

“Artificial Intelligence and Law”

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ABSTRACT

Artificial intelligence is not a newly developed concept. It has been mentioned in Science Fictions initially, however slowly it is moving on to become a reality. In the year 1997, the Deep Blue which was IBM’s supercomputer beat the then World Chess Champion, Garry Kasparov.

With the growing age of technology, there is a need for precision and cost effective work and artificial intelligence attempts to solve that. However, there are various issues regarding artificial intelligence especially in terms of legal personality, patents and copyrights. This paper examines artificial intelligence in the legal sector and medical sector and how it is a boon and bane in the society.

Key terms: Artificial intelligence, Intellectual Property Rights, Medicine

RESEARCH METHODOLOGY:

There are mainly two methods of collecting data namely, primary method of collection of data and secondary method of collection of data. The author for this paper has utilized secondary source for data collection, which includes obtaining data from articles, books and internet resources.

INTRODUCTION

With the changing trend in the world of technology and robotics, Artificial Intelligence is assuming an important role. In simple terms, Artificial Intelligence refers to the intelligent behavior which is imitated by a machine. The term “artificial intelligence” within its ambit includes information systems which is inspired by biological systems, which encompasses multiple technologies, which is inclusive of machine learning, deep learning, computer vision, natural language processing etc.

HISTORY AND ADVENT OF ARTIFICIAL INTELLIGENCE

The ‘Enigma’ Code was decrypted by Alan Turing, during the Second World War. Alan Turing was a British scientist and the ‘Enigma’ Code was utilized by German Forces to send messages

securely. The Bombe Machine which was used to decipher Enigma's messages was created by Alan Turing and his team. The foundations of machine learning was laid down by the Enigma and Bombe Machines. According to Turing a machine could be termed as 'intelligent' when the machine had the ability to converse with human beings without the humans realizing that it is a machine.

The Dartmouth Conference, which was organized in 1956, by the American Computer Scientist John McCarthy, adopted the term 'artificial intelligence' for the first time. The usage of this term led to research centres being created all over the United States. Artificial intelligence was mainly promoted by researchers such as Herbert Simon and Allen Newell.

The Ferrenti Mark 1 in 1951, successfully used an algorithm to master the game of checkers. Subsequently, the General Problem Solver algorithm was developed by Newell and Simon to solve problems related to mathematics.

The development of algorithms to solve problems related to mathematics and geometry was further developed in the 1960s. Machine Vision learning and developing machine learning in robots was developed in the late 1960s. The first intelligent humanoid robot was built in the year 1972 in Japan. It was named the WABOT – 1.

TECHNOLOGIES OF ARTIFICIAL INTELLIGENCE

Certain technologies have developed over the years. They are as follows:

Machine Learning – which refers to utilizing computer algorithms which is based on mathematical models. This algorithm utilizes probability to make assumptions and it can make predictions about similar sets of data.

Cognitive computing – the goal of cognitive computing is to simulate the human thought processes and predictive decisions. It is built upon machine learning using large data sets.

Deep Learning - Deep learning is also built upon machine learning. However, it utilizes neural nets to make predictive analysis. Deep learning is useful in improving speech and image recognition.

Predictive application programming interfaces (APIs) – this technology utilizes artificial intelligence to provide a predictive output from a standardized set of outputs.

Natural Language Processing – this technology involves programming computers to understand the spoken and written language which is similar to the language of humans. It utilizes reasoning

and context to produce speech and writing. This technology is utilized by many companies for training on unstructured data.

Image recognition – image recognition involves recognizing pictures and objects as humans. It may also include patterns in visually represented data which may not be apparent.

ARTIFICIAL INTELLIGENCE IN INDIA

The NITI Aayog developed the national strategy for artificial intelligence in India in the month of June 2018. The overview of government’s plan and roadmap to develop the sector in India was provided in this report. Artificial intelligence will contribute into the development of India not only economically but will also aid in social development.

THE CURRENT SCENARIO OF ARTIFICIAL INTELLIGENCE IN INDIA

A report by Economic Times stated that in the year 2018, India has witnessed 108% growth in Startups. Out of these, it was observed that the Artificial Intelligence was one of the fastest growing domains. Almost up to 400 startups are involved in working on Artificial Intelligence and machine learning domains. The investment in India by the private sector players is almost 150 Million Dollars and the number has been constantly increasing since the year 2016. However, in terms of investment India lags behind countries such as China and United States. Most startup companies have been concentrating on areas such as e –commerce, edtech, fintech etc.

ARTIFICIAL INTELLIGENCE IN LEGAL PROFESSION

Due to technology advancement and legal businesses artificial intelligence is slowly paving its way to the legal profession. In legal profession, artificial intelligence has many uses, some of them being, legal research- legal research is usually a time consuming task. It may take time for legal practitioners to find correct legal authority which is reliable. Hence, artificial intelligence can be utilized in supporting crucial arguments for the case. This can be done through developing software which can answer simple but crucial aspects of law. *Secondly*, Artificial intelligence can be developed in the step of taking reasonable care to avoid confusions and conflicts – this step is termed as due diligence taken up by lawyers this step is crucial to avoid conflicts and confusions and is an essential step to be taken before proceeding further with the case. This step is a long and tedious task and with the advent of artificial intelligence, this step can be performed with efficiency and may consume limited time. *Thirdly*, Artificial Intelligence can be utilized for ‘prediction technology’. Most of the times clients who appear legal consult are often caught with questions such as ‘should the case be proceeded’ or ‘will we lose the case’ or ‘win the case’?

Artificial Intelligence can answer these questions by utilizing algorithms. Apart from this, Artificial intelligence can also be utilized to point out a high risk document and display the level of risk that is associated with the document if the client decides to undergo a trial. *Fourthly*, Artificial intelligence can be utilized for legal analytics. Documentation of cases and dock entries form a very important step of litigation. However, this process is a time consuming process. Hence, Artificial Intelligence can be utilized. The documents can be arranged in a particular order which is required by the lawyers. Law firms can utilize Artificial intelligence to review the contracts which they have entered into. The risky clauses can be identified with the help of artificial intelligence. Moreover, artificial intelligence can be used for generation of contracts. Artificial intelligence can set a basic template, which can further be developed into contracts depending upon the facts and circumstances of the case. *Fifthly*, artificial intelligence can be utilized for patent application. As one of the core reasons to develop artificial intelligence in India is tedious and long process, the same can be applied for filing of patents. Patent filing is a tedious time consuming process. Hence, IP lawyers can make use of artificial intelligence to format, draft and review patent applications.

INTELLECTUAL PROPERTY LAW AND ARTIFICIAL INTELLIGENCE

Artificial intelligence is developed because of various fields such as psychology, sociology, economics, and neuron sciences. However, with the advent of artificial intelligence there have been two views on the concept. *One* view states that artificial intelligence will lead to enhanced quality of human life by bringing a paradigm shift and the other view states that Artificial intelligence will be the end of *Homo sapiens* as it will surpass all human intellect in all domains. Intellectual Property mainly deals with intangible assets which includes designs, inventions, new brands and artistic works. IP also extends trade secrets and confidential information.

LEGAL FRAMEWORK FOR PATENTABILITY OF ARTIFICIAL INTELLIGENCE PATENTS

The limits of patentable matter in the US is set by the United States Code, Section 101. It states that patentable subject matter can only be “new and useful processes, machine, manufacture or composition of matter or any new and improved matter can be patentable. The section prohibits abstract ideas, natural phenomena and laws of nature. The Hon’ble Supreme Court has stated that these subjects are basic tools which are required for scientific and technological work and thus, monopolizing these articles will curtail further scientific and technological improvements. In the case of *Alice Corp. v CLS Bank International*¹, the Supreme Court has adopted a new trend and has made it difficult for applicants to obtain a patent on software or computer implemented

¹ 573 U.S. 208

inventions. It basically excludes the claims which can be performed through prudent mental processes which take place in human minds. This aspect of the judgement has made it difficult for Artificial intelligence patents because the main aim of artificial intelligence is to replicate normal human functioning.

SCENARIO IN INDIA

As mentioned above, India has witnessed massive upsurge in the growth of startups and most of those startups are involved in development of artificial intelligence. Therefore, it is no surprise that India is emerging as one of the top countries for patent filings. Along with India; Australia, Canada Germany and UK hold prominent positions in fields such as computer vision, natural language processing, speech processing, distributive artificial intelligence and predictive analytics. However, at present there are no separate clauses in India that can be applied to Artificial Intelligence or any other inventions which is related to technology. Computer related inventions encompasses Artificial Intelligence technology. An additional condition which is required to be made to patent Artificial intelligence is disclosure regarding the type of algorithms and software which have been used. Only if this disclosure is made can the application for patents be filed. For a patent to be filed there are mainly conditions to be fulfilled, such as – Description of the hardware - along with the algorithm that has been utilized for the artificial intelligence.

The method that is utilized by the device which utilizes the Artificial intelligence must also be disclosed

And lastly, it must be noted that focusing directly on programming codes and algorithms must be refrained as much as possible.

In a report by the *Economic Times*,² it was observed that IBM around 9100 patents which stretches across various fields such as, Artificial intelligence, cyber security, cloud computing. Moreover, investors of IBM who hailed from India have alone received almost 800 patents, which is the second highest contributor to the global record tally.

COPYRIGHTS AND ARTIFICIAL INTELLIGENCE IN INDIA

In India, if a work is to be granted copyrights, that work must have at least ‘minimum creativity.’ In the case of *Eastern Book Company and Ors. v D.B Modak and Anr*³; it was observed that for a work to be granted copyrights there must not only be trivial variation, but there has to exist a

² REPORT PUBLISHED ON JANUARY 8TH 2019.

³ (2008) 1 SCC 1

substantive variation. However, the judgement failed to provide whether artificial intelligence is able to meet the required amount of creativity. In addition to the creativity requirement, there is also the necessity for the ownership of copyright to fall within the ambit of “author” as defined under the Copyrights Act. However, this poses a problem to artificial intelligence, as artificial intelligence has not been recognized as a legal personality. Hence, meeting the second requirement is a challenge while filing for copyrights within the ambit of the copyright act, 1957. The term author is defined under Section 2 (d) of the Copyrights Act, 1957. Under Sub clause (vi) of the section, author is defined as *those in relation to any literary, dramatic, musical or artistic work which is computer – generated, the person who causes such a work to be created is termed as an author.*⁴

The main issue with this sub – section is that, this section associated “the person who causes such a work to be created” to a natural or juristic person. However, since artificial intelligence has not been granted the status of a person, it can be concluded that Artificial intelligence does not fall within the purview of the Copyrights Act, 1957.

However, another issue, which arises, is that a natural person’s skills and innovation is required to develop artificial intelligence. Hence proving the actual owner is not a task that can be easily accomplished.

PATENT LAW AND ARTIFICIAL INTELLIGENCE

The Patents Act, 1970 under its section 6 states that the application for a patent can only be done by the first and true inventor of the invention or any person who is so appointed by the first and true inventor. The term “true and first inventor” is defined under *section 2 (y) of the Act. It states that the true and first inventor does not include the first importer of the invention to India, nor does it include someone to whom an invention is communicated from outside India.*⁵

However, the condition that the inventor ought to be a natural person is not expressly mentioned under this provision. Hence, it may be assumed that artificial intelligence may fall within the purview of this provision. However, it is to be noted that in practice the term “first inventor” mostly refers to a natural person.

Development of artificial intelligence will definitely play an important role in the development of patent law in India. There has been increase in use of natural language processing which aids in generating variants of the existing patents; this has been done to increase the scope of the inventions. The publication of these patent claims is necessary to curtail easily derived ideas from being patented. Hence, Artificial intelligence can be utilized to assist in the discovery of an

⁴ COPYRIGHTS ACT, SECTION 2(d)

⁵ PATENTS ACT, SECTION 2 (y)

invention that has already been developed and patented. In this manner, artificial intelligence can be developed in patent law.

INDUSTRIAL DESIGNS AND ARTIFICIAL INTELLIGENCE

The recent past has witnessed artificial intelligence advancement such as Siri, Alexa, and Ok Google etc. Smart intelligence machines are being developed by many companies. However, when many come together, there are limitations which bind the Computer – aided design and drafting. These systems are then confined to geometric models and representation.

Section 1(j) (iii) of the Designs Act, 2000 defines the “Proprietor of a new or original design” as the *author of the design and any other person too, where the design has devolved from the original proprietor upon that person.*⁶ Hence it is difficult to determine the authorship if artificial intelligence is behind the design as it is an artificial entity. This also gives rise to other questions such as artificial intelligence does not have an elementary cognizance and hence how is this authorship determined in a strict legal sense?

ELECTRONIC CONTRACTS AND ARTIFICIAL INTELLIGENCE

When contracts are formed online, they are termed as electronic contracts. The parties may interact with each other via emails, computer programmes or by electronic agents, which have been assigned to recognize and form the contract. E – Contracts are precise, concise and are not time consuming as compared to ordinary contracts. The validity of E – Contracts is mentioned under Section 10A of the IT Act, 2000. It states that contracts which have been generated electronically shall not be considered unenforceable only on the ground that it is an electronically created contract. The concept of digital signatures and electronic signatures is also recognized by the IT Act. With the advent of electronic contracts and smart contracts, debates have arisen as to whether contracts can be enforced against Artificial intelligence. And if answered in the affirmative, how are the legal issues which have risen to be solved? The relevant information is not always captured in these contracts. The terms of the contract may cause harm and damage to a party. In such scenarios the aggrieved party may find difficulties to enforce the contracts in other countries. With the advent and growth of artificial intelligence and robotics, the possibility of artificial intelligence entering into contracts has become a possibility. However, can artificial intelligence enter into contracts is a question to be pondered upon.

The Indian Contract Act, 1872 in its Section 11 mentions about who are competent to contract. According to Section 11, a person must have reached the age of majority, must be of sound mind

⁶ DESIGNS ACT SECTION 1

and is not disqualified by law to contract.⁷ Hence, this definition refers mainly to a legal person only. Apart from this, the court's ability to understand the technicalities involved is also one of the issues that are to be considered.

ARTIFICIAL INTELLIGENCE IN MEDICINE AND ITS LEGAL IMPLICATIONS

Medicine as a field is experiencing many drastic changes. The major change includes the rise of big data and growth of sophisticated machine learning or artificial intelligence techniques that can be utilized find complex patterns in the data. Medical data is obtained through various resources, which may include but is not limited to, medical literature, electronic health records, clinical trials, pharmacy records and can also include the information, which is entered by the patients in the Apps, which are present in their smartphones or watches. These apps usually develop algorithms and deduce data such as the life expectancy of the patient depending upon the data entered or what kind of exercise is the most efficient for the patient depending upon the physical information entered by the patients such as height, weight, BMI etc.

Watson, which has been developed by IBM, is currently involved in oncology treatment. Additionally, drug development has also been developed by Watson. In the United Kingdom, National Health Service utilizes Google's DeepMind to detect health risks and analyze medical images.

In 2016, Microsoft has introduced artificial intelligence that focuses on healthcare. Microsoft utilizes two core computer science approaches for the same.

The first approach states that cancer and other biological processes stem from information processing systems. This approach aims to use tools such as programming languages, compilers, and model checkers they are used to model and reason biological processes.

The second approach is driven by data. The main basis of the idea is that machine-learning techniques and sophisticated analysis tools can be utilized to understand and treat diseases such as cancer. However, both the approaches aim at gaining expertise knowledge to solve the biological problems that are arising. Microsoft has also taken up another initiative in the field of radiology, which utilizes machine tools to determine tumors in the brain. However, even Google's DeepMind is involved in research in the same field. The researchers of DeepMind are involved with the University College Hospital and are aiming to develop a tool that directs radiation for the treatment of head and neck cancers.

⁷ INDIAN CONTRACT ACT, 1872 SECTION 11

‘Axisis’ which has been developed by Cambridge Consultants is a system that is designed to perform cataract surgeries better than a human.

LEGAL IMPLICATIONS

LIABILITY – medical practitioners and doctors are held liable in cases of negligence. There have been instances where medical negligence has been imposed with criminal liabilities as well as civil liabilities. However, regulations do not mention the penalties when the error arises because of malfunctioning of a technology. Hence, at present there is no accountability for the software developer of the artificial technology. If the medical treatment that is provided by a medical practitioner is incorrect due to the technical glitch, in such cases liability cannot be determined as the error was due to the technical glitch and not mere medical negligence. However, in India the defence that the medical practitioner obtained information from the artificial intelligence is not available. Rather, the medical practitioner will be held liable for the offence of medical negligence.

DATA PRIVACY - The utilization of artificial intelligence in medical field requires the constant exchange of information between the patient and the service provider of the artificial intelligence. The exchange of information leads to creation of massive datasets, which is further utilized for training, validation and creation of algorithms. These datasets can be commercially exploited in countries that do not have a standard framework of law for privacy. In India, this issue has been recognized and the draft of Healthcare Security Act has been created by Ministry of Health and Family Welfare. The Act provides for electronic health standards that ought to be maintained. Additionally, it provides for civil and criminal remedies for breach and of data and sets principles for data collection and use. The draft also mentions the establishment of National Digital Health Authority that shall aim at enforcing healthcare data protection norms.

CONCLUSION

Artificial intelligence can be considered as a boon and a bane in the evolving society. It tends to reduce the burden on lawyers and other professionals but it is largely encroaching upon the field that is predominated by human beings. Law is a profession that requires not only human intellect but also human emotions. It is beyond question that Artificial Intelligence is useful in time intensive work such as research work, but it does not come without disadvantages. Complete reliance of artificial intelligence is definitely a bane. Artificial intelligence has not been granted legal personality and hence any glitch that arises due to the technical or functional malfunctions, nobody may be held accountable for the same. This tends to create an imbalance in a society. Hence, Artificial Intelligence must be used judiciously.

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