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Legal aspects in the legislation of robotics Tomsk Polytechnic University, Tomsk State University

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Abstract

The article comprises legislation questions in robotics and studies the laws that are being designed to regulate the relations between a robot and its designer. The development of an artificial intelligence, broad use of independent devices reveals the problems of technical and ethical character that are necessary to be solved in the collaboration of scientists of different fields. The article views the questions of harm infliction by robotic operations and ways of protection the robots. There were provided the forecasts for the next years about the possible change of the legislation in the world. The authors offer to create a special register for robots.

Keywords: Robotics, civil legislation, artificial intelligence, intellectual robots.

1. Introduction

More than 70 years have passed since the date of the publication of three laws of robotics by Isaac Asimov but people are still actively discussing the practical interaction with robots (Isaac Asimov, "Round dance", 1942). The laws state:

1. a robot may not injure a human being or, through inaction, allow a human being to come to harm;
2. a robot must obey the orders given it by human beings except where such orders would conflict with the First Law;
3. a robot must protect its own existence as long as such protection does not conflict with the First or Second Laws. [3] Afterwards Asimov added one more law - the zero or the fourth law - a robot cannot do harm to the mankind or to assume that the harm was done through the inactivity of the robot. The Laws of robotics are not rules but more human instincts formulated in the form of Laws for people. For robots the laws aren't postulates but a behavior model. However, when we speak about Asimov's laws we understand that they aren't laws within the meaning of legislation but only a simulation. From the legal point of view they don't exist though people attempt to give them a normative content.

In 2004 SIAI (Institute of singularity of an artificial intelligence, USA) created a website for the discussion of ethics of the artificial intelligence (AI) and possible consequences of acceptance of laws in real life. Experts consider that laws of robotics introduced by Azimov are unsafe as they can induce artificial intelligence to seize power on the Earth to protect people from harm. [6] In March, 2007 the Government of South Korea started the development of the act designed to

normalize ethical and ethnic relations between people and robots – Robot Ethics Charter for developers and users. [5] In March, 2012 robotic engineers of the USA urged the world scientific community to begin the development of "The ethical code of robots" which will regulate activities of home and fighting robots. In all these cases Azimov's laws serve as the basic documents. Robots are neither good nor bad because people have designed and created them in the way they are. Today, a robot is perceived as a thing which can be bought, sorted or disconnected. But it is impossible to deny that in the next decades the creations of artificial intelligence revolution would raise the question whether robots should be considered as things and creations of a person or they start to perceive themselves as identities equal to us.

2. Discussion

Dmitry Grishin, the head of directors in Mail.Ru and the founder of Grishin Robotics, introduced the concept of the law on robotics. He considers it to be the first in the world. In fact, such concepts, including those that have been developed in more details, are being discussed for several years, even in the European Parliament. Dmitry Grishin proposes to equate robots to animals and legal entities. "Artificial intelligence does not have emotions but at the same time, it, like animals, is capable of independent actions". D.Grishin explains the analogy with a legal entity by the fact that the robot is also a "special legal design". According to him, the concept of legislation on robotics is also based on three laws of robotics by Azimov. [1]

We think that it is necessary to create the special register for robots. This register would be similar to the Unified State Register of Legal Entities. The robot creators should be accountable to the same norms as the owners of sources of the increased danger. D.Grishin states four situations when, from his point of view, the criminal prosecution is applicable:

- the creation of a robot for making offenses;
- switching-off such a function as "infliction of harm to a person";
- the creation of a robot with no the "infliction of harm to a person" function;
- the creation of a robot without realization of the fact that it can be used for infliction of harm to a person.

Thus, the laws on protection of robots can also shortly become a reality. Such documents will soon evolve. It is possible to assume that at the beginning robots will be defined as things or the material values, however, with the advent of powerful artificial intelligence, they will become a part of human society and will demand the rights and the protection. The number of robots in the world is calculated by millions. At the moment their total quantity is unknown, but in 2008 according to the review of the International Federation of Robotics in the world there existed more than 6,5 million robots [2]. They form and occupy a separate niche: a technological, home and social one.

One of the most serious questions of any legislation on robotics is who or what is responsible for the robot's actions. In this case it is necessary to consider the self-sufficiency of robots in decision-making. The higher the self-sufficiency of a robot is the less the responsibility is that the owner of the robot bears. The longer the robot is studied by the person, the more responsibility shall be on the person. At the same time, it is necessary to distinguish the abilities acquired from the person with those which the robot has learned.

The question who will be responsible for the damage caused by an autonomous robot, is offered to be solved by means of a mandatory insurance. Finally, the form of insurance after all is responsible for the consequences. Experts also suggest to create a fund or several funds (for each category of robots) that will be replenished due to assignments from vendors and is spent for compensating the damage from operations of robots.

Also people discuss the creation of a special charter for robotics which will describe the ethical principles of developing autonomous devices. They are the following:

- robots must act in the interests of people;
- robots should not do harm to a person;
- the benefits that robots bring must be accessible to everyone, especially the assistance of medical robots.

These principles are similar to the laws of Asimov's robotics. It is assumed that any developer of robots should have these principles in mind while creating new devices. The source code of the robots should be open to the possibility of investigating incidents. For the same reasons, the history of the robot's actions should be available. It is important that the discussion during the creation of the charter is interdisciplinary, with the participation of philosophers, engineers, sociologists, other professionals, and also harmonious, when the ideas for regulation are put forward by those who understand their content and the consequences of adoption. It should be thorough, because hasty changes to the legislation usually do not have a high performance. When changes are applied to laws, they can solve only local tasks, but contradict other norms. As the result, the terminology suffers, there arise the rules that do not correlate with the very technological nature of processes and things.

3. Conclusion

According to the United Nations, in 2020 robots will not only vacuum floors or cut lawns but will protect houses, work as firefighters, train elderly people in mastering new more difficult technique and take part in education of children. And it is only about the use of robots in life. Scientific experiments, military needs, medicine and other directions of use of robots do progress inevitably, and so, the legislation should be developed in compliance with the needs of progress. According to the famous British futurologist from British Telecom Jan Pearson, in 2025 electronic life forms will acquire constitutional rights in many countries [4]. Of course, proceeding from the level of development of technologies and mass character of robots, today legal status of robots is a fantasy. But from the point of view of scientific and technical progress and an observed acceleration of development of humanity in the technological sphere – all these can be expected in the long-term future. Now it is impossible even to imagine what occurs when these difficult systems become too "smart" and due to self-training in the course of independent interaction with an external environment begin to work outside the programs. On the basis of the gained experience they develop and replenish composition of initially put algorithms and rules.

References

1. All laws of robotics. How they will legislatively regulate machines with an artificial intelligence. Meduza [Available at URL: <https://meduza.io/feature/2016/12/17/vse-zakony-robototehniki>] [Accessed 09.04.2017]
2. International Federation of Robotics [Available at URL: <https://ifr.org/worldrobotics>] [Accessed 09.04.2017]
3. Isaak Asimov. (1942). Runaround. New York: Doubleday & Company.
4. Jan Pearson predicts new race on Earth by 2030. The day after tomorrow. [Available at URL: <http://poslezavtra.org.ua/?p=383>] [Accessed 09.04.2017]
5. South Korea develops the collection of laws for robots. Media International Group [Available at URL: http://www.mignews.com/news/technology/world/120307_153419_49690.html] [Accessed 09.04.2017]

6. The Singularity Institute for Artificial Intelligence. Encyclopedia "SEO: Retrieval". [Available at http://www.seobuilding.ru/wiki/Singularity_Institute_for_Artificial_Intelligence] [Accessed 09.04.2017]