ARTIFICIAL INTELLIGENCE & LEGAL PERSONALITY

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Abstract - Throughout history, humans have invented different tools for their assistance. Unlike the past tools, Artificial Intelligence ("Ai") is a modern-day innovation capable of self-learning and decision-making. Ai's revolutionary abilities of self-learning and decision making, coupled with its increasing use in our daily life, give rise to the questions of its regulation, accountability, and legal recognition. Research and legislation have not kept pace with the development of Ai systems to address these questions. Granting legal personhood to the Ai systems is an approach to address these questions and Ai's unique capabilities. Analogies of other artificial personalities, especially that of Corporations, support the case of legal personhood for Ai. Since the use of the Ai system is global and transcends any single jurisdiction, an international regulatory framework for Ai legal personhood is required. Development of the Universally Accepted Artificial Intelligence Protocols ("UAAIP") can serve as the guiding principle. Ai having a legal personality status will pave the way for an identifiable and accountable legal entity.

Keywords - AI Legal Personality, AI Artificial Person, AI Accountability, AI Regulations.

I. INTRODUCTION

Humans are different from other living beings because of their superior intellectual capabilities. The same intellectual abilities have led humans to develop and innovate technology and tools that have helped humans achieve modern-day advancements. The industrial revolution has led to general-purpose technologies that include steam engines, electricity, and combustion engine. These technologies propelled further innovations as the internal combustion engine has led to the development of cars, trucks, and airplanes.

In contrast, Artificial Intelligence ("Ai") is unique from all the previous inventions or innovations as all other inventions have been more of a tool used by humans. On the other hand, Ai is not merely another tool but is capable of self-learning and intelligence. As an example, Ai, especially Machine learning, can improve its performance without human intervention. This self-learning phenomenon is in sharp contrast with all former technological advances. Whereas previously, humans would utilize what they have learned to improve the tools & technologies, Ai can self-learn and achieve superhuman performance.
Today, more than ever, Ai has become far more effective and widely available. One may be surprised by how many devices and applications in homes and offices, including mobile phones and computer systems, use Ai. It is being used in so many applications that people do not even know that it exists. Therein lies the problem also, where people are unaware of their interaction and cannot understand the basis of Ai's output or decision. This characteristic of Ai based machine system has legal and moral connotations because it enters a domain where it can dictate an outcome or decision profoundly affecting humans. If an Ai system is used for this purpose, it needs to be done in a just and equitable way. Making the person aware of its interaction with the Ai system and the basis of the decision is a start.

Jacob Turner described Ai as a non-natural entity having the ability to make choices by an evaluative process. This ability of Ai and its immense interjection in our lives gives rise to the question of whether the Ai should be given the status of an artificial legal personality? This paper argues that an Ai system capable of rendering decisions or outcomes that profoundly affect humans, regardless of its intelligence level, should be given the status of artificial legal personality. Further, there should be a bare minimum, internationally accepted mechanism, and protocol to effectively regulate Ai. It will enable the effective regulation of Ai while providing enough space for the innovation to continue. This paper outlines the structure that will provide the overarching principles and rules of Ai legal entities. Nonetheless, giving legal personality to Ai from a regulatory perspective is being advocated, and no effort is being made to equate current or future Ai systems with humans.

This paper presents a brief introduction and history of Ai. Various types of Ai and how they are impacting our lives are discussed. Definitions of existing legal personality are explored and compared with the Ai system. Further, the rights and obligations of such an artificial legal personality are examined. The legal framework, regulatory environment, and duties of such Ai personalities are articulated. The alternative perspective of not granting Ai legal personality till further evolution of Ai is investigated. Finally, the convergence of these ideas and reasoning that leads to granting Ai a legal personality is considered.

II.HISTORY OF ARTIFICIAL INTELLIGENCE

Generally, the perception is that somehow Ai is a recent phenomenon. Contrary to the general belief, Ai's history, even in modern times, dates back to the 1950s. Alan Turing published a landmark paper in 1950 in which he speculated the possibility of creating machines that will be able to think. In 1955, Professor John McCarty of Dartmouth College coined the term "Artificial Intelligence" as a science and engineering of making intelligent machines. By 1959 MIT had set up an Ai Laboratory to spearhead the research on Ai. In 1965, Gordon Moore, co-founder of Intel, authored an article in which he wrote that the number of components found in Integrated Circuits would double every year. This theory has become a benchmark over the years and has been named Moore's Law. It formed the basis for the beginning of the developmental loop; more computational power led to more intelligent and smaller devices with lower prices, leading to more intelligent and even smaller devices with more computational power and storage.

However, it was not until the 1970s and again in the 1980s that the first systems with the rule, frame, and logic-based programs were developed. Also known as expert systems, they were the early example of Ai's usefulness and successful implementations. By the mid-1980s, the expert systems market was already above the billion-dollar mark.

Nevertheless, after a slowdown and reduced funding in the 1990s, Ai made a comeback in the 21st century.With Machine Learning ("ML") taking the lead, a process that helps the computers learn from the data by themselves led to its utilization in numerous fields, including health sciences, to autonomously driven cars and flying drones. With the Ai system becoming more sophisticated, it did not come as a surprise when AlphaGo (a Google AI system) won the Chinese Go game, a much more complex game than chess, from Go's human world champion in 2017. A survey conducted in 2017 concluded that one in five companies had incorporated Ai in some offering or processes. Today, the uses of Ai based applications and programs number in millions.

III. TYPES OF ARTIFICIAL INTELLIGENCE

Not all Ai systems are created equal. Essentially, Ai can be divided into two main categories and various sub-categories.

At a high level, Ai can be divided into Narrow Ai and General Ai. Narrow Ai is a system or program designed to solve a specific problem. In that sense, most of the current day Ai systems are narrow Ai systems. A good example is a chess computer program that has the sophistication of beating a human in chess but cannot solve complex math problems. This makes Narrow Ai more specialized and better than humans at those tasks. By contrast, the general Ai system can learn and then solve any or multiple problems presented to it, just like humans do.

Nevertheless, General Ai is still in its evolutionary stage. The future of General Ai is Super Ai, a theoretical concept that one day Ai will surpass human intelligence. Many scientists like Stephen Hawking and tech-savvy executives like Elon Musk have warned and considered Ai a threat to human existence.

There are various sub-categories or types of Ai systems, such as machine learning, deep learning, expert systems, fuzzy logic, natural language processing, and robotics. Over time all Ai systems have become more refined and sophisticated. For example, Machine Learning systems with better algorithms have replaced old algorithm programs and outperformed humans in many tasks. Machine learning and deep learning have become successful because of high computing power, better algorithms, extensive data collection, and investments in its development by tech giants like Google, Amazon, and Facebook.

IV. LEGAL PERSONALITY

From a sociological perspective, legal relationships are governed by either being a subject of law or the object of the law. Humans, for example, as persons, are subject to rights and obligations under the law. On the other hand, objects, like goods or products, do not have rights or obligations per se. As such, subjects are entitled to and are given the status of a legal person. Although every natural person is a legal personality, every legal personality is not necessarily a natural person.

An excellent example of this is the legal person status of a corporation. A corporation is a creation of a statute with similar rights and obligations as a legal person. A corporation can own, buy, and sell the property. It can sue and be sued.

In limited instances, objects and animals, other than corporations, have also been accorded rights similar to a legal person. This was illustrated when India's courts granted natural entities such as the river Ganges and the Yamuna the status of a legal person. All persons and legal personalities are subjects of law with rights and obligations regardless of the jurisdiction.

Hence, persons and legal personalities can be classified as follows;

- **Person**
  - Humans (natural)

- **Legal Personality**
  - Corporation (juridical/artificial person)
  - Humans (natural person)
  - Limited cases for animals & objects

The table below further illustrates the comparison of various traits, rights, and obligations, between humans, animals, corporations, and Ai.

	Humans	Animals	Corp.	AI
Intellectual Capacity	✓	limited	✓[1]	✓
Living Beings	✓	✓	☒	☒
Rights	✓	limited	✓	proposed
Obligations	✓	limited	✓	proposed

As can be inferred from the table above, Ai's closest resemblance is another artificial personality, i.e., corporations. Both Ai and corporations are capable of decision-making. Corporations exercise decision-making through their directors and officers, whereas Ai can provide outcomes/decisions based on its self-learning capacity or/and through a program's predictive model. Both corporations and Ai are artificial and not natural living beings. Corporations are subject to rights and obligations. This paper proposes that an Ai system should be made subject to similar rights and obligations. Whereas the Corporation is made up of humans who operate it, the Ai system is made by humans. Accordingly, both have a human component that is an indispensable part of the legal personality equation.

Rights

As Ai becomes more sophisticated, it is becoming capable of producing material that is original authorship. Ai is composing music, writing articles, drawing pictures, and much more. The question inevitably turns to the ownership of such work. Who owns this work, the Ai system that produced it, the designer of the Ai system, or the owner of the Ai system, and is that work protected just like original work created by humans?

In December of 2019, a district court in China held that an article produced by Ai program Dreamwriter was entitled to copyright protection and could not be copied without permission. As the Ai system's original authorship work gets more recognition, the need for granting rights to the Ai system becomes more imminent. Since a legal personality can only own such rights, it supports the idea of giving Ai a legal personality status.

Obligations

The role of Ai's work is expanding and is even visible in the field of law and justice. Ai is playing an increasing role in the dispensation of justice in the courtrooms. Changes are already underway that will dramatically change the process of judging and adjudication by either replacing, supporting, or supplementing the judicial role. This means that there is a greater need for transparency and fairness. An Ai system on its own, as a program, may not be capable of being held responsible or liable for its actions. These obligations can be fully recognized and attributed to an Ai system having a legal personality status.

Human Factor

Further, an Ai system with a legal personality must have a human constituent in it. Generally, laws are in place to hold humans accountable. If Ai systems are operating autonomously, and there is no legal personality ultimately responsible, there cannot be any real accountability. Therefore, the Ai system designer should be part of the legal entity. The Ai system cannot conform to the rights and obligations until there is a human component in it.

V. ARTIFICIAL INTELLIGENCE AS A LEGAL PERSONALITY

This paper argues that an Ai system, whether Narrow or General, regardless of its mechanics being machine learning, deep learning, or otherwise, is a right candidate for being regulated as an Artificial Legal Personality as long as it meets the following criteria. Thus, an Ai system that;

(i) is capable of learning on its own or through supervised learning,
(ii) is intelligent enough to render a decision or processes an outcome
(iii) and that decision or outcome affect humans in a significant manner is a system capable of being given an Artificial Intelligence Legal Entity (the "AiLE") status.

An AiLE so formed should include in its composition the Ai program/system and the programmer cum designer (the "Developer") of the Ai program. The Developer in the AiLE structure will have similar status and responsibility as a director has in the Corporation. AiLE as a legal personality will serve as identification and notice to the public in general that they are interacting with Ai legal entity-based system just as "Ltd", "LLC" etc., serves for corporations. That shall enable all the stakeholders to AiLE to the rights and obligations that shall flow from being a legal personality.

Legal Framework

Today, Ai is being used in healthcare, transport, finance, retail, manufacturing, and education, thus touching our lives daily. As the power, capabilities, and sophistication of the Ai system continue to expand, so is the public concern for the lack of regulations.

[1] Intellectual capacity in the form of decision making is exercised by the directors and officers of the corporations.

As stated above, Ai systems that impact humans should be granted a legal identification, but what would be the legal framework?

With traditional goods and services, only a certain percentage of large corporations are truly multinational with multiple countries' operations. However, Ai systems have a far greater global reach. Even a small Ai program embedded in a mobile App might have far greater international reach and consequences than a traditional company. Nevertheless, the regulations for administering Ai are lagging, as is the consensus on policies and procedures.

Hence, granting Ai systems Artificial Legal Personality has to be complemented by an international legal framework that has the flexibility of being administered and articulated locally.

Artificial Intelligence and Universal Protocols

In this context, there should be an agreement for the universal protocols of bare minimum standards of fairness, transparency, and accountability for all the Ai systems with Legal Entity status. These Universally Accepted Artificial Intelligence Protocols ("UAAIP") can serve as the guiding principle for all the AiLE.

Registration

The registration of AiLE should be done locally, just as the registration of a corporation. The compliance mechanism should also be administered locally under the umbrella of UAAIP.

Audit

Periodic audits of AilE should be required to ensure its compliance with the Universally Accepted Artificial Intelligence Protocols. These audits will have to be dynamic to ensure the observance of the protocols and that the Ai system is not making decisions or choices contrary to its mandate. For this, institutes and bodies should be established with the charter to train Ai specialized auditors.

Other Aspects of the Legal Personality of Ai

Corporations, the closest artificial person to Ai, are often regarded as entities that provide liability protection. The idea is that corporations take risks, with shareholders having the protection from the liabilities, resulting in shareholders enrichment, and ultimately it benefits the society, at least theoretically. However, other benefits and obligations of corporations are virtually overlooked in the discussion. Corporations can have immortality, separate legal identification, ease of share transfer, and have the rights & remedies available to all the stakeholders. Giving Ai the legal personality will enable it to take advantage of all these benefits and not just the limited liability.

AiLE & its Responsibilities

Limited liability for AiLE does not and should not mean no liability. The principal reason for granting the Ai system legal personality is to ensure the entity's proper legal identification. Resultantly, if something goes wrong, AiLE can be held responsible. Nevertheless, limited liability should afford enough protection that will enable the technology to evolve. In essence, to provide "limited" limited liability. It is important to note that wrongful decisions and outcomes can never be avoided entirely without abandoning the idea of machine autonomy. In this context, a degree of limited liability protection will be required for Ai legal entities.

As Ai plays an ever-increasing role in society, there is a greater need for Ai transparency and fairness that can be achieved by making the Ai system more accountable. It means a balancing act between regulation and innovation. The EU's regulators are also cognizant of this need and have tried to address some of these concerns in the General Data Protection Regulation (GDPR). GDPR Articles 22(1) has gone to the extent of allowing any data subject (human) the right not to be a subject of a decision based solely on automated processing if that decision produces significant legal effects to that subject.

Forming AiLE will allow an entity to be identifiable and responsible, especially in AiLE interaction with humans, which affects humans in a significant way. The EU Commission's white paper on Ai highlighted some vital issues for the Ai systems. The Commission highlighted seven key requirements:

a) Human Oversight
b) Transparency
c) Accountability
d) Privacy & Data governance
e) Fairness and non-discrimination
f) Safety and technical robustness
g) Societal and environmental wellbeing

These elements are also important reasons why Ai systems should be identifiable as a separate legal entity. The role these elements will play in the AiLE is discussed below.

Transparency and Notice

Identification of the Ai system is essential, and people subject to its decision must be made aware of this fact. Transparency, in that sense, has two aspects. First, it must be disclosed that the decisions or outcomes are a result of an Ai system undertaken either independently or under human supervision. Second, the Ai system should be able to explain the decision process that is understandable by humans. There should not be any "black box" concept of machine learning, where the system designer cannot explain why Ai arrived at a specific decision.

The Principles of Fundamental Justice dictate that every individual has a right to know the reasons for decisions that significantly impact them. Thus, an Ai system with a legal personality can be held responsible for fulfilling the duty of transparency.

Accountability

If an Ai system does something or someone wrong, resulting in a liability claim, it will require an accountability mechanism. However, if it is just an Ai program, it is unclear who will ultimately be responsible. Would it be the Ai designer or the product manufacturer with an embedded Ai system, the end-user, or the Ai program itself? The answer is to form an identifiable Ai legal entity that includes the human role as a Developer alongside with Ai system.

Duty of Care & Diligence

The Developer in AiLE will owe a duty of care similar to that of the director of corporations. This duty of care will be owed to all the stakeholders of AiLE, including the end-users and the humans who interact and are subject to AiLE decisions and outcomes. In this context, the Developer should act deliberately and cautiously while aware of the Ai system's possible undesirable consequences. Diligence would require the Developer to be cognizant of the Ai system's self-learning abilities and the possibility of unintended outcomes.

Fiduciary Duty

The Developer of the Ai system enjoys the level of expertise that an ordinary user does not have. It puts the Developer of the Ai system in a particular place of trust. Fiduciary duty will require the Developer to act in good faith while protecting and promoting the interest of AiLE.

Duty of Fairness

The Developer of the Ai system will have the duty to ensure that the Ai system outcome and decisions are fair and non-discriminatory. Further, the Developer will ensure that the Ai system's design does not have a hidden bias either by the designer's intent or by the data provided to train the Ai system.

VI. ALTERNATIVE PERSPECTIVE ON AI'S LEGAL PERSONALITY

Many people think that the subject of granting a legal personality to Ai is merely academic at the present stage. Their reasoning is based on the view of formulating a comparison between Ai and humans.

Personhood laws have also been presented in science fiction like the one authored by Isaac Asimov. Also known as Asimov's Robot law, it proposes an equitable solution for robots' protection and existence if they follow orders and do not harm humans.

Sometimes, the Turing Test, developed by Alan Turning in the 1950s, is incorrectly referenced in this context. The Turing test assesses a machine's ability to mimic intelligent behaviour equivalent to or indistinguishable from humans. It was not developed in the context of or for the purpose of legal personhood.

This view has been further reinforced by the recent development of Ai systems that suggest imitating humans or their functions. The creation of Sophia, a female robot that emulates the famous actress Audrey Hepburn serves as an example of making Ai more human-like. When the Kingdom of Saudi Arabia granted Sophia citizenship, many considered it a significant step towards recognizing the Ai system's personhood. Similarly, an Ai system named Vital was the first Ai system to become a member of the board of directors at a Hong Kong-based venture capital firm called Deep Knowledge Ventures DKV.

Even with these recent Ai developments, various research scholars have pointed out that since Ai systems are not self-aware and do not understand the consequence of wrongdoing, there is no basis for granting them legal personhood.

Ai is a novel innovation and requires novel ideas for governance. Wright Brothers were unsuccessful in creating an airplane by imitating the birds; instead, they did so by understanding the flight's aerodynamics. Birds and humans both achieve the same goal of flying but through different approaches.

Citizenship to Sophia, directorship to Vital, and Asimov laws of protection for robots have one element in common, i.e., the analogy with a natural person. It is self-evident that the Ai system or machines can never become a natural person. Nevertheless, there is a need to regulate Ai systems, and providing the Ai systems with a legal identity and status will enable better regulations. Thus, granting legal personhood should be viewed through the prism of regulation instead of merely Ai's ability to emulate humans.

VII. CONCLUSION

There will be a time when General Artificial Intelligence and Super Artificial Intelligence are developed to a level where they will match humans' capabilities or even surpass them. However, neither is it necessary nor prudent to wait for Ai to develop human-like capabilities for granting it a legal personality. The Ai systems are already very sophisticated, impacting our lives, unlike any other tools invented by humans.

One way forward can be to do nothing new and rely on existing responsibilities for wrongdoing tied to product users or manufacturers. Nonetheless, it will dodge the fundamental question of liability and accountability.

Ai systems that impact humans in a significant manner need a structure that is identifiable and accountable. It can be achieved by forming a legal personality/entity that includes both humans and the Ai system. An Ai system alone cannot conform to a legal personality's rights and obligations; it needs a human cohort.

With Ai's global outreach, a legal entity that works under the umbrella of universally accepted Ai protocols with local compliance and registration mechanism is the way forward. Further, charter institutes and bodies will be needed to build the requisite audit capacity to ensure compliance.

Ai's future lies in finding the right balance between regulation and innovation; ignoring either can be dangerous. Hence, creating an Artificial Intelligence Legal Entity (AiLE) will strike the right balance between regulating Ai while providing innovation space.

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