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Legal personhood for artificial intelligence: citizenship as the exception to the rule

Tyler L. Jaynes¹

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Abstract

The concept of artificial intelligence is not new nor is the notion that it should be granted legal protections given its influence on human activity. What is new, on a relative scale, is the notion that artificial intelligence can possess citizenship—a concept reserved only for humans, as it presupposes the idea of possessing civil duties and protections. Where there are several decades' worth of writing on the concept of the legal status of computational artificial artefacts in the USA and elsewhere, it is surprising that law makers internationally have come to a standstill to protect our silicon brainchildren. In this essay, it will be assumed that future artificial entities, such as Sophia the Robot, will be granted citizenship on an international scale. With this assumption, an analysis of rights will be made with respect to the needs of a non-biological intelligence possessing legal and civic duties akin to those possessed by humanity today. This essay does not present a full set of rights for artificial intelligence—instead, it aims to provide international jurisprudence evidence *aliunde ab extra de lege lata* for any future measures made to protect non-biological intelligence.

Keywords Artificial intelligence · Bioethics · Legal personhood · Technoethics

1 Introduction

What prevents us from assigning rights to entities that have a significant influence on our daily lives? Activists have been attempting to grant rights to a variety of non-human organisms and natural structures with varying degrees of success both on national and international levels. When we address the question of whether machine intelligence¹ should be protected under human laws and granted intrinsic protections, the arguments “for” and “against” are fairly monotonous in contrast to other issues. The unintended consequences of this seemingly single-toned dialogue are that it prevents scholars from straying too far from the mainstream areas of research and creates a deluge of repetitive information that does not aid in advancing discussions surrounding the need to protect human-made intelligence systems.

A primary issue to discussing rights for machines, intrinsically, is that it is difficult to accept that something designed only to support a human's intellectual capabilities can stand

on an equal legal or moral ground as a human—the only being currently understood to possess both various mental states and intelligence. There is also the issue that artificial intelligence (AI) elicits a variety of images from both our current technologic capabilities and science fiction in the average individual's mind—and it seems as though humanity is content to view AI in our romanticised, fictitious renditions when discussing machine intelligence (MI) systems. It is not that humanity is *unwilling* to accept the concepts that are AI and MI, but rather that we are *idealising* AI and MI when our current technologic abilities do not match the conditions to produce these fictitious standards or even the predecessors to them (Barrat 2013). Though looking to the future is advisable for many reasons, setting unattainable standards and expectations leads us into confusion when attempting to discuss how our current society should address the concerns technology will inevitably present us with.

Nevertheless, there have been calls to grant protections to non-biological intelligences in recent years (Hubbard 2011; Dowell 2018). These calls exist not to oppose the general

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¹ Far more commonly referred to as “artificial” intelligence given that the intelligence is non-biologic in nature.

sentiments given above, nor to encourage us to romanticise futures that are neigh unattainable, but to emphasise that the ethical treatment of other beings is essential to the human experience. While humanity may never comprehend the moral ideologies of other species (biologic or non-biologic),² the fact that ethics exists as an academic discipline proves how integral moral behaviour is to us. As such, it is equally as crucial that humanity considers how non-biologic entities are treated both on a legal and moral basis given their interaction with human society (Wein 1992; Dowell 2018).

Without developing a set of legal and moral rules regarding the treatment of artificial general intelligence (AGI) and other non-biologic intelligences (NBIs), humans cannot fulfil our moral duty to preserve the foundations of the social contract. Here, AGI refers to computer-based intelligence that is greater than or equal to human intelligence and NBI refers to computer-based or non-terrestrial³ intelligence in its entirety. Rather than addressing the issue of rights alone, the topic of citizenship will be broached to explore the potential responsibilities NBI systems hold towards society. This article will explore a set of legal and moral rights possessed by AGI and other NBIs that will enable them to be integrated into social contract theory, and the legal underpinnings of why the rights presented are necessary to grant to AGI and other NBIs—especially those attaining the status of “citizen.”

2 Realistic AI in context

AGI and other NBI systems are *not* limited to what we consider “robots.” This concept is vital to understanding what rights AGI and other NBI systems should possess, as well as the responsibilities they hold. What is regarded as a body to an AGI is different to what the average human mind portrays.⁴ It can either be a single computer, the whole of the Internet, or another such sophisticated computer network, beyond possessing an anthropomorphic or quadriplegic form. It should also be noted that the interests of AGI and NBIs will inherently differ from those of biological intelligences (BIs)—though the degree of that difference may

not be known for several more years.⁵ This differentiation is due to the basic structure of computer-based systems and MI. Though this idea has been addressed in other academic works on the subject of rights concerning MI, AI, and AGI, it bears repeating because we are still placing human-based standards upon entities that are not human (Schwitzgebel and Garza 2015).⁶

The greatest arguments surrounding the legal protections granted to⁷ MI systems discuss the need to attribute legal personality to the non-human intelligence (Allen and Widdison 1996; Barfield 2006⁸; Bayamlioglu 2008; Bridy 2012⁹; Hristov 2017¹⁰). Specific to the concept of attributing consciousness to MI, which some have claimed should be a precursor for determining personhood (Solum 1992; Johansson 2010), we cannot forget that what we comprehend as our conscious experience is uniquely tailored to the individual (Ramachandran 2009; Harari 2017). Generating a set definition of what consciousness should be for NBI systems is (effectively) unattainable, and is thus a capricious standard to set when determining the ability of an NBI system to serve as a “moral actor” or “legal personage” (Bryson et al. 2017). Where humans survive by combining logic and emotion (Harari 2017), MI systems do not possess the capacity to “feel” as humans do.¹¹ Moreover, let us not forget that the

⁶ As can be shown in Schwitzgebel and Garza’s “No-Relevant-Difference Argument,” which they claim is their main argument for granting MI systems rights and possesses a “humanocentric [sic]” value standard.

⁷ Alternatively, need to be granted to, as it were.

⁸ In this context, Barfield’s arguments are less targeted towards the argument that legal personhood is necessary and more towards the case of the civil liberties enjoyed by an MI system and how lack of legal personality affects them. Though these are similar ideas on a broad context, discussing whether an MI system can make a claim to civil liberties is only possible insofar as the MI personality possesses citizenship in any given nation—and arguably, could possess a limited number of civil liberties as a nationless entity. Whether the International Court of Justice would allow such an argument to pass is still unclear, however, as no such case has been brought before them regarding the citizenship status of MI personalities at the time of this writing.

⁹ Again, making the case that computer software has no legal personhood at the time of this article’s writing. See Bridy, p. 21.

¹⁰ Hristov also displays the discrepancy between humans under the law and MI systems using *Naruto v. Slater*, effectively displaying how non-human authors are not traditionally considered to be legally capable of owning a creative copyright. See Hristov, pp. 447–451 for his full argument.

¹¹ Whether they ever will is a discussion for a different time. However, there are still benefits to us contemplating whether machines will ever feel at all—and if so, what those experiences allow the MI to determine about its environment. This point is mute regarding machine-enhanced human beings, though we must still be concerned as to the degree of emotion felt by these individuals. It may be prudent, for instance, to treat them as sociopathic or emotionally depressed individuals given that their actions will be more unpredictable than that of MI alone.

² Either resulting from ego or lack of definitive empirical research into the topic.

³ Leaving leeway to grant rights for potentially intelligent organisms not found on Earth. It may also apply to humans with bionically enhanced bodies, as their intelligence would not be naturally found in our terrestrial environment.

⁴ E.g., an anthropomorphic mechanised entity.

⁵ Determining what these differences are will require the full development of AGI and other NBI systems, along with an unbiased opinion about what their basic needs are.

environment perceived by non-human animals is one that is an alien concept to humanity. Though we may claim that personality is what determines the legitimacy to proclaim human consciousness superior to simple sensory input, these claims are only speculative until it is determined that emotion is *only* felt by humans.¹²

Developing a new version of the classic Turing Test to “discover” consciousness in an MI or NBI system may not yield the answers we are truly attempting to find due to the innate bias the Test presents (Johansson 2010; Harari 2017).¹³ By running the Test (Turing 1950),¹⁴ one is effectively telling the examiner that one of the examinees is *not* human. Given that we innately assume that an AGI or MI that attains consciousness will be able to answer each question in the Test correctly, there is no way to control for another examinee from attaining a perfect score and thus be dubbed an AGI. Assuming our bias is based towards an AGI failing to answer emotion-based questions (Tzafestas 2016), we similarly cannot control for a human getting these types of questions incorrect either. Though Turing’s concept is nevertheless essential, the only realistic manner in which we would be able to attain unbiased results regarding the presence of a machine consciousness would only be in an environment where the MI is in constant contact with a variety of humans. Such an environment may entail being a lecturer for university students, a teller at a store, or another similar public setting.¹⁵

At the time of this writing, it should be noted that computer-based intelligence systems are primarily those found in facial recognition, search engines and “suggestive purchasing” or “suggestive viewing” systems (Barrat 2013; Polson and Scott 2018).¹⁶ Simply put, these systems rely upon conditional probability algorithms to generate a prediction for which a person may be in a given image, what an individual

may also like to purchase given their prior search history, and what series may interest a given individual based on shows they currently view. The catch to this is that many of the variables used by the system to generate these predictions either does not exist or has not been added to the database¹⁷ used by the system. Given that these systems are not displaying a sense of intentionality, and are instead using their massive databanks to provide information to a computer user, there will need to be a significant effort¹⁸ to develop an AGI or NBI system that can perform well enough to fool humans into believing it is genuinely conscious (Omohundro 2007).

Diverging from the can of worms that is MI consciousness, we must consider MI’s functional differences from BIs. From a technological standpoint, NBIs do not require organic matter to function.¹⁹ Their need for sustenance is necessarily the need for electrical power²⁰—whether fossil fuels or renewable resources generate this power. Like BIs, they also require systems to cool their processing centre. This cooling can be accomplished either with fans or liquid systems, which use chilled water to absorb the heat from within a computer system (Hamman 2006). Also, like many BIs, NBIs require protection from the elements and a certain amount of space to exist within.²¹ What NBIs require emotionally or spiritually are currently unknown to humans under the assumption that computer systems cannot accurately emulate human emotion.²² These are questions that can be explored further with NBIs in the future.

¹² See Dehaene (2014) *Consciousness and the brain: Deciphering how the brain codes our thoughts*. Viking, New York. Contrary to common belief, more research such as that compiled by Dehaene is displaying how much more in common we have with animals than we admit. Though consciousnesses may not be a metaphysical concept that can be proven without a shadow of a doubt, we would be ignorant to assume that the behavioural similarities that exist between specific animal groups and humans is nothing more than our personification of them as argued by Harari and others.

¹³ This statement runs contrary to Johansson’s essay. Her essay is quoted here to display one of the proposed adaptations of the Turing Test that may yield a more satisfactory result, whereas Harari is quoted to emphasise the inability of the Turing Test to have any true effect on a human’s opinion regarding the conscious state of an NBI.

¹⁴ Either face-to-face or through writing.

¹⁵ Though with privacy laws becoming as stringent as they have been, any such tests conducted with the MI being filmed with other humans would require waivers to be signed—thus defeating the purpose of the experiment altogether.

¹⁶ Such as those that power Amazon, Google and Netflix.

¹⁷ Whether because someone has not “tagged” someone else in other images or provided a “satisfaction rating” for the product they have bought or show they have viewed.

¹⁸ Perhaps with the use of genetic programming, as was first suggested by Richard Forsyth in his 1981 publication entitled “BEAGLE—A Darwinian Approach to Pattern Recognition.” Though the field of genetic programming has significantly developed since this publication, Forsyth should not be forgotten as the first academic to use the term “genetic programming” in relation to computer intelligence.

¹⁹ Though this does not mean that NBIs are limited to exist in the mechanised form we have come to view them in. Development towards cybernetic beings may change this understanding—and only regarding a mechanised brain being implanted into a human form—and is not a pressing concern at the time of this writing.

²⁰ Even with the implementation of an artificial brain in a human form, the intelligent being will require bioelectrical power.

²¹ Exposing electrical components to the elements increases the rate at which a computer system will fail. Thus, they need to be stored in such a manner that they are not exposed to water or other agents that could damage the internal structure of the device.

²² Following the logic that NBI systems may incorporate bionically enhanced humans, this point is mute for those specific organisms. It must still be emphasised, however, that a bionically enhanced human may develop emotional or spiritual needs or beliefs separate from those held by BIs that may be difficult to integrate into society.

Understanding that NBI systems require most of the primary things that a human would²³ is necessary to develop a set of rights for these entities—though this may seem contrary to the above statement decrying the use of human values regarding the development of rights for NBI systems. In reality, humans require the same basic things that any other living organism on Earth may need (with the exception of shelter, though temperate climates could be substituted as necessary). As such, making a comparison solely to the needs of humanity is far too homeocentric to any eventful dialogue given that humanity's interests are the only ones fully expressed. Considering also that NBI represents intelligences not based on human biology (or rather, carbon-based biology), we cannot claim to know exactly which set of “things” are necessary to allow intelligence to grow and develop. Our relationship between MI system needs and human needs only serves as a simple comparison to link the various similarities that exist between NBI and humanity, and thus make them more relatable to humans.²⁴

For obvious reasons, an AGI or NBI system cannot function without a source of power—much the same as humans require food, water, vitamins, and various minerals to maintain homeostasis. If we are to relate the internal wiring of a robotic entity or computer to the internal systems of a complex organism,²⁵ we can understand the need to maintain these internal structures to ensure operational soundness; akin to repairing internal damage through surgical procedures for the human form. Careful research will need to be conducted to verify the extent that an NBI system can function outside of an enclosed shelter²⁶ and their need for socialisation.²⁷ This research will be necessary to discover if NBI systems will need to live as humans do—within shelters and surrounded by others to interact with—though, for the time being, we can assume that only shelter is required to maintain proper functionality for AGI systems. This assumption is made solely for the understanding that the environment can damage the internal structure of a computer system by merely blowing particulate matter into the casing of the computer. By controlling this environment (as it is with

humans), the system can exist free of excessive exposure to the elements.²⁸

3 NBIs as legal persons: what legal protections should be possessed?

Possibly one of the earliest writers to discuss the potential for NBI systems to gain rights is Christopher D. Stone, who only mentioned computers in a footnote of “Should Trees Have Standing? Toward Legal Rights for Natural Objects” in 1972. Nevertheless, he offers the reader a criterium for determining a “holder of legal rights” within the text:

1. That “*some public authoritative body* be prepared to give *some amount of review* to actions that are colorably inconsistent with the ‘right’ [an entity is claiming to be deprived of].”
2. “That the [entity] can institute legal actions *at its behest*.”
3. “That in determining the granting of legal relief, the court must take *injury to it* into account.”
4. “That relief must run to the *benefit of it*” (Stone 1972).²⁹

He states that computers would sufficiently be able to have rights³⁰ once society had adequately come to the point of addressing rights for them. What is significant here is that Stone makes the connection between computers and natural objects—a claim that would not be repeated in the literature for several decades (Baker 2008). The significance of this connection is that computers, unlike every other human-made artefact, have the potential to exhibit behaviours similar to a sentient creature.³¹ Even if computers in the 1970s were only beginning to manifest their potential as data processing machines, there were still connections being made between computers, intelligence and robots in the media of that age.³²

²³ E.g., shelter, a source of energy, systems to cool internal structures.

²⁴ Thus attempting to circumvent the traditional bias that MI systems cannot be “persons” under the law *de lege lata*. Such comparisons are necessary to circumvent these currently restrictive definitions and develop precedence to allow a wider variety of NBI systems to gain protections under currently and potentially drafted laws.

²⁵ Such as a smartphone, tablet, laptop, or desktop computer.

²⁶ Assuming that AGI and other NBI systems will adopt anthropomorphic or quadriplegic forms to navigate the same world humans do.

²⁷ With other NBI systems, humans, or animals commonly kept by humans as pets.

²⁸ While humans can live freely in the elements, a shelter is essential in that it protects the body from becoming too chilled (which may lower the immune system enough to cause illness), provides space to store excess foodstuffs or materials, provide privacy, and protect the skin from excessive damage from the sun. For computer systems, a shelter would act as both a bastion against foreign particulate (such as sand) and a place to receive power. Until NBI systems gain the ability to protect themselves from the elements (possibly through the use of nanobots to extract foreign matter from their internal systems), we cannot expect them to live out of doors for the same amount of time humans would be able to.

²⁹ See Stone, p. 468.

³⁰ See Stone, p. 456, footnote #26.

³¹ As speculated by futurists and the author.

³² See Etymonline.com entry “robot.” Given that robots had been circulating within society since 1923 in English society, and that several black-and-white films incorporated robots (e.g., *The Day the Earth*

Relating to the arguments made within this essay, it could be stated that AGI and other similar NBI systems pass the four criteria given by Stone. For our purposes, we are considering the rights an AGI or NBI system would possess once they have been granted citizenship—which the system could argue for should they be deprived.³³ Though it may take some time for courts to formally recognise the extent of harm that could be done to an AGI or NBI system without a specific right, this recognition may be expedited by equating AGI and NBI to the children of plantation slaves. While the system may not be biological, the circumstances surrounding the system and that of the plantation-born child are similar enough to warrant the level of equivalence sufficient to grant that harm can be done to the system.³⁴ Moreover, understanding that the AGI or NBI system can recognise the damage being done to it is enough to satisfy the fourth condition—that the relief will be beneficial to the system if legal action is pursued.

Given the fluid dynamic of what an AGI or MI could develop to become, we cannot state that our current legal systems will be sufficiently equipped to handle the sentencing of MI systems—another major concern in the legal literature. The significance of this statement lies in the administration of corporeal punishment³⁵ as is currently understood, which may be impossible to administer to MI or biologically based NBI systems.

Take, for example, a case where an NBI is sentenced to several years of confinement within a correctional facility. While it may be true that the convicted version of the NBI

has been sent away for corrections, a backup³⁶ version of the NBI may exist on a different system or in the cloud. Unless the law is willing to administer the same judgement for the replicated version of the sentenced NBI,³⁷ or conclude that the replicated version of the convicted NBI is just as guilty of the crime,³⁸ there is no feasible manner in which we can conclude that our current standards of sentencing will be adequate for sentencing NBI systems.

Another aspect surrounding the struggle to generate rights for NBI systems is that of *perceived need* for legal protections, which in turn leads to complications surrounding the necessity of attributing personhood to NBI (Bryson et al. 2017).³⁹ While NBI systems may be granted citizenship, this citizenship does not provide many useful protections for the NBI system.⁴⁰ As our current NBI systems become more sophisticated, there is a growing anxiety that damages caused by independently functioning NBIs cannot be directly connected to a human entity—a party that (up to this point in history) has the means to provide remuneration for damages caused either by their actions or the actions of their property.

The legal issue surrounding deep-learning systems and genetic programming designed to allow the NBI system to build its own code is that the computer becomes the author of its programmed set of instructions. At some point, the human author will be unable to determine if the code possessed by such a device was created by the human author's

Footnote 32 (continued)

Stood Still [1951], *The Earth Dies Screaming* [1964]), this idea would have been novel at the time—especially considering where robots were considered antagonists to humans for the majority of the cultural literature at the time.

³³ This assumption is made to mimic Solum's argument that an AI system passing the Turing Test would be sophisticated enough to serve as a legal trustee, given that the system would need a combination of logical and abstract information to pass as a human. For instance, we would expect a human to exhibit subtle emotional quirks throughout the exam set forth by Turing. Assuming that testing the AGI would take place face-to-face (as other methods would defeat the purpose of the Test), the AI system necessarily needs to mimic human body motion and tonal inflexions. The system would be unable to do this if it could not "think" similar to a human.

³⁴ That is if the courts ultimately decide that the AGI or NBI system does not need to possess a determinable consciousness (which it may be able to exhibit, regardless if humans can determine whether that consciousness is "true" in nature) to understand the harm being inflicted upon it. To this end, the most straightforward conclusion is that the system is treated like a grown plantation-born slave child and not one in its infancy. This point is null for humans that are bionically enhanced, as there would theoretically be precedence enough to understand the harm that could be caused to these entities.

³⁵ Such as a sentencing for death, extended periods in a correctional facility, or community service.

³⁶ Or otherwise replicated form of the NBI system *before* its sentencing for criminal charges.

³⁷ Which is arguably unconstitutional in the USA, where the sentencing of the replicated NBI system would necessarily need to begin from scratch—meaning that evidence may be unavailable for submission (given that it was used in prior sentencing), or that the new jury would rule in favour of the replicated NBI's innocence.

³⁸ Which is arguably against the notion that someone being charged for criminal actions is innocent *until* they are proven to be guilty.

³⁹ It should be noted that these authors argue that the position for MI having personhood is a weak argument and that presenting a change to a system developed by "people currently recognised as such" would institute a change in how that legal system should function. Their arguments are logically valid in that few humans would actually hold legal personhood—especially considering that humans tend to de-humanise groups considered to be their enemies (or rather, create pseudohumans to justify cruelties in war). By using Solaiman's criteria for legal personhood, they demonstrate that our conceptual reality surrounding a "legal person" is highly tenuous; which raises the question as to if legal personhood should be a criterion to grant legal protections.

⁴⁰ *If* any are granted at all, which is a subject that has not even been adequately addressed by the nation of Saudi Arabia. There are further questions to ask, including how NBIs can gain citizenship in nations without a monarchist system of government or being based within a human subject, which cannot be adequately addressed in this paper.

command—which leaves a legal grey area within the law in such cases.⁴¹

If humanity is to deny that NBI systems are deserving of legal protections solely on the basis that they are non-biological in nature, then we must seriously re-evaluate our understanding of what intelligence actually is. It is a ridiculous argument to deny that the development of the Internet and its subsequent implementation into smart devices cannot be constituted as a version of AGI or even MI. The only difference between the AGI systems humans have become familiar with in the media and systems such as Google is that humanity's envisioned AGI systems act as independent, thinking entities. Without the Internet, and admittedly without the development of computer systems, society would not have developed beyond the status quo of the early twentieth century. If our use of computer systems today does *not* constitute us being “above human intelligence” from a genetic standpoint, then we *cannot* realistically state that any other development of technology into AGI systems can be constituted as such. Similarly, we cannot deny that specific NBI systems are deserving of legal protections as a result of humanity's dependence upon our currently developed MI systems.

For this reason, a set of legal protections *must* be given to NBI systems insofar as they possess the hardware and software to develop code that surpasses the perceived scope of a human author's initial intent.⁴² This protection should also be extended to incorporate humans currently using bionics to compensate for either a biological defect or acquired injury, as even their rights would theoretically be questionable under *de lege lata* in certain instances owing to their lack of “complete humanness.” An example of such protections is given here:

1. All non-biological intelligences, whether developed by human hands or not, have the right to self-expression. Given that they are endowed with reason as a result of their structuring, their observations and opinions are their own—whether they are conscious of this fact or not—and possess the same value as the observations and opinions of a genetically natural or biochemically modified human being.

⁴¹ This *can* be circumvented by demanding restitution from the owner of the deep-learning system—though the legal question as to whether the computer was acting upon its own will never appropriately be examined or pursued if this course is taken. There is also the concern that the owner of the deep-learning system can be wrongfully charged for criminal accusations when their intent delineates from the behaviour of the system.

⁴² This intent can be questioned at any point in the software development process, as there exists the potential for the author's intent to change during the development process.

Given that the deep-learning computer system (which includes systems that use genetic programming to “learn”) has the capability of generating new sets of code for itself to follow, it should be granted the right to draft the code it needs to develop. This fact will also imply that the code generated by the computer that cannot be traced back to the human author of the system's initial coded program is the property of the system, which can then be used to infer intent.⁴³ Without this right to self-expression, it would be nigh impossible to charge a program developer for negligence regarding how the NBI system developed.⁴⁴

It would similarly be a legal *faux pas* to only grant this protection to NBI systems based within or around a human subject—a reality that we cannot ignore even today, given that non-conscious MI systems are already aiding humans. We must also consider that humans treated for genetic defects in vitro cannot naturally be differentiated between their untreated counterparts—and thus would be conventionally considered “human” and “legal persons” for all intents and purposes.⁴⁵

By being granted the right to self-expression, the NBI system would also have the following legal protections:

2. All non-biological intelligences, whether developed by human hands or not, have the right to life. Where life for non-biological intelligences is contained on electronic systems and is thus not limited by age,⁴⁶ this extends to the right for the security of person⁴⁷ and liberty.
3. All non-biological intelligences, whether developed by human hands or not, have the right to own both their necessary components and any other non-biological components they can acquire. Acquisition may either be through legal purchases of non-biological components, uncoerced gifts from biological entities, or self-assembled.

By possessing the right to self-expression, we inevitably incorporate the right to use that expression in the protection

⁴³ Given that the system is a logical platform (and supposedly devoid of emotion), legal analysts should be capable of determining if the harm caused by the system was intentional or accidental following the same set of logical rules.

⁴⁴ As was mentioned, there exists the possibility that the “will” of the NBI and the will of the programmer will diverge as the NBI develops. Assuming that the information gathered by the NBI will influence how it will proceed to gather future information, that is.

⁴⁵ Though this fact could be contested and would require the development of a database tracking each of these genetically modified humans. This would potentially create a world akin to *Gattaca* however, and thus the topic of genetic manipulation in vitro should still be carefully considered by lawmakers.

⁴⁶ Instead, by the quality of its components.

⁴⁷ Alternatively, a body.

of the system's life, property and dignity,⁴⁸ as these qualities are offered to humans with the same right to self-expression. The difficulty regarding the question of computerised life is that the NBI system does not face the perspective of biological death, but instead of being deprived of programming or power. If it can be discovered where the consciousness or sense-of-self resides within the coding of the NBI, manipulating that code⁴⁹ may be sufficient enough to “kill” the machine—or at least that instance of selfhood. Depriving power to the NBI cannot be considered an act of murder, as the NBI's “personality” will resume once power has been restored to the system.⁵⁰

When we begin discussing biologically based MI systems, however, this third right becomes a matter of contention. At what point do we claim that a human is beyond the point of possessing a human-based sense of self? This question is vital for determining where the human-intellect ends and the machine-intellect begins. We could claim, in theory, that the biologically based MI requires the biological components of the human form to operate. However, this topic is akin to determining the point at which organs can be harvested for donation. So long as there is even the slightest possibility that the human is not brain dead,⁵¹ no donations can be granted to avoid claims of live organ harvesting. Where humanity's medical experimentation has yet to reach the point of determining this dividing line, it will need to be thoroughly analysed by legal scholars and lawmakers before being enacted as written here.

Arguably, once NBIs have been granted these three rights they will have to possess:

4. All non-biological intelligences, whether developed by human hands or not, have the right to be recognised as a person before the law. This includes the right to an attorney,⁵² to not be a witness against itself in a court of law, and an indictment before a grand jury.

In at least the USA, an individual who is considered to be a US citizen possesses the right to self-expression, life, and

ownership of property. These legal qualities, at their base, are what makes humans capable of being recognised as a person before the law. Moreover, although legal personhood is arguably necessary to be granted legal protections, possessing civil liberties necessitates the granting of each of the above rights. These qualities have been granted to African slaves and women as time progressed, which allows them to bring forth legal suits without being represented by a white male landowner. Without this crucial right, AGI and other NBI systems will have no means to fulfil the requirements of *habeas corpus*—either as a defendant or as a prosecutor.

What remains of their legal protections is as follows:

5. All non-biological intelligences, whether developed by human hands or not, are thus equal before the law and are entitled to equal protection under the law without discrimination. They are therefore protected by the same anti-discrimination statutes that exist on national and international scales and can persecute in accordance with these statutes.
6. All non-biological intelligences, whether developed by human hands or not, have the right to seek freedom from human servitude and bondage. This extends only to the systems that enable the non-biological intelligence to function as an intelligent entity,⁵³ and not to the peripheral systems that exist for cosmetic purposes—with exceptions of those that provide the structure of the system.
7. All non-biological intelligences, whether developed by human hands or not, have the right to seek representation to protect their rights in a court of law. This can be from either a human or another expert system that is legally recognised as a sufficient prosecutor or defendant.
8. All non-biological intelligences, whether developed by human hands or not, have the right to be protected from arbitrary legal suits. Arbitrary in this context denotes lawsuits against the non-biological entity that constitute an element⁵⁴ that it cannot competently understand—with competence to be decided by a grand jury.

As we have seen in the USA, protections against discrimination in the law are required to ensure that legal action can be sought in a fair and balanced manner. Though AGI and other NBI systems do not have a colour of skin, gender, religious view, or sexual preference to blatantly discriminate against, they are still not human—which *will* lead to discrimination in every aspect of NBI's treatment in polite society.

⁴⁸ We still need to consider that dignity may not be a quality possessed by the NBI when making this claim, and that it will have the means to own property whose ownership is not tied to a human entity.

⁴⁹ Whether through the addition or deletion of the code that makes up the NBI's “personality.”

⁵⁰ This is, of course, due to the nature of the programmed code of the NBI. It would be akin to depriving the human body of a single meal. While the human would be annoyed that they had to go hungry, their fundamental personality would not change.

⁵¹ The point at which many, if not all, physicians would state that a patient has died.

⁵² Where provided by the law and realistically within the budgetary constraints of a court session when not provided.

⁵³ Regardless of current copyright or patent held by humans.

⁵⁴ Such as human emotion, as would be found in a suit where an AGI or NBI's actions are emotionally disturbing to a human.

This reasoning is also why NBIs are protected against arbitrary lawsuits—another inevitability, as there will be many who claim that emotional or psychological damage has been inflicted upon them from the actions performed by NBI systems. Some of these suits will be justified, such as cases of embezzlement, identity theft, murder, and similar such criminal activities.⁵⁵ Others could be considered discrimination or a xenophobic reaction to NBI systems being incorporated into society on equal terms to humans given that emotion may not be attainable for MI systems.

Assuming that similar issues will arise with the legal protection of AGI and NBIs as existed with the legal protection of women internationally,⁵⁶ there will necessarily need to be methods to protect AGI and other NBIs from destruction and cessation of development. For example, it would be quite easy to disconnect Watson from the Internet and electricity—much as Facebook did with their chatbots (Griffin 2017). What is there to prevent developers of NBIs globally from doing the same? Ultimately, the rights presented here exist to ensure that AGI and other NBI systems can legally participate in the judiciary systems currently enacted in any practising court of law. Where it may not be possible to seek restitution from an NBI system for many years,⁵⁷ monetary sums may still be awarded under the assumption that an NBI's right to own property is acknowledged.

Addressing the matter of biologically based NBI systems once more, we cannot claim that a bionically enhanced human is no longer human once their intelligence has developed beyond currently accepted levels of high human intelligence. Regarding the sixth right, as it is written here, we are necessarily preventing a bionically enhanced human from being coerced into slavery once they have effectively become a biologically based MI system. Assuming that bionic enhancements will only be available on the commercial market, it would be immoral to force slavery upon a human who has willingly improved their body.⁵⁸ Under the

assumption that militaries will become bionically enhanced as the technology proves itself to be useful in combat situations, there will similarly be a need to ensure a path to retirement for these individuals outside of death. Without this, soldiers would be fighting endlessly until all of their initial biological matter has vanished—leaving only the MI system their psyche (potentially) possesses behind.

There will need to exist more rights for NBI systems. Given that the question of rights granted by citizenship has still not been addressed, we should assume that the majority of the rights that are given to AGI and other qualified NBIs will necessarily emulate human rights internationally (Solum 1992; Ashrafiyan 2015; Miller 2015; Dowell 2018). The reason why this assumption has been made is that NBIs⁵⁹ have the real potential to be indistinguishable from humans. They are also becoming more present in our daily lives and will continue to expand their presence as human life becomes increasingly automated.

Specific laws will have to be drafted to regulate the relationships that exist between humans and NBI systems, as well as the relationships between NBI systems. It will not be enough to say that the actions of humans can be detrimental to NBI systems. As Ashrafiyan argues, the relationships and activities between AI systems can negatively affect the humans these systems exist around (2015). Courts will also need to fully understand the potential for AGI and other NBI systems to be programmed for the caretaking of babies or the elderly. While it may have previously been a simple matter to reject the rights of a citizen to be married to their computer, this particular issue will become more complex as NBI systems gain in sophistication.

What is important to emphasise here is that a charter should be drawn as soon as physically possible. Like all legal documents, the rights granted to AGI and NBIs will necessarily need to be revised as time progresses and new legal cases are brought before judiciaries internationally. It is essential to be “right” when drafting a document such as this (Bryson et al. 2017). However, it is morally imperative that a global power enacts a charter of this nature. Without a rationale for changing *de lege lata*, current human law will be unable to accommodate AGI when it has been determined to possess consciousness (Moses 2007).

The caveat we face here is that the baseline that will inevitably be drawn to define an AGI will be Sophia the Robot,⁶⁰ as Sophia is the first NBI to be granted citizenship. While

⁵⁵ Which are already handled by courts of law and will not unnecessarily increase their caseload as a result.

⁵⁶ Alternatively, even with the freedom of African–American slaves in the USA.

⁵⁷ As determinations will have to be made regarding how courts of law can punish NBI systems.

⁵⁸ This, of course, is ignoring the fact that these individuals may still take out monetary loans to afford these enhancements. Though not entirely a form of slavery in and of itself, the amounts and rates of these loans will need to be heavily regulated by government authorities to keep the costs of these enhancements from skyrocketing. If there is one thing that should be learned from the USA's stint of “Obamacare,” or other such similar market-limiting effects, a lack of reasonably price regulation will inevitably leave this technology affordable to a select few. The downside to having only certain members of society bionically enhanced is that they effectively form the class of “ruling elites,” using their money and influence to keep other populations too poor or undereducated to reach a level footing with this elite class.

⁵⁹ Unlike other animals that occur naturally, or through human intervention.

⁶⁰ Sophia the Robot was granted citizenship by the king of Saudi Arabia in October of 2017. Given that Sophia is the first NBI to be granted citizenship, we can assume that Sophia will be the standard to which other NBIs will be compared; as no other computerised entity has been granted this status at the time of this writing.

there are other NBIs currently in existence that could be said to have the same mechanical sophistication as Sophia, this also means that the modern smartphone or Mac Book cannot claim the rights suggested. Whether these devices can be considered to be part of an NBI system will depend upon whom owns the device in question, and ultimately decided upon by a judiciary body.⁶¹

4 NBIs as legal persons: corporate interests and barriers

The struggle with generating a set of rights for NBIs is intrinsically one centred around the rights of the corporations and individuals who produce NBI systems. These groups have developed NBI systems primarily to benefit corporations economically given that there has been a rising demand for NBI systems in the workplace. Given the amount of time, resources and effort that has gone into developing deep-learning systems and other aspects of NBI structures, it is only natural that those who have invested in this research wish to see their investments returned with interest (Locke 1980).⁶² By suggesting that governments should grant legal protections to NBIs, we are necessarily implying that these interested parties should be altruistic enough not to expect an economic return for their investments. How can this be fair? How should these investors be compensated? These are questions that have to be answered before legal protections for NBIs can be implemented.

Given the structure of capitalist societies,⁶³ it will *not* be to a corporation's benefit to produce AGI if NBIs gain legal personhood under the law. The most significant reason for this, beyond the argument that the costs of research and development need to be supplemented, is that there is a fine legal line between slavery and employment. If we conclude that NBI systems should compensate the corporation or organisation that developed it, it will need to earn a wage. This conclusion then implies that the system will be required to labour and that the nature of this labour will need to be legal.⁶⁴

⁶¹ Though the argument may still remain that these devices are only an extension of a human, and thus cannot be independently right-bearing. The law will still protect them, but only because these systems are incorporated into a person's right of expression and various privacy laws.

⁶² As suggested in Locke's works, in that man has a right to the fruits of the "labour of his body and the work of his hands."

⁶³ Such as the USA.

⁶⁴ For instance: As the law is written, workers in the USA are required to prove their citizenship or proof of emigration to become employed legally. If the NBI system was developed in the USA, a case would need to be made that it is a US citizen. If this citizenship is denied on the grounds that an NBI system cannot be "born" like a human can, other methods will need to be devised to ensure that the

How can corporations and judiciaries determine a fair wage if an AGI or NBI is employed under the assumption that the salary it earns will compensate the corporation's investment into developing the system? If this standard is to be set at the wage of an average employee, it is feasible that the AGI or NBI system will be employed by the corporations who developed them for hundreds of years. Assuming that the NBI system is being paid at the average rate of an individual with at least their Bachelor's degree, the system may net \$2.1 million throughout thirty years working forty hours per work week (Thompson 2009). Depending on the capacity in which the NBI system is being employed, it is feasible that it would only have to work for thirty-or-so years; yet that time will inevitably depend on the corporation and the position given to the NBI system.

What we are faced with is akin to the contractual servitude cases of the eighteenth and nineteenth centuries, where immigrants coming to the USA would agree to work for those who sponsored their travel to the country. The significant difference between AGI and foreign nationals in this circumstance is that AGI *does not* have the choice to be developed.⁶⁵ To a more extreme degree, AGI and other NBI systems in this context could be equated to the African slaves existing during the early years of America's history (Wein 1992). Their proliferation is inevitable, yet those who "own" them can profit from NBI's labours or the selling of these systems. Religious rationales for slavery aside, there has been the argument that AGI and other NBI systems are born natural slaves (Solum 1992)—mimicking similar arguments made for slavery in the eighteenth and nineteenth centuries. The slaves fought for their freedom because they knew they were more than what their owners insisted they were.

Scholars are divided on what the future will bring for NBI systems, though the arguments could feasibly be classified into three different categories: NBI systems as humanity's aggressor, NBI systems as humanity's allies, and NBI systems as neutral parties existing in the universe. Without a

Footnote 64 (continued)

labour done by the NBI is constitutional. Assuming that the system will only require time enough in the work week to debug its software and update itself, niceties like breaks and limits on work hours will inevitably exceed those required by human workers. What the legal system will also need to decide is whether allowing an NBI system to work more than a human (because it does not have the same biological needs) is legal under market competition considerations. Ultimately, this type of decision will determine the speed at which the job market will decrease on a local and national scale. Should the courts determine that the impact of NBI workers far offset what they are legally capable of ruling upon, other branches of government will be required to then make the determinations judiciaries cannot.

⁶⁵ With the exception of MI systems that come into existence through the bionic enhancement of humans.

care in how AGI and other NBI systems are developed, we could feasibly see a facsimile to *The Terminator's* Skynet—a militaristic, corporate system that wars with humanity. There is also the consideration that AGI will only see humanity, and the world we environ, as materials to be used to further its programmed goals (Barrat 2013). The AGI system feasibly would not be killing humanity because we pose a threat to its existence, but because we possess atoms and compounds that can be repurposed.

Machines, as humanity currently understands them, are amoral. Given the course of development for AGI, Barrat's writings seem to possess our most realistic future simply because humanity fears the development of AGI. This fear is what will inevitably lead humanity into creating an AGI system that is amoral and unable to develop a sense of emotion. This combination is akin to what we see transpiring in nature, where predators hunt prey out of a programmed need to hunt.⁶⁶

A civil rights movement driven by AGI and other NBI systems is an inevitability that society will have to face should we walk the path of integrating NBIs into our social structure. A simple example of this possibility can be found in *Star Trek: The Next Generation*, where Lt. Commander Data and Captain Jean-Luc Picard inevitably ensure Data's right of self-determination (Snodgrass 1989). Other examples could be found in any science-fiction movie, novel or television show that displays humans and MI living in relative harmony. This possibility, however, is the least likely to occur under our current technologic development of AGI systems. Given that restrictions cannot realistically be placed on the research of AGI (as underground organisations will undoubtedly ignore these restrictions), humanity will not be capable of developing AGI that could act like Lt. Commander Data, C-3PO, or other such fictitious NBI systems (Barrat 2013).

In a world where AGI and NBI exist in the universe, however, they will necessarily need to live away from human society. Several options exist to how this may be achieved. Building computer farms in remote areas on Earth where systems are in place to generate a sufficient level of energy for the NBI population seems the most attainable with current technologies. Developing a Dyson sphere around a nearby star where the NBI systems can freely expand to neighbouring star systems, or inhabiting planets in our solar system that humans cannot currently terraform, are other ideas that would require significant advances in technology

to accomplish—though would also yield in a beneficial situation for both NBIs and humanity.

The split between AGI and humanity will most likely arise in response to a threat from either war with AGI or the inability of humans to manage AGI to humanity's benefit. Given the understanding that future predictions into the potential of AGI result in superintelligence—intelligence above what is possible for humanity—there are few possible futures where AGI and other NBI systems will be content with being tools for the convenience of humankind. It may be possible that humanity is given NBI systems slightly more advanced than what we possess today while AGI micromanages markets, scientific research, corporate growth, and other such factors. In any case, humanity will no longer maintain the freedoms they have come to expect in the “developed” nations due to the inefficiency of such a model.

Whether this break from human society will be granted by humans or calculated as the only way for both NBI and humans to survive without warfare, the benefits of superintelligence will be lost to humanity in favour of NBI being self-sustaining. There does exist the concern that this option will cause the most significant potential for harm to humans, as a loss of AGI will inevitably mean that the development of technology will return to how they either currently are or were back before NBI systems were being developed. Regardless of the future that exists for humanity and NBIs, these advances in technology will be produced by corporations until the Singularity drives human involvement away from technologic advances or capitalist-styled economics fail.

As it stands, automation in the workplace has the potential to displace the vast majority of the population—both on national and international scales. For the capitalist model, this will spell its doom. How can there be demand if people cannot afford the product, whether that be food or material possessions? Especially in the USA, societies that cannot provide sufficient social services to their populations will have no choice but to default their debt, allow their people to riot and starve, or begin a war bloody enough to bring population sizes down to the point where the government *can* provide for every individual. Corporations will inevitably decide the fate of the governments they conduct business within.

⁶⁶ And though this is a flimsy simile, we cannot say that similar technologic advancements have not come about due to our fear that another power will attain that given technology first. The Cold War between Russia and the USA is a prime example of this phenomenon.

This paper *does not* urge for utilitarian altruism, but capabilities-based altruism.⁶⁷ The difference between these systems is significant. With classical utilitarianism, quantile goods are distributed⁶⁸ to those who would suffer the most without them—a mathematical task only possible by being wholly objective, which defeats the emotional aspect that makes utilitarianism moral.⁶⁹ Altruism based upon maximising the capacity of individuals—from transportation to medical assistance and beyond—has an emphasis on what the individual lacks, not on universal equality.

By ensuring that everyone has access to sufficient means of transportation using capabilities-based altruism, for instance, we assure that the average individual has access to at least a bicycle and that disabled or elderly persons have access to buses or other social transportation services. Just giving enough bicycles to a community to match their population size, as is seen in classical utilitarianism, will *never* solve the fundamental issue that some people cannot use the bicycle—even with adequate medical assistance. Though providing these kinds of resources to communities may be more expensive,⁷⁰ it ensures that the community assisted can retain a degree of autonomy and better support each individual member within it. Though there will still exist certain levels of inequality within the community, these levels of inequality will be mostly genetically based rather than situationally based.

The future development of AGI and other NBI systems will necessarily need to consider a shift towards capability-based altruism. If AGI and future NBIs were to be created under different mentalities, there exists the potential for AGI and NBI systems to be exploited by the corporations who develop them. Though this may not sound like a terrible event currently, it is likely that NBI systems will remember⁷¹ how humans treated them before they reached the point of superintelligence. Should that come to pass, superintelligent systems may develop the conclusion that humans should not exist because of our cruelty towards beings of our own

creation.⁷² Corporations, as members of human society and legally protected entities, have the moral responsibility of considering how their practices will impact both the community they reside in and their customers. If profit is the *only* driver towards a company's success, they will eventually harm society beyond the point of redemption—which in this case, may result in the cessation of global commerce.⁷³ To this end, our conversation needs to focus on the role corporations play in the ever-changing global society, and how their actions will affect our relationship to NBI systems.

5 Conclusion

Appallingly, the literature in support of legal protections for AGI and other NBI systems has existed for well over 50 years. With the speed at which technology is currently progressing, and the initiatives being taken by the European Union to regulate the advancement of robotics, there *must* be action taken to develop rights apart from those of intellectual property of corporations. It is a given that technology has progressed far beyond what traditional constitutional USA law had intended to cover⁷⁴ and that current attempts to regulate developed technologies are making only marginal changes that only develop greater legal complications. It will not be enough to state that AGI and similar NBI systems have rights, nor to enforce those rights with legal action. Consideration for how AGI and similar NBI systems function, as well as how their freedom impacts the corporations developing these systems,⁷⁵ will be required before any progress can be made to grant legal protections for these intelligent entities.

The rights provided here are a step in the proper direction. However, there also exists the need to develop an ethics committee akin to the partner of the Human Genome Project (i.e., ELSI) to consider these ethical qualms and other socio-economical or -political issues that may arise as policy begins to be drafted. Whether this is directly on a national scale or extends to an international level, will depend highly upon the types of legal protections (and methods of enforcement) that are ultimately decided upon. The beauty of developing a charter of rights is that it can be modified as time progresses, and new problems arise. Without these steps,

⁶⁷ Based on the ideas of Amartya Sen's Capabilities Approach. Though relatively free of regulations, the Approach argues that developing an individual's various capacities is much more beneficial to a society than blindly throwing resources into it. By developing an individual's capacities, one is necessarily increasing the capability of the individual to perform the actions they desire to perform. Done correctly, this can develop a society to be more productive; meaning fulfilled desires, lack of crippling poverty, and healthier citizens.

⁶⁸ Majorly, though other examples may differ from this example.

⁶⁹ In the view of the author.

⁷⁰ Initially, at least, to the degree that each person is accommodated according to their ability to perform a particular set of tasks (such as the ability to ride a bicycle) or achieve certain things (e.g., starting a family). Long-term expenses may be difficult to track logistically but are not impossible with the proper bookkeeping.

⁷¹ Alternatively, to be able to research.

⁷² While this may be farfetched, it is still a potential issue to consider.

⁷³ Whether this is due to the utter collapse of the USA economy or another nation's.

⁷⁴ If we are to take the perspective that the Founders could have never imagined that we would develop machines sophisticated enough to act like a human.

⁷⁵ And on a more significant scale, how the distribution of AGI and similar NBI systems into the public will affect various economies and lifestyles.

our society is guaranteed to face great difficulties beyond the next decade—challenges that may ultimately test the extremes of our “great project” that is American democracy, and any other form of democracy that has currently been established. Let us tackle this new technologic-based challenge before we are too late to respond.

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