Imagine that a 'human lawyer' can handle all the cases in the world after AI's preliminary research. For a human lawyer, it takes weeks to do research, but AI can do it in just a few seconds. Moreover, AI does not get tired, sleep, eat or drink coffee. In fact, the AI can produce more successful results than an average experienced lawyer. What would you say to that? Will all the AI, machine learning from all these data eradicate the need for lawyers?

In India, the NITI Aayog released a policy paper, 'National Strategy for Artificial Intelligence' in June 2018, which considered the importance of AI in different fields. The Budget 2019 also proposes to launch a national programme on AI. With all these developments in the technological area, there is no comprehensive legislative effort in par with these. There exists immense scope for legislators to develop guidelines in determining of such situations, providing it the most adequate form of legal safeguarding. However, it shall be apt to share the view of *Stephen Hawking* when he states that the autonomy of AI can diminish the worth of human thinking and invention. A more favorable solution would be to grant a more collaborative form of patent protection for the inventions made by an AI. When human elements are negligent and faulty in discharging these duties, why not seek the support of AI for the betterment of human! However a human element is essential in managing the rights and obligations and accountability of the AIs as it cannot be done solely with a machine. But as Futurist Gray Scott says, 'When will we draft an artificial intelligence Bill of rights?'

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