Hungarian Journal of Legal Studies 62 (2021) 4, 320–344
DOI: 10.1556/2052.2022.00352

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AI and international law – Legal personality and avenues for regulation

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ORIGINAL RESEARCH PAPER

Received: August 31, 2021 • Accepted: February 14, 2022
Published online: June 3, 2022

ABSTRACT

The development of AI has been an explosive process, permeating almost all areas of life. During this rapid evolution, the legal profession has been slow to catch up. This is especially true for international law, which seemingly remains indecisive regarding whether it has a role to play at all. This article aims at mapping out converging points between AI and international law. Through separating key elements of the definition and nature of AI, the possibility of its legal personality and the means by which AI may become a subject of international law are analysed. Utilizing various modalities regarding legal personality, such as that of inanimate objects, corporations and natural persons, the paper presents avenues for if and when decision-makers want to regulate the field. Last, the advantages and problems with bestowing legal personality and the potential future directions of international regulation are observed.

KEYWORDS

artificial intelligence, AI, legal personality, subjects of international law

> 'Before the prospect of an intelligence explosion, we humans are like small children playing with a bomb. Such is the mismatch between the power of our plaything and the immaturity of our conduct… A sensible thing to do would be to put it down gently, quickly back out of the room, and contact the nearest adult. Yet … some little idiot is bound to press the ignite button just to see what

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happens. Nor can we attain safety by running away … nor is there a grown up in sight.' – Nick Bostrom[1]

1. INTRODUCTION

Computer science and research into the field of artificial intelligence (AI) has been advancing rapidly over the last decades, leading to new breakthroughs and novel ways of applying the results. This has also created an innate challenge to our belief in human superiority. The fear of a developed AI in human consciousness – as depicted in literature, science-fiction and the media – is deep-rooted and influences our outlook and decision-making to a large degree. The advancement of AI has also had a profound effect on various fields of law, with lasting implications for criminal, contract, labour and intellectual property law, to name a few examples. In international relations, the competition to develop and control offensive and defensive AI systems has led to a new arms race that has so far resisted any attempt at binding regulation. As Russian President Vladimir Putin put it in 2017:

'Artificial intelligence is the future, not only for Russia, but for all humankind…It comes with colossal opportunities, but also threats that are difficult to predict. Whoever becomes the leader in this sphere will become the ruler of the world.'[2]

With diverging state interests, it is of little surprise that the field of public international law does not appear to be affected by recent developments. Given its slow decision-making and norm-creation processes, it is understandable why it is so slow to catch up. However, as with other areas of law, it cannot and will not be left unaffected for long. Therefore, this paper raises the question is it necessary to regulate AI in international law, and if so, what kind of regulation can be considered the best solution? Could the subjects of international law be widened to include AI and if so, in what form? The aim of the paper is to initiate discussion about the issue by providing an overview of the literature, mapping out avenues for regulation, and delving into the question of legal personality as well its advantages and disadvantages in terms of its use for AI entities.

2. AI AND INTERNATIONAL LAW

In grasping possible correlations between AI and international law, the concept of AI as well its fundamental characteristics must be defined, along with areas of overlap in the legal profession. Furthermore, a brief sectoral analysis is required, as well as a short note on how the international community has managed to respond so far.

2.1. Definition of AI

When defining AI, the earliest discussions revolved around the human-versus-rational issue, or whether thought and behaviour can be understood separately. As a result, the first definitions of

[1]Bostrom (2014) 259; Nash (2019) 15.

[2]The Verge, quoting Russian President Vladimir Putin at link1.

AI were based on whether the latter was deemed capable of human-like behaviour and making rational decisions; being able to 'think' or ready to 'make the right decisions'. The oldest and most widely known method for deciding whether an entity can be regarded as intelligent came about with the Turing test, which posed the question: can a machine think? – To which the answer was that if a machine can successfully converse with a human interlocutor without the human realizing that a machine is engaging in the conversation, it may be regarded as intelligent, according to the thought experiment.[3] A somewhat different concept of intelligence was defined by Schank, who lists five attributes an entity must possess in order to be considered intelligent: communication, world knowledge, internal knowledge, creativity and intentionality.[4] More than 30 years later, we can say that the criteria of communication and world knowledge has been achieved, while internal knowledge and awareness remain elusive, while creativity and intentionality as well as their meaning in the context of AI are still debated.

In contrast to attributing intelligence to artificial entities, Searle aimed to prove the futility of the concept of knowledge by creating the so-called Chinese Room thought experiment, which rests on the premise of an entity (be it human or artificial) being able to follow a set of instructions without understanding their meaning. To the outside viewer, the deduction can be made that in successfully following instructions and arriving at the desired destination knowledge was transmitted, even though the one in the room has no clue what the goal was, and nor do they possess the necessary deeper understanding.[5] When contrasting the Turing test with the Chinese Room thought experiment, we see how deep a rift there is in our understanding of the meaning of attributes linked to intelligence. This divide makes it harder to coin a universally accepted definition of AI and intelligence, and has led to the creation of several other formulae. The following three are used extensively in the literature (Tables 1 and 2).

Russel and Norvig described AI simply: 'AI can be defined on the basis of the factor of a thinking human being and in terms of a rational behaviour: (i) systems that think and act like a human being; (ii) systems that think and act rationally.'[6]

Nilsson and Maas took a different approach when they expressed AI as 'that activity devoted to making machines intelligent, and intelligence is that quality that enables an entity to function appropriately and with foresight in its environment'.[7]

Bertolini utilizes the term AI in a more convoluted and broad manner to encompass several concepts:

> 'A machine, which (i) may be either provided of a physical body, allowing it to interact with the external world, or rather have an intangible nature – such as a [piece of] software or program, – (ii) which in its functioning is alternatively directly controlled or simply supervised by a human being, or may even act autonomously in order to (iii) perform tasks, which present different degrees of complexity (repetitive or not) and may entail the adoption of not predetermined choices among possible alternatives, yet aimed at attaining a result or provid[ing] information for further judgment, as so determined by its user, creator or programmer, (iv) including but not limited to the

[3] Russel and Norvig (2009) 32.

[4] Schank (1987) 60; Solaiman (2017) 21.

[5] Searle (1984) 30.

[6] Russel and Norvig (2009) 2.

[7] Nilsson (2010) 13; Maas (2019) 30.

Table 1. Comparison of AI definitions

Element/Author	Schank (1987) Solaiman (2017)	Russel-Norvig (2009)	Nilsson (2010) Maas (2019)	Bertolini (2013)
communication	+			
external knowledge	+			
internal knowledge	+			
intentionality	+			
creativity	+			
thinking like a human being		+		
acting like a human being		+		
rationality		+		
proper function			+	
foresight regarding environment			+	
interaction and cooperation with the physical world				+
human supervision or autonomous action in performing tasks				+
modification of the external environment				+

Source: author's own compilation.

modification of the external environment, and which in so doing may (v) interact and cooperate with humans in various forms and degrees.'[8]

Why is it beneficial to show four sets of definitions when one would suffice? Partly to show that there is considerable discord concerning what to label 'AI', and second, because the

[8] Bertolini (2013) 219.

apparently divergent definitions share some similarities. Thinking and acting like a human being requires some degree of knowledge, and rests on the ability to communicate and supposes intent in most cases. In the definitions used by Nilsson and Maas, 'proper function' is hard to define, but rational decision-making – based on an algorithm as well as communication – that involves foresight regarding the environment presupposes external knowledge, intention, and the ability to think like a human being. Bertolini's definition also shares some features with previous ones; namely, the ability to interact with the physical world, which can be translated into communication skills; autonomous (or semi-autonomous) action, which can be equated with proper function and rests on knowledge of the outside world; whereas the ability to modify the external environment can be categorized as a typically human characteristic, as seen in the definitions of Russel and Norvig.

Some conclusions and remarks need to be stated at this point concerning the comparison of the definitions. First, we are comparing artificial intelligence to our own concepts of intention, creativity, and human-like behaviour. This approach is understandable and somewhat unavoidable but leads us into ethical and philosophical dilemmas about what it is that defines us as humans. Delving into much deeper discussion about what each individual term means would be the subject of a different paper entirely. Second, the definitions and the research behind them is much more thorough than the analysis presented here. A separate study on the meanings attributed to each element of the definition would be warranted. Third, the usage of different terminology is due to the diverse backgrounds of the authors, some of whom come from the field of computer sciences, and others from jurisprudence, while there are also other scholars who bring the expressions from their own areas of expertise to the mix.

On a side note, AI is often mistaken or misunderstood as equivalent to algorithm(s) (especially among jurists); as a result, a brief differentiation is necessary at this point. A traditional algorithm applies the same solution to various problems based on pre-determined variables (i.e. the same problem always results in the same solution), whereas AI is based on machine learning, thus the response to the same problem will vary based on previously used data.[9] This is akin to the human-thinking dimension of AI, according to which it is not only required to make rational decisions, but to come to different and viable conclusions depending on prior exposure to experience – similarly to how humans act differently in response to situations based on their different socioeconomic and cultural backgrounds.

When contrasted with a more recent definition by an international regulator, several similarities arise. The European Union (EU) has recently formulated the following working definition: An

> 'AI system' means a system that is either software-based or embedded in hardware devices, and that displays behaviour simulating intelligence by, inter alia, collecting and processing data, analysing and interpreting its environment, and by taking action, with some degree of autonomy, to achieve specific goals'.[10]

[9]Cerka et al. (2015) 378.

[10]Report on artificial intelligence: questions of interpretation and application of international law in so far as the EU is affected in the areas of civil and military uses and of state authority outside the scope of criminal justice, 2020/2013(INI), 4 January 2021, Art. 1.

These elements of the EU's definition can be derived from previous iterations of the same thoughts – for example, 'collecting and processing data' coincides with our perception of rationality, whereas 'analysing and interpreting its environment' is almost identical verbatim to previous concepts of 'foresight regarding its environment'. Noteworthy is the almost hidden inclusion of 'inter alia' in this description, by which intelligence is defined by its usual characteristics, but this depiction is not exhaustive, leaving open the possibility of better-defined formulations in the future.

For simplicity's sake, this article will use the expression artificial intelligence (AI) to refer to an independent entity, often without a physical manifestation, that operates independently or semi-independently from its maker; possesses knowledge; is able to utilize the latter in a manner not predetermined by its code; and is able to communicate with the outside world. This *ad hoc* definition is by no means perfect, but instead aims to synthetize previous definitions and concepts such as 'electronic persons', 'synthetic personality', 'robot', 'smart machine', 'intelligent artefact' and others that circulate in academia. The goal was not to create a new definition but to find the common ground in existing ones that fits our current understanding of technological development. However, this leads us to the question of how far has our current technology developed, and in general, how smart is AI?

2.2. The nature of AI

Present-day AI is not as smart as it is often presented in the media. It is indeed tasked with solving complex problems and is capable of calculating with various outcomes, but this is achieved through the experience-based development of its own database (heuristic machine learning), not via cognition as humans perceive it.[11] (Table 2) It is also worth noting that a lot of different fields are involved in the development of AI, such as statistics, linguistics, robotics, electrical engineering, mathematics, neuroscience, economics, logic, and philosophy to name a few, but it can also be understood as a sub-field of computer-science.[12] The most prevalent form of AI is machine learning, with 'learning' used as a term to make it easier for humans to understand the process through which a machine comes closer to a pre-defined goal and gradually improves its performance.[13] The other form is the rules, logic, and knowledge representation currently used in tax-law software, for example, in which a predefined set of rules along with knowledge of experts is embedded into software to create a system that appears intelligent in relation to finding optimal solutions for the user in the blink of an eye.[14] To complicate matters without delving into the technical details too much, it is also possible to have a combination of machine-based and rule/knowledge-based technologies, and even human interaction can be incorporated to create hybrid systems.[15] Even though the development of computer science is increasingly fast and its effects seem to be proliferating in nearly all fields of life, it is not as advanced as it is envisioned or feared. Compared to the human brain, the advantages of the former lie in faster computing, reliable

[11] Surden (2019) 1308.

[12] Surden (2019) 1310.

[13] Surden (2019) 1310.

[14] Surden (2019) 1316.

[15] Surden (2019) 1319.

Table 2. Some basic definitions and correlations concerning AI and its applications

Underlying concepts

Algorithm: a finite set of unambiguous instructions to solve a specific problem or calculations

Code: implementation and form of an algorithm in a specific programming language

Sources: Surden (2019) 1308–1319, Oxford Dictionary of Computer Science (2016).

information retrieval, longer retention of information, capacity to store more information, and the fact that it is easier to upgrade and update than the 'human processor'. Its ultimate limits, as of this moment, lie in the programming of the software.[16]

It is unlikely that we have reached the end of AI development. The road ahead could include the linking of individually created artificial intelligences, resulting in a pool of information and machine-learning algorithms whose retrievable knowledge surpasses that of humanity. This would lead to a superintelligence, also called Strong AI, General AI, Super AI or Singularity, which could be understood as '. . . any intellect that greatly exceeds the cognitive performance of humans in virtually all domains of interest.'[17] It remains currently undecided whether the evolution from artificial intelligence to 'super-intelligence' could occur 'naturally' – i.e. whether independent machine evolution could occur without human intervention.[18] To put things into perspective, a 2014 survey by Müller and Bostrom found that, according to the more than 500 experts who responded, the median probability of developing a high-level machine intelligence was around 50%, with a 90% probability of the event happening around 2075, and it would take an estimated 30 years from then to develop superintelligence. Another interesting finding of the survey is that experts predicted a one in three probability of this event being 'bad' or 'extremely bad' for humanity.[19] The findings of a survey from 2018 that included 350 experts reinforced most of these forecasts, while also showing that only 15% of interviewees believed in a 'bad' or 'catastrophic' outcome for humanity. The study also showed that Asian experts are expecting much more rapid development than their European or North American counterparts, with Chinese scholars giving an estimate of 28 years and US scholars 76 years before superintelligence becomes a reality.[20]

2.3. Ramifications for public international law

Even with the limited AI technologies we currently possess, their usage is beginning to shape the balance of power. This statement is especially true of the legal field. The application of AI-based technologies is becoming more prevalent in various fields of the legal profession with effects being felt extensively on trademark law,[21] intellectual property law,[22] civil litigation, company and tax law, which are already being analysed in much detail.[23] According to Maas, there are significant ramifications when it comes to the effect of AI on international law. As of this moment, it remains unclear what the exact consequences are, but they could potentially range from the amendment or adoption of new sources of law to technological replacement to the erosion and decline of the international legal order in the long term.[24] However, public

[16]Castel and Castel (2016) 3.

[17]Bostrom (2014) 22, 52.

[18]Castel and Castel (2016) 4.

[19]Müller and Bostrom (2016) 555, 563–66.

[20]Grace et al. (2018) 733–34.

[21]Curtis and Platts (2019) 43–47.

[22]Mezei (2021) 10.

[23]Burri (2017) 93.

[24]Maas (2019) 33, 38.

international law is somewhat resistant to AI technologies due to its nature and characteristics. It is hard to apply machine learning to international law directly. Reasons for this are numerous. They range from various subjects of international law having different rights and obligations; some treaty texts being notoriously ambiguous to interpret; customary international law being hard in some cases to ascertain; a large number of sources of jurisprudence that can orient decisions in an unpredictable way coupled with relatively few international court decisions; language barriers in the case of domestic court deciding cases related to the application of international norms (e.g. the practice of Dutch courts in the field of deciding on attribution in cases of extraterritorial jurisdiction); contradictions in the practice of various courts, to different interpretation of similar circumstances.[25]

As of today, only the roots of sectoral influence and regulations can be seen.[26] In international humanitarian law, for instance, semi-automated and fully automated defence structures, unmanned aerial vehicles (UAVs) and automated satellite systems – among other elements – are occupying the thoughts of decision-makers at the moment. The current consensus in academia about autonomous weapon systems can be summarized as fully automated ones are not considered to be lawful, but a low level of autonomy with meaningful human control could meet the standards of international humanitarian law.[27] As Burri shows, 'control' is a vague term that can be interpreted differently by states possessing highly advanced weapons systems where an operator controls hundreds of devices simultaneously, and other states with more conventional armaments that understand 'control' in a stricter sense.[28] We are at the point when there are ongoing debates about control, as well as the possibility of state responsibility for the use of autonomous weapons systems.[29] Nonetheless, every new technology (weapon, means or method of warfare) falls under Article 36 of Additional Protocol I to the Geneva Conventions, as well as the principles of international humanitarian law – specifically, the Martens Clause and the principle of distinction.[30]

Further matching areas can be identified regarding human rights to free speech and AI learning racist, homophobic, misogynist 'news' and making comments in a similar fashion while performing its functions as a chatbot. Legal practice could also be redefined with the advance of 'robo-lawyers' and streamlined legal procedures, even before international courts.[31] In the short term, matters of responsibility both in public and private international law concerning damage caused by self-driving vehicles could prove to be contentious as the technology is already available.

[25]Burri (2017) 94.

[26]Legal research is also facilitated by AI technologies, although to a lesser extent than in the natural sciences.

[27]See also the term 'meaningful human control' in Vincze (2019) 45.

[28]Burri (2017) 99.

[29]Castel and Castel (2016) 9.

[30]Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the protection of victims in international armed conflicts (Protocol I), Geneva, 06.08.1977., UNTS Reg. No. 17512, Art. 36.

[31]Private international law is more likely to develop in that direction first due to the preferred cost-effective solution-seeking attitude of multinational companies. States, on the other hand, could be more reluctant to relinquish sole human control in their international affairs.

2.4. Current regulation on the international level

If decision-makers aimed to regulate AI, the question would arise if it were at all possible to regulate as a singular entity or subject since its spheres of application occur under vastly different circumstances.[32] As is clear from the vast difference between self-driving cars and automated weapons systems, as well as the nature of AI, from machine learning to advanced robotics, there are a lot of ways in which AI can manifest itself, and the merger of AI with existing technologies is likely to cause headaches for decision-makers worldwide.

Over the course of the last decade, over a hundred states as well as a plethora of international organizations and NGOs have advocated for some semblance of international regulation. States – especially those with a high-level of interest in emerging AI research and development – have formulated policies for guiding development on a domestic level. Several NGOs and think-tanks have been established or taken it upon themselves to help with policy creation or laying the groundwork for future cooperation, such as the Centre for AI and Digital Policy,[33] The Future Society,[34] Equal AI[35] and the Global Partnership on Artificial Intelligence,[36] to name a few among many. On the level of international organizations, the United Nations and its specialized agencies play a central role, while the Organization for Economic Co-operation and Development (OECD) is also putting large emphasis on AI development. From a regional perspective, the efforts of the European Union will be analysed briefly. Since taking note of all the major initiatives in the international theatre deserves an article of its own, here only the most noteworthy of the latter will be shown, specifically from the perspective of legal personality.

The United Nations has its own research centre in The Hague (UNICRI – Centre for Artificial Intelligence and Robotics)[37] with the organization itself focusing on the advantages and opportunities of emerging technologies, as it regards the latter as valuable tools for reforming not only the internal processes of organizations, but for achieving the Sustainable Development Goals as well.[38] The United Nations Educational Scientific and Cultural Organization (UNESCO) took a somewhat different route. In November 2021, it formulated a global agreement on the ethical aspects of AI. A non-binding document by nature, it aims at creating for the UNESCO Member States a common denominator when it comes to shared guiding values and principles regarding development.[39]

In a similar fashion, the OECD has also tried to grasp the reins of leadership when it comes to global norms about AI. Its Council adopted a recommendation in May 2019.[40] The OECD emphasizes the need for the trustworthy and responsible nature of development. It has also been promoting the idea of states harmonizing their domestic policies when it comes to AI

[32]Chen and Burgess (2019) 91.

[33]Centre for AI and Digital Policy website at link2.

[34]The Future Society website at link3.

[35]Equal AI website at link4.

[36]Global Partnership on Artificial Intelligence website at link5.

[37]UNICRI website at link6.

[38]UN Secretary General's Strategy on New Technologies (2018) at link7.

[39]UNESCO Recommendation on the Ethics of Artificial Intelligence, No. 61910, 23 November 2021.

[40]OECD Recommendation of the Council on Artificial Intelligence, OECD/LEGAL/0449, 22 May 2019.

development. The document does not go beyond the establishment of overarching principles and providing a forum at which OECD Member States can cooperate and share information and good practices.

Among the major regional organizations, the European Union has been the most prolific regulator (at least in terms of soft law). An early iteration was the RoboLaw Project, which explored five fields where regulation is desirable '… in order to promote innovation in the internal market and foster competitiveness making robotics a strategic sector while adhering to European values': (i) health, safety, consumer, and environmental regulation; (ii) liability (including product liability and liability in certain sectors); (iii) intellectual property rights (both for robots themselves and for works created by robots); (iv) privacy and data protection; (v) and the capacity to engage in legal transactions (e.g. whether intelligent agents can enter into contracts).[41] Since the conclusion of the project, the EU has been involved in the creation of a flurry of norms. The European Parliament, for instance, adopted three different norms in October 2020 on civil liability regimes,[42] intellectual property rights,[43] and on the ethical aspects of AI.[44] Earlier in 2021, in the Commission's proposal to the Parliament, emphasis was put on ensuring transparent processes, safety, and security, as well as meeting existing human-rights obligations.[45] As enshrined in these documents, the approach of the EU is to look for and explicitly name the natural and legal person behind the AI system or technology.

As can be seen, international organizations have only just begun research on how AI can be used to achieve their goals and the few initiatives they have focus on mapping opportunities – and even that is done in a most cautious way. Therefore, it is most likely that states and multinational companies – with vested interests in national security and profit, respectively – will be the torchbearers in regulating and developing AI-based technologies. This seeming discrepancy can be observed through the example of the European Union. Although lagging behind from a technological development standpoint, the EU has emerged as one of the most prolific regulators. However, if international law wishes to play a part and prepare for the arrival of more developed technologies, it can immerse itself in the thought-experiment of whether AI may not just be granted legal personality, but whether it can become a subject of international law. The following parts of the article detail these possibilities.

[41]Regulating Emerging Robotic Technologies in Europe: Robotics Facing Law and Ethics, Final Report, Project No 289092, 31 May 2014, link8.

[42]European Parliament resolution of 20 October 2020 with recommendations to the Commission on a civil liability regime for artificial intelligence, 2020/2014.

[43]European Parliament resolution of 20 October 2020 on intellectual property rights for the development of artificial intelligence technologies, 2020/2015.

[44]European Parliament resolution of 20 October 2020 with recommendations to the Commission on a framework of ethical aspects of artificial intelligence, robotics and related technologies, 2020/2012.

[45]Proposal for a Regulation of the European Parliament and of the Council Laying Down Harmonized Rules on Artificial Intelligence (Artificial Intelligence Act) and Amending Certain Union Legislative Acts,COM/2021/206 final, 21 April 2021.

3. THE QUESTION OF LEGAL PERSONALITY AND BECOMING A SUBJECT OF INTERNATIONAL LAW

3.1. The expansion of the subjects of public international law

States as the primary subjects of international law have maintained their preeminent role in shaping the field: from treaties to international customary law, their practice is what defines the creation, modification, or abandonment of norms. States are not the only subjects, however. As international organizations emerged from the second half of the nineteenth century onwards and went through rapid phases of expansion in the twentieth century, so too was the legal status of other subjects gradually accepted. With strong arguments supporting the legal status of individuals as subjects of international law after the Second World War, special concepts emerged to become new subjects, such as mankind. There are several entities whose subject status is debated and currently rejected by the majority of scholars – namely, multinational companies and non-governmental organizations (NGOs). What we can currently deduct is that having a protection regime in favour of something does not make it a subject of international law. Even if a myriad of international treaties exists to protect wildlife or cultural heritage, they are still treated as protected and regulated objects and not as subjects of international law. When it comes to the animal kingdom, Ashrafian draws a parallel between AI and animals, insofar as both AI and animals are sometimes bred/coded to fulfil a specific role or have pre-defined characteristics (when it comes to rescue dogs, for instance).[46] The similarities stop here, however. Animal protection norms have developed substantially over the last few decades, but the protected status of animals is still insufficient for them to obtain legal personality or became subjects of international law. The protection regime is centred around eliminating animal torture and unnecessary harm (domestic abuse – pets; chemical or pharmaceutical testing – rabbits and rats; hunting, poaching and trafficking – whales, elephants, tigers, etc.), but does much less to avert the systematic culling as seen with the meat and dairy industries. As of this moment, AI and the robotic bodies they inhibit receive no protection whatsoever. They can be freely switched off, dismantled, deleted, or taken apart as objects, which can be justified by their lack of cognition or sentience.[47]

3.2. Legal personality

Personhood used to be solely applicable to humans, but it raises a lot of questions even regarding natural persons – for instance, regarding where it ends and begins. Heated debates rage on about abortion, euthanasia, and the death penalty, all of which involve defining the boundaries of human life.[48] Still, humans were and sometimes are still not treated equally. Ranging from historic examples (different strata in the region of the Fertile Crescent, Hellenistic Greece, Rome, etc.), and in the case of slavery, women, minorities, refugees, and indigenous peoples, not even every human has enjoyed the same status. Indeed, that we argue for an inalienable common

[46] Ashrafian (2015) 321.

[47] Except when they represent monetary value and actions taken against them would cause damage to the property of the owner.

[48] Solum (1992) 1284.

denominator purely because we are all humans is due to the approach of modern human rights that seep into every area of society. However, when in need of new solutions, human ingenuity has found answers. When economic growth was on the line, legal systems developed the concept of legal persons (fictions through which humans can act), separating assets and responsibility between the natural and the legal person. The question therefore arises: could AI be given some sort of legal personality? Besides the hypothetical legal solution, the consequences of such a decision must also be analysed.

In domestic law, legal personality is 'given' by the state as a higher authority if the conditions for it are met. For example, in order to create an economic venture in the form of a company, one must satisfy the rules set out by the state and submit an application. If the conditions are met, the entity is established as a legal person per the decision of state authority. International law operates in a fundamentally different setting. Lacking a supranational entity, or proper branches of power, subjects of international law and the characteristics of the legal personality they possess 'organically evolve' as stated by the – usually numerous – documents that support their legal personality. To make the example more vivid, the legal personality and subject status of one of the latest subjects of international law, individuals, are on the one hand supported by a myriad of international human-rights treaties and soft-law documents, while also reinforced by the phenomenon of individual criminal responsibility and applicable UN Security Council resolutions and treaties, as well as the practice of various international tribunals. The divisible nature of legal personality and the various degrees of legal personality were enshrined by the advisory opinion of the International Court of Justice in the Reparations Case when it differentiated the legal personality of international organizations and states, and between the subjective legal personality of international organizations and the objective legal personality of the UN.[49] We can therefore conclude that obtaining legal personality is not an instantaneous act in international law, but rather a long process, and a stratified version of the former that suits the goals of the international community is often the outcome. This could be the path for AI as well.

There are several options in legal theory regarding how to understand legal personality. The various types of theories are not answers in themselves, but rather serve as theoretical bases for custom-tailored solutions. This starts with concession theory that treats AI or systems of AI as having a limited capacity to act – similarly to companies, while *ultra vires* acts need human authorization. Fiction theory renders the subject capacity to act only through natural persons. Symbolist theory argues that such an entity as AI having similar legal status as a company would indicate that it is more than its constituent parts, but does not go beyond explaining already existing premises of law, besides highlighting possible conflicts of interest between the legal person and the natural persons comprising it. Last but not least, Realist theory focuses on the differences between natural and legal persons as they are applicable to AI, such as some repercussions not being available (such as arrest), the collective nature of decision-making, the natural person actor (a human representative acting on behalf of the entity), and the various forms of legal persons that have been created in domestic legal systems which provide a generalized set of applicable rules.[50]

[49]Reparation for injuries suffered in the service of the United Nations, Advisory Opinion, I.C.J. Reports 1949, 174.

[50]Cerka, Grigienė and Sirbikytė (2017) 693–95.

Based on the abovementioned theories, there are three modalities through which AI can be understood in legal terms and regulated. The first avenue is object treatment, whereby AI would be in the same situation as it is currently: without the capacity to bear responsibility or be awarded rights. The second possibility would include minor modifications of the existing normative framework by applying one of the pre-existing corporation models. The third and most radical proposition would entail 'human treatment' by awarding AI a separate legal personality.[51] In most legal systems, object treatment used to be the reality until recently. With the prevalence of AI in various fields of life, the modification of existing norms needs to occur – this is the development we are witnessing currently. Applying human treatment is utopian at this moment since AI has not yet reached the point in its 'evolution' at which its status and characteristics would warrant similar treatment to that of humans. Nonetheless, several authors (Ashrafian, Jaynes, Hallevy) warn that preparation for this eventuality could prove to be a prudent course of action.

3.3. The status of inanimate objects in international law

If we understand objects as means to an end, AI in its current form is most likely to be considered an object.[52] If we say, however, that agents are different than objects, and the differentiation is based on intelligence – as established before – then AI will be treated differently from a legal perspective. In this respect, intelligence can be defined as when a concrete path to reaching an ultimate goal is not defined, but previously available data (the socio-economic and cultural background for humans, or in the case of AI, the code) enables decision-making with the end-goal in mind.[53] At this point, if we lean towards AI not fulfilling the 'intelligence' requirement and come to the conclusion that it is an object, it could be compared to other objects of special status in international law. The question driving this section of the study is therefore the following: if there is an existing practice of giving a special type of legal personality to inanimate objects, such as rivers, why can't the same method be applied to AI, another inanimate object?

Inanimate objects having legal personality as in the case of the Ganges and Yamuna rivers in India[54] or the similar drive to achieve legal personality for the Te Urewera National Park and rivers such as the Whanganui by the Maori peoples of Aotearoa (New Zealand)[55] is a recent development in international law.[56] Providing rivers with legal personality is associated with the advantage of incorporating a protection regime into the existing normative framework.[57] Thereby, it makes it easier for environmental activists and progressive courts to safeguard waterways as integral parts of ecosystems. The same is hard to imagine when it comes to AI as it

[51] Chopra and White (2004) 2.

[52] Schirmer (2020) 4.

[53] Matthias (2004) 175–83; Schirmer (2020) 4.

[54] Hutchinson (2014) 179–82; Ganges and Yamuna rivers granted same legal status as human beings, Safi (2016).

[55] Morris and Ruru (2010) 54.

[56] White (2018) 131.

[57] Eckstein et al. (2019) 815.

is looked upon as either a tool or a threat that is not to be protected, but either used, or its growth potential limited so as not to cause a threat to humanity.[58]

For once an inanimate object is recognized as a legal person, it has its own standing, its own injuries can be recognized, and it can be a beneficiary in its own right.[59] However, when we draw a parallel between rivers and AI, the differences appear to be much more accentuated than the similarities. Certainly, both are inanimate objects, regarding which regulation is important. Besides these similarities, the reason, method, and goal of the regulation are not the same. The reason why some rivers are recognized as legal persons is to give them standing before the law so that their status can be protected. This could be the result of environmental activism or the protection of indigenous peoples' rights, which leads to their long-term protection. In the case of AI, the reason for the attempted regulation is the fact they are involved in an increasingly large number of facets of everyday life. It is becoming apparent that regulation would only be possible in a non-generalized way, as there is no single AI to regulate (yet), but rather in a sectoral manner, starting with the most technologically developed spheres (consumer protection, trademark law, intellectual property law, autonomous weapons systems). The end goal of the regulation is not to protect AI – as it is in the case of rivers – but to protect humanity from the myriad of potential threats and disruptions a highly evolved AI system is capable of.

Other movements also aim at safeguarding the rights of indigenous peoples and special connections to nature. There is a palpable drive to utilize ILO Convention 169 to provide aid to indigenous peoples by acknowledging their right to their ancestral land and recognizing the importance of their role in protecting it.[60] The landmark UN General Assembly resolution UNDRIP – United Nations Declaration on the Rights of Indigenous Peoples – also needs to be noted, as since 2007 it has served as one of the key documents in defining the connection between the state and indigenous peoples, enabling these groups to strive for legal personality for landmarks that are sacred to them.[61]

In South America, Ecuador and Bolivia deserve special mention. In 2008, the Constitution of Ecuador granted inalienable rights to nature by claiming: '[it] has the right to integral respect for its existence and for the maintenance and regeneration of its life cycles, structure, functions and evolutionary processes.'[62] Pachamama, or Mother Earth, is thereby granted special protection as a *sui generis* subject of law – undoubtedly a special status in domestic law.[63] The case of Ecuador is particularly interesting because of another aspect which seemingly remains hidden between the lines. The Constitution of Ecuador provides that each and every citizen of the state may bring a suit on behalf of the ecosystem. By doing so, Ecuador bridged the gap between *de jure*

[58]It also deserves mention that such major movements must have seemed impossible in the past when one thinks of the rights of women, slaves, refugees, persons of colour, etc.

[59]Morris and Ruru (2010) 54–55.

[60]Convention (No. 169) concerning indigenous and tribal peoples in independent countries, Geneva, 27 June 1989, UNTS 28383 Art 5.

[61]United Nations Declaration on the Rights of Indigenous Peoples, United Nations General Assembly, A/RES/61/295, 13 September 2007 Art. 12.

[62]Constitution of the Republic of Ecuador, 2008, Art 71.

[63]White (2018) 140.

and *de facto* legal personality as it allowed other actors to substitute for Nature in legal proceedings, thereby supporting its standing.[64]

Bolivia took this a step further by sponsoring the 2010 Earth Rights Declaration and contributing to the establishment of the International Rights of Nature Tribunal.[65] Both the Earth Rights Declaration and the decisions of the Rights of Nature Tribunal are non-binding in nature, with the former to be considered a political document detailing the intentions and goals of its creators and the latter providing recommendations in cases concerning mining, deforestation, or in situations regarding the flora of the seas and oceans, such as the Great Barrier Reef.

Treating an entity as a special subject of international law is not alien to the system. A '*sui generis*' status under its own rules, a legal regime akin to the common heritage of mankind (UNESCO world heritage list, Moon) or one similar to that which applies to Antarctica – governed by a separate international treaty – could be theoretically feasible. Such a move would require the consensus of the international community regarding either forming an international treaty or developing international customary law – both utopian at this moment and not likely to happen in the near future. There is precedent to the near instantaneous creation of customary law, however: in the late 1950s, when the legal regime of outer space was conceived. Political will is nonetheless required, which is currently missing as there are only a few states that have opted to regulate the matter internally. Even if it makes media headlines, the domestic regulation of inanimate objects remains the exception and not the rule. Japan providing a residency permit to chatbot Shibuya Mirai[66] and Saudi-Arabia granting citizenship to Sofia in 2017[67] serve the purpose of showing a friendly attitude towards emerging technologies and do not reflect a domestic consensus on their legal status. A few years ago, these cases attempted to signal to the world the commitment of Japan and Saudi-Arabia towards a more liberalized and progress-friendly AI-attitude. However, a legal personality would require a combination of certain rights and obligations, none of which were detailed when the respective AIs were granted residency and citizenship. As several scholars have pointed out, these moves ran counter to the citizenship and residence provisions of Japan and Saudi Arabia, and are therefore questionable examples.[68]

3.4. Companies, limited legal personality and 'halfway-status'

Another possibility would be to borrow elements from the limited legal personality of companies and apply them to AI. The difference between companies and AI can be summarized briefly as 'one is made up of humans, the other is made by humans'.[69] Besides this obvious notion, there might be good practices in regulation that could be adapted to serve as a solution to the legal-status dilemma of AI. A so-called 'halfway-status' and similar albeit differently named concepts

[64]Bryson, Diamantis and Grant (2017) 281.

[65]White (2018) 139.

[66]Cuthbertson (2017).

[67]BBC on granting Sophia Saudi citizenship, at link 9.

[68]Atabekov and Yastrebov (2018) 776–77.

[69]Solaiman (2017) 174.

are proposed by Asaro, Balkin, Calo, Schirmer and Solum.[70,71] When contrasted with 'full' legal personality, they can be described as follows. A natural person starts with all rights and obligations intact, and a valid and justifiable reasoning must be given for a right to be taken away.[72] The situation shifts with regard to a halfway-status-type of legal person. They start with no rights or obligations, and are given some as the need arises, with each right that is given required to have justification – *i.e.,* as required to permit the agent to perform its functions. This is a common method in both Anglo-Saxon and continental civil law when it comes to companies before registration.[73] At this point, it is worth mentioning that companies have a well-established standing in international law, as highlighted by the International Court of Justice's finding in the Barcelona Traction case.[74] Even though it has received considerable criticism over the course of the five decades since the judgment was rendered, it still defines our current understanding of companies in international law, leaving little room for improvement.

Such a solution is not unheard of in international law – international organizations have similar limitations (with the UN being the exception rather than the rule). International organizations are established in order to work towards specific goals. Should they decide to conclude treaties which fall outside of their domain – as specified by their founding documents – this will result in the treaties being invalid. This seemingly elegant compromise does not address the issues of responsibility and negative consequences associated with torts or possibly criminal conduct. Therefore, a comparison between human and AI legal personalities is necessary.

3.5. Possible status as individuals

If we consider regulating the legal personality of an AI entity in the same way as a natural person – an individual – this would entail the former needing to be responsible for their action, to be able to be engaged in legal interactions on their own, and to possess their own distinct rights and obligations.[75] There are two axioms that can be applied: 'An individual will always be a legal entity with legal personality but a legal entity, an artificial entity will not have the same rights as a natural person'[76] and 'The scope of legal personality is measured by the need of society under different circumstances.'[77] Based on the above two statements we can state that the legal personality of AIs is at this moment granted by humans according to human needs. If a legal personality is to be given to AIs, we can turn to Naffine, who offers us three models. The first one being the (lucid) Cheshire Cat: a blank and neutral slate capable of bearing the amount of rights and obligations necessary for society. The concept is applicable to both humans and AI and is applied widely to legal persons. The second choice is treating AI as akin to 'any reasonable

[70]Asaro (2007).

[71]Solum (1992) 1231–87.

[72]For vivid example, see also the European Court of Human Rights' practice and established conditions when it comes to the derogation of human rights.

[73]Schirmer (2020) 13.

[74]Barcelona Traction, Light and Power Company, Limited, Judgment, I.C.J. Reports 1970, 3.

[75]van den Hoven van Genderen (2018) 19–20.

[76]van den Hoven van Genderen (2018) 25.

[77]Crawford (2012) 17.

human creature'. This method assumes awarding a legal personality based on that which humans have as a template. It can be limited – as in the case of minors – and it constitutes a flexible and human-centred approach that can reflect on the development status of AI. The third avenue is the responsible subject treatment, which is tied to a certain level of mental capacity – which may exclude some humans – similar to criminal responsibility.[78]

Proponents of providing AI with rights and establishing a protection regime include Jaynes, who argues that a complete rights-protection regime should established in order to handle the development of AI, and draws up a list of the most fundamental rights to be given to AI that are much akin to those of humans (i.e. emulating human rights) with the reasoning that AI will soon be indistinguishable from humans.[79] Hallevy analyses models of criminal liability with regard to AI entities and draws the conclusion that it is possible for an AI entity to commit a crime and proposes several avenues for punishment.[80] The main critique of his argument concerns the mental element (*mens rea*) related to committing a crime. In almost all legal systems 'knowledge' of an act is required as well as an understanding of the consequences. For AI at this stage of development, it is impossible to envision that it could comprehend the effects of its action on society. This is because even though AI can create, compare, and recite definitions from vast databanks, it cannot understand the concepts humans associate with them. In short, comprehending abstract terms and applying them in the context of criminal acts is one factor that differentiates human and artificial conduct, making it impossible for AI to be held liable criminally.

Another advocate of AI as a potential bearer of rights and responsibilities based on pre-existing human-rights framework is Ashrafian.[81] His reasoning that 'humanity is obliged to provide fair and humane' conditions to AI because it is in the nature of human society to do so[82] is not convincing. First, as has been established, AI is not near the point of achieving sentience, which would be a prerequisite for it to evaluate its own situation and deem it 'unfair' or 'unjust'. Second, AI built on machine learning, as well as previously inserted rules and knowledge, is capable of applying terms and coming to conclusions without understanding the meaning of those conclusions. As a result, we can deduce that it cannot comprehend the value-based system of human rights.

When it comes to sentient AI, however, the applicability of the content of human norms is debatable for other reasons. After developing a conscience and becoming capable of thinking/acting like a human, a plethora of unanswered questions would emerge concerning AI and marriage, slavery, and labour laws, voting, tort and damages, etc.[83] For instance, enslaving and exploiting an employee is currently prohibited in almost all legal systems in some form. If we were to translate this to AI and the robotic bodies they could be situated in, we get a different picture. The AI would not get tired and might not understand its working conditions as slavery, since it was created (programmed) to fulfil a role. It is impossible to say what it will 'think' about

[78]Naffine (2003) 346–67.

[79]Jaynes (2020) 349–50.

[80]Hallevy (2010) 179–180.

[81]Ashrafian (2015) 322–23.

[82]Ashrafian (2015) 326.

[83]van den Hoven van Genderen (2018) 249.

the right to assembly, to go on strike, or to have a maintenance break, however. It is a valid means of soothing humanity's inherent fear of an AI revolt to promote advanced human rights norms instead of Asimov's three laws to prepare for this eventuality.

Chesterman argues that providing some sort of legal personality to AI is feasible but raises the logical question whether it is desirable.[84] Indeed, the *raison d'être* of legal personality is awarding the capacity to bear responsibility and rights. When it comes to responsibility, however, there is always someone 'behind' AI – a manufacturer, user, programmer, etc. Otherwise, the AI can only be 'punished' by terminating it. Being capable of decision-making and advanced machine-learning does not render AI capable of understanding or 'feeling' concepts such as punishment or humiliation. The same reasoning applies to rights. The ultimate beneficiaries of those rights would be the same natural persons who bear responsibility, with the AI not being able to compute human categories such as the protection of rights before a court of law or use a form of currency as reward.[85]

Summarizing the debate on legal personhood, some argue in favour of granting legal personality to AI, while others treat them as mere objects. The majority of the literature advocates for the application of a distinct set of rights and obligations, primarily relating to contractual obligations, while the human behind the AI (the programmer or user) would retain criminal liability. Becoming a variation of a legal person would be contingent on the AI obtaining self-awareness.[86] Right now, not even progressive EU decision-makers are proposing giving legal personality to AI.[87] This eventuality being at least several decades away might bring us comfort, but if and when it happens, we should realize that the methods and velocity of our current decision-making processes are inadequate for solving the problem. As a result, research is needed on which the discussion can commence in order to map outcomes and avoid unwanted results.

4. CONCLUDING REMARKS AND THE WAY FORWARD

There is extensive literature on AI and how it will influence our everyday lives. These studies focus on societal, philosophical, ethical or technical aspects. When it comes to law, the labour, trademark, intellectual property and liability domains are usually in the forefront of academic interest. What are scarcely analysed, however, are the ramifications for public international law – namely, if it has a role to play, or if there is a reasonable possibility for AI to attain some form of subject status in public international law. As a bare minimum, initiating an interdisciplinary and robust dialogue – and in doing so, urging law-makers to step-up, familiarize themselves with the field, and adopt necessary regulation to enable further research and understanding of the subject – is essential.[88] It can be established that taking a multidisciplinary, interdisciplinary

[84] Chesterman (2020) 830.

[85] This deduction would change, however, if AI reaches the sentience threshold.

[86] Hildebrandt, Koops and Jacquet-Chiffelle (2010) 557–60.

[87] It must be noted, however, that the experts of the EU have only analysed granting legal personality to AI from the point of view of liability. European Commission – Expert Group on Liability and New Technologies Liability for artificial intelligence and other emerging technologies (2019) 37–38.

[88] Calo (2015) 560–61.

and normative approach is first necessary for solving the issue of emerging AI technologies and their application to our everyday lives.[89] On the one hand, experts from various fields of life need to launch a dialogue that would include the computer scientists responsible for programming, lawyers who can contribute with regulation, as well as ethics experts who can advise which human values must be included in algorithms. On the other hand, this would also mean the commencement of a dialogue domestically as well as on the inter-state level between experts in the field so that decision-makers are informed and can grasp the opportunities and dangers posed by AI. Internationally, such a discussion would assist with the preparatory stage of treaties by creating drafts which could also serve as soft-law sources in the case that international consensus cannot be achieved. Alternatively, the establishment of a new international organization could be on the table. Erdélyi, Goldsmith and Nash argue that the best solution would be to establish a new international organization. The advantages of such an initiative would be numerous: binding commitment in the form of contributions by states so that the normative framework is unified, collective oversight and enforcement mechanisms, the transparent sharing of information and possibly technology, and a chance for the former to become a fair and legitimate regulator.[90] Such an organization would have the benefit of combining the knowledge of experts and being able to prepare international treaties for regulating AI. The proposal is an intriguing one, albeit political will for this on the side of states seems to be missing entirely at the moment. Disparity can be observed when it comes to the incredible speed of research and development of AI-based technologies and the lack of initiatives and cooperation on the state level. This seemingly illogical mismatch can be explained by the dual nature of AI technologies.[91] States are inclined to share and cooperate when it contributes to their economic growth and when applying new technologies which move their country forward, but are staunchly opposed to sharing their offensive and defensive military-grade technologies. Since the underlying algorithms could have similarities, states have opted not to share at all in order to avoid leaking potential military technology to other countries. As such, any international treaty or the establishment of an international organization is substantially hindered by the current approach. Drawing an analogy, as the major powers could not be convinced or coerced into joining the most important international treaties (TPNW, CTBTO) even while nuclear weapons technology has been understood for almost eight decades, it is unrealistic to assume that the same states would be willing to cooperate and regulate something their own lawmakers can hardly grasp. Alternatively, if a general solution cannot be obtained, the emergence of domestic law-making with minimal or no influence from the field of international law that might converge as soft law appears to be a feasible scenario.[92]

Sectoral development is the current reality. This can be a catalyst of change, but there is no movement aimed at stepping up to a truly universal level. The development of AI is progressing at a pace which is practically unheard of in international law. As a result, it is doubtful that regulation can catch up in time. The essential work at this juncture is setting out plans for possible scenarios and initiating academic discussion on the subject which at one point will

[89]Larsson (2019) 592.

[90]Erdélyi and Goldsmith (2018) 98–100.

[91]Nash (2019) 14.

[92]Burri (2017) 106.

hopefully assist decision-makers. Regarding future development, it can be ascertained that AI as an agent will be regulated, while giving AI legal personality is not likely to occur in the near future.[93] The latter notion exists only as a utopian (or dystopian, depending on one's stance) idea for the moment, but some scholars warn that the establishment of a protective regime prior to the emergence of a veritable machine intelligence is necessary as a safeguard to protect its thinking process and dignity, eventually leading to some form of personhood.[94]

Finally, let us not forget that our approach is inexorably always an anthropomorphic one – providing the chatbot Sophia with a face; only being capable of understanding AI as a juridical person – thus humans are trying to fit it into categories comprehensible to us. Not being able to comprehend something as alien and foreign as AI, it should be considered that none of our pre-existing solutions might be applicable.[95] One of the most pressing questions for the development of AI concerns its interconnectedness to the online presence and related interactions. The challenge is adopting regulation that is flexible enough to allow AI to 'create' in the domain of intellectual property, for instance,[96] but to transmit value systems that deter it from resorting to racial slurs while performing its function as a chatbot.[97] Ultimately, AI will develop according to the input it receives. If machine-learning processes could be applied to implant it with human values and safeguards, it can make fundamentally beneficial changes to human lives.

ACKNOWLEDGEMENT

The writing of the present paper was made possible by support from project TKP2020-NKA-09 of the National Research Development and Innovation Fund, financed by the Thematic Area Excellence Program 2020.

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[93]Pagallo (2018) 230.

[94]Dowell (2018) 327, 333–34.

[95]This idea was labelled the 'android fallacy' in Richards-Smart (2016) 18–21.

[96]Balkin (2015) 55.

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