Should We Share Rights and Obligations with Artificial Intelligence Robots?

Corneliu Andy Pusca(✉)

Danubius University of Galati, Galați, Romania
andypusca@univ-danubius.ro

Abstract. Technology could have impact on the public safety of humans it is not enough to simply presume it works. The social structures are already revolutionized by the introduction of artificial intelligence in the industry and society and the legal framework is not yet prepared to absorb the impact. This is why we consider that robots should have a distinctive legal status, separate from their users and owners. The role of this special issue is to define the contents of the status of the artificially intelligent agents (liability, rights, tax duties and so on) for a minimum certainty not only related to eventual damages, but also to the public safety and data protection.

Keywords: Robots · Personhood · Rights · Liability · Taxation · Control

1 Introduction

Artificially Intelligent agents are more and more present in society. They have the potential to improve our daily life and social welfare. But, the introduction of AI already provokes some technologic, industrial and regulatory challenges.

"From Mary Shelley's Frankenstein's Monster to the classical myth of Pygmalion, through the story of Prague's Golem to the robot of Karel Čapek, who coined the word, people have fantasized about the possibility of building intelligent machines, more often than not androids with human features; Humankind stands on the threshold of an era when ever more sophisticated robots, bots, androids and other manifestations of artificial intelligence ("AI") seem poised to unleash a new industrial revolution, which is likely to leave no stratum of society untouched, it is vitally important for the legislature to consider all its implications" (Parliament 2016).

The lawmakers should reform the legal frameworks in order to accommodate the presence of AI agents in society. The robots operating autonomously, without the intervention or awareness of humans will raise questions regarding attribution of rights or restrictions/ obligations for them, liability for their actions, taxation, data privacy, robotic labor replacing human labor. "In the short to medium term robotics and AI promise to bring benefits of efficiency and savings, not only in production and commerce, but also in areas such as transport, medical care, education and farming, while making it possible to avoid exposing humans to dangerous conditions, such as those faced when cleaning

H. Santos et al. (Eds.): SmartCity 360 2019, LNICST 323, pp. 412–419, 2020.
https://doi.org/10.1007/978-3-030-51005-3_33

up toxically polluted sites; whereas in the longer term there is potential for virtually unbounded prosperity;" (Parliament 2016).

The European Commission recently funded RoboLaw ("Regulating Emerging Robotic Technologies in Europe: Robotics facing Law and Ethics"), a project with the objective to analyze ethical and legal issues raised by robotic application and to suggest if new regulation is needed. The conclusion of the project are included in a report titled "Guidelines on Regulating Robotics" (Palmerini 2014).

There are still a lot of confusion and lack of information around the terms of robotics and the artificial intelligence incorporated into robots. The European Parliament passed a resolution with recommendations to the European Commission on civil law rules on robotics (Parliament 2016). Among the proposals it was highlighted the desire to establish ethical principles for developing and using AI-based robotics and solving the numerous liability issues. In this context, The Parliament is calling the European Commission to consider introducing a specific legal status for intelligent robots, to establish a European agency for robotics and artificial intelligence, in order to provide technical, ethical and regulatory expertise required to meet the challenges and opportunities arising from the development of robotics (Hauser 2017).

Human safety, privacy, integrity, dignity, autonomy, data ownership are the main topics of a proposal for the establishment of a "Charter on Robotics" which aims at setting up an ethical framework for the design and use of robots. The principles contained in the Charter are very broad defined and require top researchers in the field of robotics which should comply with the principles of beneficence (robots should act in the best interests of humans), non-maleficence (robots should not harm a human), autonomy (the capacity to make an informed, un-coerced decision about the terms of interaction with robots) and justice (Parliament 2016).

2 Robots and Artificial Intelligence

Robots are not only walking and talking machines. The terms robots and artificial intelligence are used with minimum rigor.

The robot is defined as a machine capable of conducting a series of actions automatically a computer – capable of carrying out a complex series of actions automatically. It is closely linked to the "robotic process automation". This concept encompasses the software computer and programs that have the purpose of replacing human activity that require repetitive rules-based tasks, not necessary conducted by psychical machines. But for sure machines that perform simple tasks, such as heating food or shredding paper, dependent on human initiative, are not part of this concept (Alexandre 2017).

The word robot can refer to both physical robots and virtual software agents, but the latter are usually referred to as bots. Robots tend to possess some or all of the following abilities and functions: accept electronic programming, process data or physical perceptions electronically, operate autonomously to some degree, move around, operate physical parts of itself or physical processes, sense and manipulate their environment, and exhibit intelligent behavior, having computers mimic the behavior of people or animals.

There are many types of robots: mobile robots, industrial robots (manipulators), service robots, educational robots, modular robots, collaborative robots. *Mobile robots*

have the capability to move around in their environment and are not fixed to one physical location. An example of a mobile robot that is in common use today is the automated guided vehicle or automatic guided vehicle (AGV). *Industrial robots* are defined as "an automatically controlled, reprogrammable, multipurpose, manipulator programmable in three or more axes, which may be either fixed in place or mobile for use in industrial automation applications." A *service robot* is "a robot which operates semi or fully autonomously to perform services useful to the well-being of humans and equipment, excluding manufacturing operations." Modular robotic technology is currently being applied in hybrid transportation, industrial automation, duct cleaning and handling. Many research centers and universities have also studied this technology, and have developed prototypes. A *collaborative robot* or cobot is a robot that can safely and effectively interact with human workers while performing simple industrial tasks (https://en.wikipedia.org/wiki/Robot).

Robots can generally be distinguished by their appearance (humanoids, animaloids), by application (industrial, domestic, military, medical, entertainment), by shape, size and locomotion (legged/wheeled, nanorobots) or by operating environment (UAV/drones, space robots, underwater robots) (Ballas and Konstantakopoulos 2017).

Artificial intelligence (AI) is harder to define. Generally speaking it refers to the intelligence exhibited by machines. But considering that its only one, *per se*, and it is accessed by humans and machines, the question is are the human intelligence and machine intelligence the same?

Alan Turing, in his famous paper *Computing machinery and Intelligence* suggested that the question should be if a machine can convince a human that it can think, rather than to ask or to try to determine if it can think or not. This is why the Turing test consist in a communication between a human and a machine, the human being not aware that is communicating with a machine (Turing 1950). Despite some other similar tests, the Turing test remains a mark in the AI existence assessing.

The Artificial Intelligence development nowadays is very related with the machine learning concept and its new age of "deep learning", in which computers learn from experience and improve their performance over time using algorithms that have the ability to "learn" (Surden 2014). *Active learning* algorithms access the desired outputs (training labels) for a limited set of inputs based on a budget, and optimize the choice of inputs for which it will acquire training labels. It is considered that unsupervised learning is the true artificial intelligence "where the learning algorithm is let loose on the data with no restrictions and permitted to draw whichever connections it wishes (Zimmermman 2015). Given unlimited information resources currently available and combined with constantly computing power we can predict that machines using unsupervised learning will develop skills of comprehension that will revolutionize the way decision are made (Zimmermman 2015).

Instead of a definition of Artificial Intelligence (literature hold multiple definitions) we prefer to provide examples of traits associated with the concept of AI: *language processing, learning, perception, planning, reasoning, manipulation of objects, motion, social intelligence, solving problems* (Kurzweil 1999). Not all of these traits should exist in each agent, just enough in order to justify a human intelligence comparison.

3 Types of Artificial Intelligence

The intelligence itself it is accessed by all kind of lively species, in nature. Animals, plants, not necessary using logic or reasoning have a small capacity of problem solving. Not depending of the container, the artificial intelligence also may manifest itself with a different degree of intensity. Considering this, we may classify AI in four categories: reactive machines, limited memory, theory of mind and self-awareness (http://theconversation.com/understanding-the-four-types-of-ai-from-reactive-robots-to-self-aware-beings-67616).

The Reactive machines have no memory, no ability of using past experience, hence it behaves in the same way every time they encounter the same situation. For example, the Google's Alpha Go, IBM's Deep Blue chess-playing supercomputer, which beat international grandmaster Garry Kasparov in the late 1990s are reactive machines which means they cannot function beyond the specific tasks they were programmed.

Machines with limited memory have the ability of looking into the past by identifying certain objects and monitoring them over time. For example, self-driving cars are able to observe other cars' speed and direction and use this information to decide when to change lanes, in order to avoid cutting off another driver or being hit by a nearby car. Personal assistant is another example.

The Theory of mind machines understand that people, creatures and objects in the world can have thoughts and emotions that affect their own behavior. They understand how humans formed societies and have social interactions. C-3PO and R2-D2 from the Star Wars saga, for example, were able to form representations about the world, adjusting their behavior according to their understanding of others' feelings, expectations, motivations and intentions (Alexandre 2017).

Self-awareness describe the ultimate stage of artificially intelligence: systems able to form representation about themselves, conscious, sentient and able to understand others' feelings, not only knowing what they want, but also understanding that they want and why they want. Eve from Ex Machina it's a good example and all the hosts from HBO's TV series Westworld which makes the beautiful distinction between theory of mind and self-aware agents.

4 Not Enough Legislation

As humans we are already sharing the society with the artificial intelligence and it is presumed that in the future more and more AI agents will be prepared to interact with us. But, as we know, the society is based on rules and the legal field makes social relations possible. Is the legal framework prepared to contain this reality or should we make some adjustments?

For example (Allgrove 2004) if a person (Andy) is negotiating a supply contract for his business using an intelligent software system who can measure the stock levels, compare terms of different suppliers and place orders, and the acceptant (Emma) is doing the process also using an AI system, who are the authors of the contract, knowing that the agreement and even the delivery was made before humans in charge with the contracting process were aware of its existence (maybe during night sleep)? Does the contract respect the present legal framework, as we know it?

One possible answer is that the contract is considered signed by the humans. A conservative approach will probably say that the machines cannot be parties to an agreement, hence, the contract would not exist. However, we may consider that, in the same evening, after noticing that his stock was running low, Andy logged in to his computer and noticed that the system had placed an order which had been received and accepted by a supplier (Emma). Feeling assured, Andy went home and had an unconcerned night of sleep. Andy ignores whether Emma is using a system to manage her orders or not. Does Andy have a reasonable expectation to be supplied with the goods?

If Andy had placed the order himself, would Emma be excused from performance because the order was accepted by her system instead of herself manually? On the contrary, Emma had accepted the order manually, would she be excused from performance because the order was placed by Andy's system? Or is it reasonable to excuse Emma from performance because both parties in the communications were the systems, despite the fact that Andy ignores the existence of Emma's system? In every case, even for the most conservative minds, the answer seems to be negative. But then, how to frame this contract in light of the current legal framework?

One possible approach is to consider the system as a mere *tool* for contracting or for communicating. Under this approach, the contract directly be celebrated between Andy and Emma. This approach offers the advantage of being easily introduced in the legal framework without the need for any major changes, (Allen and Widdison 1996) either by legislation, case law or doctrinal consideration On the hand, it relies on the fiction that anything issuing from the computer really issues directly from its human controller, completely ignoring any autonomy that the system may have. Furthermore, by presuming a consensus among parties which might not even be aware that the contract was celebrated or that the other party exists, this approach deprives the formation of the contract of its single most important element: the meeting of wills.

Another approach for this case is to consider the conduct of the system the conduct of a *person* (employee). Under this approach, the contract would be celebrated between one of Andy's legal agents and one of Emma's legal agents. In the party's eyes, what difference does it make if there is an employee operating the counterparty's computer or if it is operating itself? The advantage of this approach is that it does not rely on any presumption or bend the contract formation principles. Furthermore, it enables Andy and Emma to resort to any defenses they might have in case one of their employees did, indeed, celebrating the contract rather than considering them direct parties to the agreement. However, this approach implies taking a legislative option in favor of considering Andy and Emma's systems as separate legal entities from their owners and users.

We aimed at demonstrating that, with the proliferation of artificial intelligence, questions will rise and the legal framework will inevitably need to adapt. We believe that "the more autonomous robots are, the less they can be considered simple tools in the hands of other actors" (Parliament 2016).

5 Conceiving an Electronic Person

The Europeean Parliament in its Civil Law Rules on Robotics (draft report) introduced a request for "creating a specific legal status for robots, so that at least the most sophisticated autonomous robots could be established as having the status of electronic persons

with specific rights and obligations, including that of making good any damage they may cause, and applying electronic personality to cases where robots make smart autonomous decisions or otherwise interact with third parties independently" (Parliament 2016).

The concept of legal personality itself was not an immutable reality throughout history. The origins of the concept of legal personality date back to the 13th Century and are attributed to Pope Innocent IV, who founded the persona ficta doctrine, allowing monasteries to have a legal existence apart from monks (Rosen et al. 2017). The term electronic person was first coined in a 1967 article for LIFE magazine.

The concept of legal personality itself was not an immutable reality throughout history. As years went by and legal doctrine progressed, several other realities would end up being considered as separate legal entities from its owners or users. In the international legal system, this is the case of sovereign states and of various international and intergovernmental organizations, such as the United Nations or the European Union. In national jurisdictions, virtually every country applies this reasoning to companies and other forms of business associations. Specific jurisdictions even extend it to much more farfetched cases. In India, courts have attributed legal personality to Hindu idols, considering them capable of having rights and duties (namely, owning property and paying taxes) and, in New Zealand, the Whanganui River was granted legal personality in March 2017 because the Whanganui Māori tribe regard the river as their ancestor. It is also common for ships to be considered separate legal entities under Maritime Law and for animals to have their own legal status under various national jurisdictions (Alexandre 2017).

The legal status of persons, animals, objects and other realities (such as rivers and companies) varies from jurisdiction to jurisdiction and, over the course of time, even within the same jurisdiction and regarding the same reality. This observation enables us to conclude that a separate legal status or a legal personality does not derive from the quality of natural person, but it is the result of legislative options, which are based on moral considerations, that attempt to reflect social realities in the legal framework or that simply were made out of legal convenience. Hence, since no principle dictates when the legal system must recognize an entity as a legal person, or when it must deny legal personality, and no guidance derives from the study of the history of the institute, it is then relevant to ascertain whether artificially intelligent agents are morally entitled to be considered separate legal entities, whether doing so would reflect a social reality or whether it would be a convenient option from a legal point of view.

The question whether artificially intelligent agents are morally entitled to be considered separate legal entities needs to be preceded by the following interrogations: which realities are morally entitled to it and what characteristic or characteristics do they possess that supports such consideration? In our view, those realities are natural persons and animals and those characteristics are the capacities to act autonomously and to have subjective experiences. As for artificially intelligent agents, the same rationale may apply: they would be morally entitled to a separate legal status provided they possess the capacities to act autonomously and to have subjective experiences (Alexandre 2017).

The artificially intelligent agents should be held *liable* for damages they cause? Is it even possible to hold these agents liable? How to achieve such possibility? The Draft

Report with Recommendations to the Commission on Civil Law Rules on Robotics of the European Parliament's Committee on Legal Affairs goes even further and suggests that "the insurance system should be supplemented by a fund in order to ensure that damages can be compensated for in cases where no insurance cover exists" to which all parties (designers, owners and users) would "contribute in varying proportions".

The eventual use of public services or infrastructures by an artificially intelligent agent does not translate into a benefit for the agent, but for the user or designer who instructed him to take the action that implied the use of such service or infrastructure. In fact, since artificially intelligent agents are designed to directly or indirectly contribute to the welfare of humans, a human will always be the ultimate beneficiary of the public services or infrastructures that the agent uses while carrying out its purpose. Hence, it does not seem correct to say that it would be fair for artificially intelligent agents to be taxed because they benefit from public investment. *Taxes*, however, may also be justified by necessity. This is the case of taxes that aim at modifying patterns of consumption or employment within the economy, by making some classes of transaction more or less attractive.

Artificial intelligence has an unprecedented potential to disrupt the *labor markets*, as machines will be able to replace workers in a variety of cognitive and creative tasks and in tasks that employ manual labor but could not have been automated so far due to technologic constraints (such as driving). Even if, so far, markets have balanced themselves by moving a slice of labor towards more cognitive-oriented tasks, the fact that artificial intelligence will be able to replace jobs in virtually every tier of the pyramid is generating concerns that jobs will be eliminated faster than new ones can be created. Furthermore, even in the event that artificial intelligence results in net job creation, it is unlikely that current methods of workforce retraining are able to accompany its pace. Some authors even claim that machine learning may empower artificially intelligent agents to take on the new jobs created as a consequence of their own development. Under any of these scenarios, such events will directly result in loss of revenue for governments due to a reduction in tax collections since capital income is taxed at much lower rates than labor income. In addition to this, the replacement of human labor by automated labor may translate in major growths of social security expenses since social security systems are designed to provide unemployment insurance to workers who lose their jobs. These increased expenses, combined with the loss of fiscal revenue, are generating concerns as to the sustainability of current social security systems.

6 Conclusion

The purpose of this article is to demonstrate the need for a separate legal status for the artificially intelligent agents. Defining the contents of that status: liability, rights and potential taxation duties, allows for minimum certainty as to the consequences of the introduction of those new intelligent agents in society. This will contrast with the large amount of unknown. This is why the risks still need to be addressed and mitigated as they are not only related to eventual damages, but also to the protection of personal data and public safety itself.

Making machines that are more and more autonomous, it might be difficult for humans to ensure that such machines do not become too autonomous. Losses of control

may occur due to malfunctions, security breaches, the superior response time of computers compared to humans' or conscious or unconscious flawed programming, namely, regarding a fragile distributional shifting, unsafe exploration, unscalable oversight, negative side effects.

Designing robots that could impact the safety or wellbeing of humans, it is not enough to simply presume that it works. We believe that if designers cannot achieve justified confidence that an agent is safe and controllable, so that deploying it does not create an unacceptable risk of negative consequences, then the agent cannot and should not be deployed. Nevertheless, we also believe that artificial intelligence has the potential to place mankind on the path to prosperity and ultimately free Men from the burden of labor, giving us the opportunity to focus on tasks where creativity and passion play bigger roles. As Stephen Hawking once put it, with current and near- future technology "everyone can enjoy a life of luxurious leisure if the machine-produced wealth is shared, or most people can end up miserably poor if the machine-owners successfully lobby what they have prescribed, or any others which are recommended or adopted, shall, at every moment, be susceptible to adjustment in order to strike a balance between guaranteeing the wellbeing of our species and the freedom towards innovation. Artificial intelligence is not something to be afraid of, but rather to embrace. And, by pro-actively discussing the challenges this technology may comport, we are a few steps closer to prevent any potential downside while still fully reaping its benefits."

References

Alexandre F.M.: The Legal Status of Artificially Intelligent Robots. Tilburg (2017)

European Parliament: Draft Report with recommendations to the Commission on Civil Law Rules on Robotics. Committee on Legal Affairs (2016)

Palmerini, E.: RoboLaw: Regulating Emerging Robotic Technologies in Europe: Robotics facing Law and Ethics (2014). http://www.robolaw.eu/

Ballas, G., Konstantakopoulos, T.: Robot law - Greece Chapter. In: Bensoussan, A., Bensoussan, J. (eds.) Comparative Handbook: Robotic Technologies Law, Larcier, Lexing, pp. 133–166. New Technologies & Law (2017)

Hauser, M.: Do robots have rights? The European parliament addresses artificial intelligence and robotics (2017)

Turing, A.: Computing Machinery and Intelligence (1950)

Surden, H.: Machine Learning and Law. Washington Law Review (2014)

Zimmermman, E.J.: Machine minds: frontiers in legal personhood. SSRN 43 (2015)

Kurzweil, R.: The Age of Spiritual Machines. Penguin Goup, New York (1999)

Allgrove, B.D.: Legal Personality for Artificial Intellects: Pragmatic Solution or Science Fiction? University of Oxford, Oxford (2004)

Allen, T., Widdison, R.: Can computers make contracts? Harv. J. Law Techol. **9**, 25 (1996)

Rosen, C., Nilson, N. Bertram, R.: Shakey. LIFE (2017)