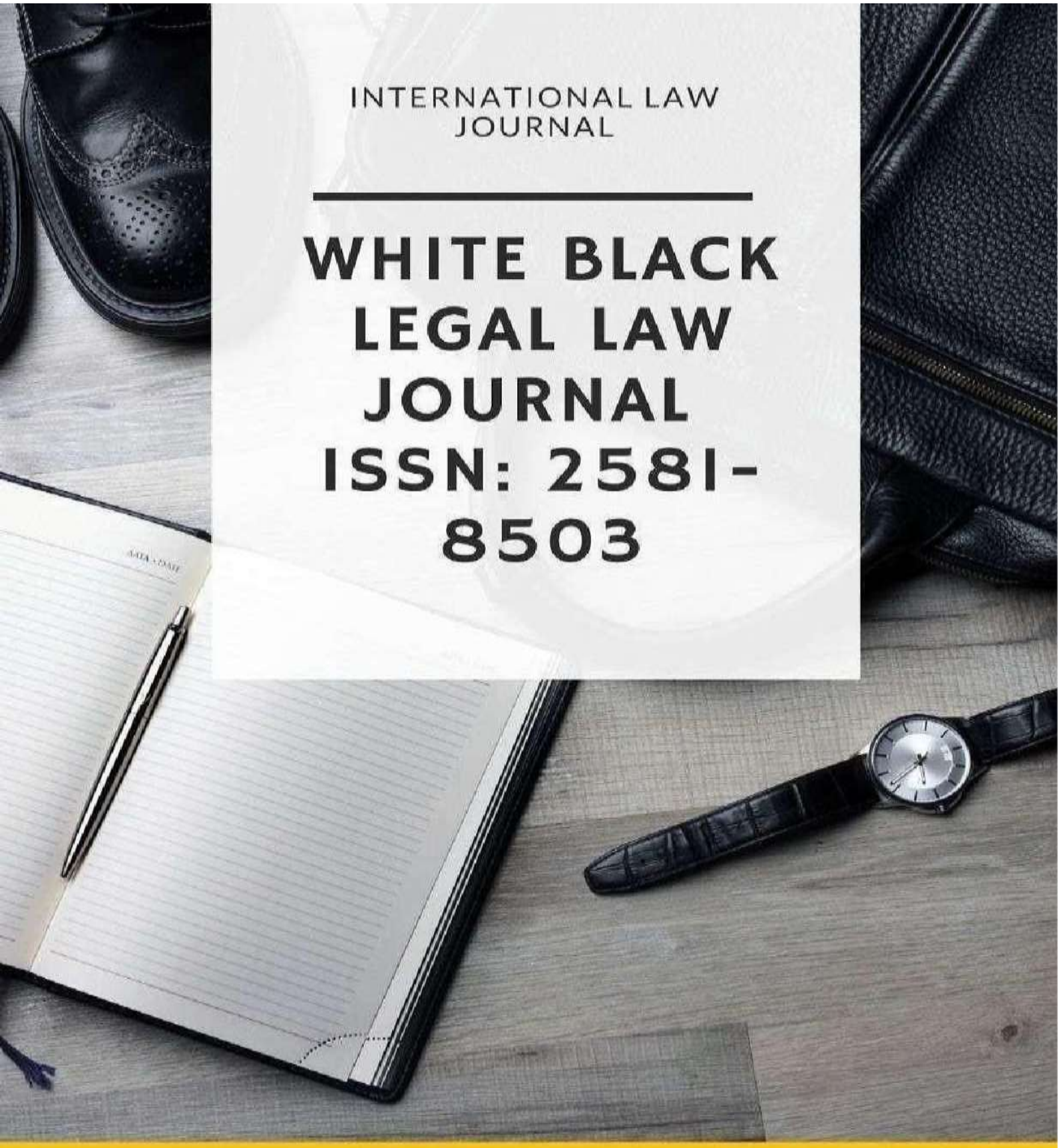

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A CRITICAL REVIEW ON ARTIFICIAL INTELLIGENCE SYSTEM AND ITS QUEST FOR LEGAL PERSONHOOD

AUTHORED BY - KEERRTHIVASAN K B & TULESH BALAJE R

Introduction

We can witness a significant difference in our living every decade. The reason behind it is the Machines. From simple to non-programmable machines and from programmable machines to interactive self-driving cars, the field of science has witnessed immense growth. But are they free from errors? Who is accountable for the errors of robots or machines? Who is responsible for robots that can think about itself? The primary problem relies on where some do not recognize the fact that the machines now possess intelligence as that of a normal human being. With the present scenario of increasing conflict between automated machines and humans, it is necessary to bring forth a set of legal and moral values. The main aim of this paper is to throw some light on the evolution of Artificial Intelligence and its current trend and also its need to provide legal personhood under artificial person for the benefit of humanity. There are no laws that recognize AI and we cannot ignore the fact that AI is the rapidly growing sector in science and one or the other way it is incorporated in devices of daily use. Many robots are used for various purposes in India. Should we consider granting personhood to AI as a tedious process and unnecessary work or grant them personhood in order to prevent danger and to protect humans? We must accept that humans are not the only people recognized under the law. There are several other entities such as idol, corporation, rivers recognized as artificial persons. In that case, another question arises, which prevents our legal person from conferring non-human entities with legal personhood. Granting legal personhood has proved to be controversial in some countries since the robots have more rights than the women who live there. But on the other hand, let's consider AI is not vested with legal personhood but it becomes more intelligent than people thinking on its own. Who will be held responsible? To provide the comprehensive view the paper deals with the detailed view of AI evolution and history, its current trends, and contention for granting legal personhood. It also deals with the merits and demerits of AI with legal personhood and its accountability

History of AI

Machines and humans have become an integral part of the society. Machines only work on the command that is given. But the core idea of AI existence is because of the simple idea giving life to lifeless things which the human tried to implement in inanimate things as a part of innovation. Its development can be traced from the beginning of the second world war and till the 1960's. In the year 1943, Warren McCulloch and Walter Pits initiated their work on AI and proposed the model as Artificial Neurons. Following that, an efficient and reconstructed rule was proposed by Donald Hebb known as Hebbian learning. Alan Turing did not create AI but was the founding father of the technology behind it published "Computing Machinery and Intelligence" in which he put forth a test called the Turing test which can evaluate the machine intelligence equivalent to human intelligence in the year 1950. The field of AI-first saw its growth by Allen Newell and Herbert A. Simon who shaped the first artificial intelligence program called the "Logic Theorist" which proved 73% of the 52 theorems. It even devised new and well-designed proof for some theorems. Till that point of time, all these were known as a step to make machine intelligent and no specific term was used. But in the year 1956 American computer scientist John McCarthy at the Dartmouth Conference coined the term "Artificial Intelligence". So, the quest for making the machine think since human errors are inexorable.

The golden years and the AI winter

The period between 1956 and 1974 is considered to be the golden years since it was the beginning era of the development of AI. Looking at immense opportunity and results, government agencies like DAPRA invested money in this field.[1] Though a different version of AI was present they followed the same algorithm which is to achieve the goal of the problem given to it by step by step process. The paradigm was called "reasoning as a search".[2] The major problem was the language. Computers follow the binary language whereas humans needed results in natural languages. They found a breakthrough with several coding and reasoning programs combined together. Thus AI was witnessing astonishing development. AI was able to prove and deduce many math problems and theorems. Moving down the timeline was the AI winter, the period between 1974 and 1980. Where the scientist and researcher were

[1] Creiver, Daniel (1993), *AI: The Tumultuous Search for Artificial Intelligence*, New York, NY: Basic Books, ISBN 0-465-02997-3 pp 52-107

[2] Means-ends analysis, reasoning as search: McCorduck, McCorduck, Pamela (2004), Machines Who Think (2nd ed.), Natick, MA: A. K. Peters, Ltd., ISBN 978-1-56881-205-2 pp. 247–248.

subjected to critics and lack of investment[3]. Added to it there were several problems including a shortage of computer power which was very expensive. Failure of interaction and logical errors were inevitable. Researchers were not able to upgrade the AI to the next expected level. Thus, it led to a failure of funding and critiques. But it was not the end. In the early 1980's "expert system" another form of AI was founded for knowledge and resource collection. Several expert systems helped humans by finding various things. The DENDRAL identified spectrometer and MYCIN diagnosed with infectious disease. With these AI started the knowledge revolution since all AI was successful and various ways through which humans can gain knowledge were opened. This was also known as the Second AI winter. The term was coined by the researchers who were denied funding because it was the dry period. Thus, none were interested in buying AI machines. The desktop systems of Apple and IBM were gaining popularity. Thus the AI industry saw a sudden drop in terms of both customer and producer. The desktop computers proved to be efficient in carrying out problems. Thus the AI industry was diminished but did not vanish.

The current trend of robotics and Artificial Intelligence

Before discussing in detail why AI must be given legal personhood, we must consider the perspective of their capacity and ability. Robots are devised in both semi or fully autonomous, reprogrammable so that they can perform various functions. Following the research of George Devol and Joseph, Engelberger robots were used in the automobile industry. But in the 1980s use of robots became difficult due to a lack of investment. Added to this the Japanese automobile industry used robots effectively thereby reducing cost and increased production with several innovations in robotics with the funding from the government. In the year 2003 UN world report said the field of robotics has transformed and it is revolutionary indicating the use of UAV (unmanned aerial vehicle) in areas of remote exploration and repair etc.[4] after that the idea of self-driving cars emerged. In 2017 the House of Representatives passed the bill of Self-drive Act. With various evolution of AI and robots, the interlinking of robots and the internet becomes inevitable for various reasons. With AI programmed in robots the actual definition of robot changes from decade to decade. They are considered to be the

[3] Russel, (2003), Artificial Intelligence: A Modern Approach (2nd ed.), Upper Saddle River, New Jersey: Prentice Hall, ISBN 0-13-790395-2

[4] Gogarty, B.; Hagger, M. The Laws of Man over Vehicle Unmanned: The Legal Response to Robotic Revolution on Sea, Land and Air. J. Law Inf. Sci. 2008, 19, 73–145. 8. Singer, P. Wired for War: The Robotics Revolution and Conflict in the 21st Century; Penguin: London, UK, 2009.

machines with the ability to "perceive something complex and make appropriate decisions"[5], according to Sebastinthurn, former director of AI lab, Stanford California. The problem relies when the hard truth hits on scientific community that AI robot that can think up to the level of normal man is still not available but the need for it is still on the rise. The concept of decision making at the time of emergency and rational thinking is not imparted in the AI-powered robots. We can now witness Sophia, a humanoid robot developed by Hanson Robotics in collaboration with Alphabet, Google's parent company. The voice and speech recognition of Sophia is given by Singularity NET. With her unique way of replying to interviewers from 2016, Sophia became the first AI to receive citizenship in Saudi Arabia. And even she was the first non-human to receive UN title and named the first Innovation Champion of the United Nations Development Programme. In Feb 2017 a proposal was initiated by the European parliament to " "to explore, analyze and consider the implications of all possible legal solutions, (including) ... creating a specific legal status for robots in the long run, so that at least the most sophisticated autonomous robots could be established as having the status of electronic persons responsible for making good any damage they may cause, and possibly applying electronic personality to cases where robots make autonomous decisions or otherwise interact with third parties independently".[6] Thus the concept of safety was given prime importance. Both the European Parliament and the UK house of common presented similar reports on several issues of AI and its legal personhood.

Current Scenario of Artificial Intelligence in daily life

Over years artificial intelligence has taken over various forms. As we see, it uses various methods and components to get a final result and this tech is everywhere right now. Artificial Intelligence is used in various places that we use in our daily life like Smart cars, chat boxes, logistics, retail, shopping, fashion, banking, healthcare, finance and gaming, and much more which gives us a superior experience while using it.

Machine learning, deep learning, complex algorithms are used to arrive at an answer. To understand on what ways this artificial intelligence is used in our day to day life we need to

[5] Singer, P. Wired for War: The Robotics Revolution and Conflict in the 21st Century; Penguin: London, UK, 2009.
[6] Under Compliance and enforcement, WHITE PAPER on Artificial Intelligence – A European approach to excellence and trust. The system would be based on conformity assessment procedures in the EU, see Decision 768/2008/EC or on Regulation (EU) 2019/881 (Cybersecurity Act), taking into account the specificities of AI. See the Blue Guide on the Implementation of EU product rules, 2014.

know how machine learning works. Let's take for a cat for an example. We, humans, have the capacity to differentiate a cat from a leopard which also belongs to a cat family. But a machine can't differentiate. Even when we give inputs of pointy ears, furry skin, sharp eyes, which is a common feature for the whole family it can't differentiate. So, a machine is given a huge collection of photos categorically to find its patterns, make its own analysis, and find out which is a leopard and which is a cat. This method of machine teaching itself is called machine learning. So, there is a little basic algorithm, certain modifications according to the subject, and a lot on improvising how the system processes the data.

Today, the biggest advantage of this particular machine learning technique is that there are enough basic algorithms and programs and all that is to be done is improvising how the system processes the data and us not telling what to look for. As much as advantages are there, disadvantages also come into place. Since AI can't explain what they are thinking there can be possibilities of them going wrong too which can become a big issue. We can describe today's world as an "age of implementation" that is technology spilling out of the lab into our daily life.

There are innumerable ways in which artificial intelligence has made into our lives. Siri, by Apple, Google assistant by Google, Alexa by Amazon, Cortona by Microsoft, and innumerable AI assistants have helped us to fish our information, schedule our appointments, add events to the calendars, set multiple alarms and so on just by the commands. Nowadays, all the car that comes with adaptive cruise control, emergency brakes, autosteer, the auto park is an amazing example of artificial intelligence. Whenever we go search for a movie to watch in Netflix and Amazon prime, we see a lot of recommendations that we like and all this is because of AI automatically using our history and cookies to give us appropriate suggestions providing better customer service. Even the Railway system and aviation have become a lot more dependent on the data of AI systems to give command on routes. Multiple satellites that send a processed image of the land cover maps, the MARS 2020 rover mission, a part of NASA's Mars exploration program is again a great example of artificial intelligence in the global front.

In India, with initiatives like Skill India, make in India, and Digital India, the government has brought in the focus of youngsters and global manufacturers into a wider platform of Artificial Intelligence and systems. According to NITI Aayog reports, India is ranked as the third biggest

AI-focused startup hub among the G20 countries in 2016. Even the market of AI is growing since 2011 at a CAGR of 86% higher than the global average. And some of the legacy players who are investing in Artificial Intelligence are Amazon, Apple, Google, Facebook, Microsoft along with all newcomers like Apex, Benevolent AI, CUJO AI, Drive.ai, and Petuum.

As mentioned earlier, Artificial intelligence is seen in various forms but the one that pops in our mind when mentioned is a humanoid robot as watched by all of us in Sci-Fi movies. Once the main purpose of creating such AI robots was for research but now it is created for several purposes not limited to research but for the different roles in the employment sector like a personal assistant, receptionist, front desk officer, and so on. Humanoids can be generalized as androids and gynoids where android designed as male gynoids designed as female.

As next step inventors and scientists are trying to create a mechanism similar to human body parts, codifying it and testing them. There are lots of challenges in implementing such fully functional and realistic humanoid robots. But in spite of all the facts, there are many humanoid robots that are successfully made and employed in various fields like Kodomoroid TV presenter, Jia Jia, Robonauts, Robotic bartender, and Sophia and much more. Notably, a Kodomoroid TV presenter which was invented in Japan can speak a number of languages and is capable of reading the news and giving weather forecasts. Jia Jia, a humanoid robot made in China has the ability to make conversations but has limited motion, stilted speech, and a narrow range of expressions. Thus with all these capacities AI can store, receive, replicate, produce data whenever needed. And such surveillance can happen without our knowledge also. Thus it becomes a major threat of data privacy. No system is free from errors. Even AI has encountered errors and costed human life. So in order to make AI accountable for the errors, it is necessary to vest them with legal personhood such that their makers can be held responsible as like as managers held responsible for the acts of the corporation as a whole such that the makers of AI components cannot get escape through any loophole of the law.

View on Legal Personhood for Artificial Intelligence

The scope of the definition of Legal personhood has to be taken into account before arguing about including any entity into it. The term person has been defined in the Indian Penal Code, 1862, and General Clauses Act as “The word “person” includes any Company or Association or body of persons, whether incorporated or not”. The types of persons that are

recognized by the Indian law are

1. Natural person- that is a real and living person possessing the power of thought and choice and has a lifetime of a limited period after which it would die. The two different types of a natural person are Normal person which include human beings and abnormal person which includes Infants
2. Legal persons- A legal person in a legal context typically is a person (or less ambiguously, a legal entity**)** non-human entity that is recognized as having certain privileges and obligations such as the legal capacity to enter into contracts, to sue, and to be sued and certain rights and duties if conferred upon.

To consider an entity to be a legal person it must be a being, real or imaginary, created by the law, or which the law regards as capable of certain rights or duties. It also includes deceased persons, corporations, companies, trusts, and other organizations that can only perform their functions through natural persons. It has no life period and it so it cannot die but maybe disbanded or done away with. According to S.M. Solaiman basic provision for a legal person includes[7]

- Able to know and execute its rights as a legal person
- Subject to legal sanction applied to humans

The different types of a legal person recognized under the law include animals[8], Inanimate objects which includes idols and Incorporate entities i.e. Corporation. In the case of Lalit Miglani Vs State of Uttarakhand,[9] the Uttaranchal High Court declared that all the glaciers, including Gangotri and Yamunotri, rivers, streams, rivulets, lakes, air, meadows, dales, jungles, forests wetlands, grasslands, springs and waterfalls as a legal person under the law and this would enable the rivers to be free from pollution and enable the river to sue the offenders for infringement of the legal right. The Whanganui River in New Zealand is cited as the reference for conferring rivers with legal personhood. Also, in the case of Vadivelu Arsuthiyar[10] , the court held that the definition of the word "person" in section 11 of the Indian Penal Code is not exhaustive, and artificial or juridical persons should be included as well. The term “person” shall be defined to include a body corporate or other juridical people such as firms and societies.[11] Corporate personhood is the legal notion that a corporation, separately from its

[7] 'S. M. Solaiman, 'Legal personality of robots, corporations, idols and chimpanzees: a quest for legitimacy' (2017) 25 (2) Artificial Intelligence and Law 155-179.
[8] Animal welfare board of India vs. Nagaraj. (2014) 7 SCC 547
[9] Lalit Miglani Vs State of Uttarakhand MANU/UC/0067/2017
[10] Re Vadivelu Arsuthiyar A.I.R 1944 Mad 77.
[11] Prevention of money laundering act, 2002,Sec 2, 3 & 4.

associated human beings (like owners, managers, or employees), has at least some of the legal rights and responsibilities enjoyed by natural persons.[12]

Section 10 of the Indian Penal Code defines the term man and woman.

> The word "man" denotes a male human being of any age: the word "woman" denotes a female human being of any age.

Section 11 of the Indian Penal Code defines the term person.

> The word "person" includes any Company or Association or body of a person, whether incorporated or not.

By applying the maxim "expression unis est exclusion alterius" which means explicit mention of one thing is the exclusion of another, Statutes must be given proper effect and allowed to work in their respective fields even when there is some overlapping and the same should be ignored. The application of this rule depends on the subject matter. Thus, we need to look unto the intention of the legislature. The lawmakers have very well interpreted the term man and woman as a human being inclusive of gender. But they did not mention human beings under the definition of a person explicitly. So the word person could include a corporation[13], premature child in a mother's womb[14] , and an idol of a temple.[15] This means the definition of the word "person" is not exhaustive. The word "person" would, therefore include not only the natural person but also the artificial or juridical person in whatever form designated and whether incorporated or not. By implication, the intention of the legislature is not to confine the definition within a particular boundary and make it incapable of including entities in the future.

Now, not all artificial intelligence systems can be given personhood status in Indian law. To possess the status of legal personhood AI should have certain rights and duties to be taken care of. So, taking Humanoid and certain other artificial neural network-based artificial intelligence software, it works on the principle of unsupervised or supervised or reinforcement learning that gathers a large amount of input from all the sources it had access to and creates clusters of information based on similarities and differences. Once it has created the clusters, it creates an evolving set of responses, which are themselves 'learned' using a set of algorithms that allowed it to gather further inputs from other users, information portals, and pretty much any information available to it. However, a scientist cannot frame algorithms that can directly

[12] When Did Companies Became People? Excavating The Legal Evolution" NPR July 28, 2014.
[13]Mahmud Ali v. State of Bihar, 1985 SCC OnLine Pat 256.
[14] Jabbar v. State A.I.R 1966 All 590.
[15] Re Vadiveluarsuthiyar A.I.R 1944 Mad 77.

give the responses, they can only lay down a set of rules within which the software itself learns, continuously learns, and evolves by updates. So, it's more like a baby learning from their parents and surroundings.

The Kodomoroid TV presenter, Jia Jia, Robonauts, Robotic bartender, and various other humanoid robots are created and employed in various services where rights and duties have to be fulfilled. Let us take a situation as an example, one day the robotic bartender kills one of the customers because of some reason. Who can be held responsible for this? Scientist or the owner? These situations might take place in the near future. Because already the world has seen some situations where artificial robots killed people and a double murder case in which Alexa turned out to be evidence. And an exceptional case where Sophia, human-equivalent intelligent robot being granted citizenship and several rights such as the right to vote and much more. In the new era of the digital world, the artificial intelligence system has been assigned a major role to perform. And in a developing country like India, it is very important to consider this growing field and frame laws on it and grant personhood for purposes.

Conclusion

Surprisingly the debate of granting legal personhood to AI has existed for more than forty years. In the 21st century, Artificial intelligence plays a very important role that is unavoidable. With several nations bringing the initiative to regulate and to adapt to the changing trend in the fields of robotics India has seen rapid growth in this sector where robots like Manav have been created. As done European Commission and several other countries on framing guidelines for artificial intelligence, NITI Aayog in India should also be more efficient on it. Indian Legislature should consider Artificial Intelligence as a sector and grant personhood just like company and frame laws for it. but the truth is all those steps taken are just a fraction of the whole problem which has to be addressed since an enormous amount of legal complication lies ahead. We must also take into account the performance of the AI robots when given legal personhood and the degree of effects on the corporation who owns it. The design of our legal setup is in such a way so that it can adapt to changes in society. We have witnessed several such changes and even granted personhood to artificial entities in consideration with short term and long-term effects. From the history of AI to Sophia, the paper has stressed on the points where we can assess the merits of granting legal personhood to AI bots. So, this is high time we must respond to it and tackle this techno legal challenge.