5. ГІСТЬ НОМЕРА.

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LEGAL LIABILITY OF AI ?

Introduction

The last 20th century was full of events that heralded significant changes in world history: World War I and World War II, research of nuclear power and space exploration, developments in emerging transportation and communications technology and the genesis of digital technic. There were new and radical developments in the physics, human sciences, building on the progress made in the 19th century. Big Science flourished, especially after the Second World War, as funding for science increased. Mathematics became ever more specialized and abstract subject. New fields of mathematics studying the theory of computation were developed. The works of Alan Turing[1], including the Turing machine, «a von Neumann algebra» by John von Neumann and electromechanical computer «Z3» and «Z4' of Konrad Zuse were something new and constructive. It has become a new impetus for the development of new sciences such as computer science and programming. Computer science began to develop from the middle of the last century, due to the advent of computers and the beginning of the computer revolution. The advent of computers in the 1950s. established necessary hardware support for informatics , ie, a favorable environment for its development as a science. John McCarthy, an American computer scientist pioneer and inventor, was known as the father of Artificial Intelligence (AI) after playing a seminal role in defining the field devoted to the development of intelligent machines. The cognitive scientist coined the term in his proposal for the 1956 Dartmouth Conference, the first artificial intelligence conference. The objective was to explore ways to make a machine that could reason like a human, was capable of abstract thought, problem-solving and self-improvement. He believed that «every aspect of learning or any other feature of intelligence can in principle be so precisely described that a machine can be made to simulate it. The field of AI research was founded at a conference at Dartmouth College in 1956. The attendees, including John McCarthy, Marvin Minsky, Allen Newell, Arthur Samuel and Herbert Simon, became the leaders of AI research. They and their students wrote programs that were, to most people, simply astonishing: computers were winning at checkers, solving word problems in algebra, proving logical theorems and speaking English». In 1958 he created the Lisp computer language, which became the standard AI programming language and continues to be used today, not only in robotics and other scientific applications but in a plethora of internet-based services, from credit-card fraud detection to airline scheduling; it also paved the way for voice recognition technology, including Siri, the personal assistant application on the latest iPhone. That was an absolute breakthrough in computer science.   By the middle of the 1960s, research in the U.S. was heavily funded by the Department of Defense and laboratories had been established around the world. AI's founders were optimistic about the future: Herbert Simon predicted that «machines will be capable, within twenty years, of doing any work a man can do». Marvin Minsky agreed, writing that «within a generation ... the problem of creating 'artificial intelligence' will substantially be solved». Progress slowed and in 1974, in response to the criticism of Sir James Lighthill and ongoing pressure from the US Congress to fund more productive projects, both the U.S. and British governments cut off exploratory research in AI. The next few years would later be called an «AI winter», a period when funding for AI projects was hard to find. .In the early 1980s, AI research was revived

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[1] In his work *, Computing Machinery and Intelligence*, Alan Turing suggests that communication is not a crucial element of what constitutes a rational human being. AI might be rational and intelligent but does not need to prove itself by the capability of communication. The key is if a machine is able to imitate the human behavior; if it is capable to reach human cognitive capacity.

by the commercial success of expert systems, a form of AI program that simulated the knowledge and analytical skills of human experts. By 1985 the market for AI had reached over a billion dollars.

In the late 1990s and early 21st century, AI began to be used for logistics, data mining, medical diagnosis and other areas.

<u>Capabilities and potential AI.</u>

<u>Use of AI nowadays.</u>

In 21st century we can see the overgrowing use of AI in all fields of human activity. Artificial intelligence has been used in a wide range of fields including medical diagnosis, stock trading, robot control, law, remote sensing or scientific discovery. AI can be used to perform the most dangerous jobs of daily life. There are already AI systems that perform services like fire-fighting, thus reducing the danger of civilians. Another very important use of this technology is its use in security, both at the national and at the individual level. Sophisticated burglary alarm systems make use of such technology while national security agencies use data on AI systems, which provide a highly accurate output of problems the nation might face. Security algorithms can take input from security cameras and determine whether there may be a threat – if it «sees» a warning sign, it will alert human security officers. The potential of this technology is immense in transport. Self-driving trains and metros are already in use. Now is testing the flying mode of aircrafts controlled by AI system. There are also software programmed cars available in the market today. Smart Cars developed by Google that could potentially let self-driving cars learn to drive in the same way that humans do. With the help of such vehicles, even the most inexperienced driver would be able to travel much more safely. Online Customer Support-in many cases, you're talking to a rudimentary AI . Many of these chat support bots amount to little more than automated responders, but some of them are actually able to extract knowledge from the website and present it to customers when they ask for it. Virtual Personal Assistants Siri, Google Now, and Cortana are all intelligent digital personal assistants on various platforms (iOS, Android, and Windows Mobile). In short, they help find useful information when you ask for it using your voice. Or even «Electronic Medical Assistant» service which is now telling the doctors how to treat us. You provide information about their disease or ailment online and within seconds, it has the name drug that had worked in comparable cases. Advent of the internet was one of the turning points for the legal industry. It has provided that AI is now able to make a legal online service which was traditionally offered by attorneys. «Law Geex», «Docracy», «Shake», «Rocket Lawyer» etc. It combines machine learning algorithms with crowd-sourced data, text analytics, and the knowledge of expert lawyers to make in-depth contract reviews accessible to everyone.

The timeline of technological evolution between outdated 20th century inventions and AI in the contemporary world , due to the contribution of Internet (or cyberspace) and powerful computers equipped with high-end processors being able to process data in much quicker and effective ways, the capabilities of AI systems have triggered the debate over the potentiality of granting them Legal identification.[2]

<u>Confusions with a legal responsibility of AI</u>

Disavowal of the appearance of AI in our lives today meaningless. Properly educated robots will become quite dangerous. In fact, I am sure they will outperform us in any conceivable area of endeavor, intellectual or physical. Inevitably, such a development will lead to a fundamental restructuring of our society and humanity face to problem!

The relationship of man as «individual» governed by certain rules and laws that have been set by society throughout the history of humanity. Precisely the law regulates all spheres of human life today. So, if the AI has a specific task or function for which it was originally created, i.e. performs certain actions, respectively , it has to be responsible for its realization?! Following that, appears the question of liability of the AI at all? Let's imagine situation in which a man has purchased an robot~servant/guardian with AI for purposes of safety. The man has instructed -by giving the proper commands- the robot to attack anyone that might try to break into his property. Indeed, the AI executes precisely its master's commands and to stop the assaults of the burglar starts fighting him, then causing lethal injury, and as a result kills him . Who are right and who are wrong?

Interesting isn't it? And who is legally responsible for it?

Or another even more interesting thing, last news that the recent raid US-drone in Pakistan killed a leader of the Afghan Taliban and at least 150 militants Al-Shabab movement in Somalia confirm that the United States used the newest weapon. The leader of the Afghan Taliban has been killed by a US drone strike in an area of <u>Pakistan hitherto</u> off-limits for the remote-controlled aircraft.[3]

[2] Gabriel Hallevy, «The Criminal Liability of Artificial Intelligence Entities – from Science Fiction to Legal Social Control», **4** *Akron Intellectual Property Journal* 171 (2010)

[3] «US drone strike in Pakistan kills Taliban leader Mullah Mansoor» This article was originally printed on Sunday 22 May 2016 12.40 BST in «the guardians».

Thus, we could say that we deal with un-human being robot-terminator who could find you anywhere on the globe? So, in this example robot could be an autonomous lethal weapon who being programmed and be given orders to detect and eliminate any possible threat that it deems to be the enemy. Indeed, the execution is going according of the plan, but drone liquidated targets with a lot of civilian casualties. The autonomous system of machine deems that war casualties is not something uncommon and choose not to abort the mission. Who is responsible if an autonomous military drone accidentally kills a crowd of civilians? Is it the military officer who controlled the mission? Of course, it would be necessary to be mentioned about liability the programmers of the enemy detection software that misidentified the people, or the programmers of the software that made the actual kill decision, or engineers who equipped the drone. They bear full legal responsibility for what they have developed. And according to the law the responsibility for the AI and robot with AI carries the company which owns the rights to this product .

But what if the drone can improve its algorithms by modifying its own software based on what the entire fleet of drones learns on earlier missions?

Perhaps you will say that the drones are not so smart today. Maybe. But as drones get smarter, their connection to the humans that originally built them become more tenuous.

Or one more example of a crime of the automated shopping robot designed by a Swiss art group. It was programmed to purchase illegal products over the Darknet. It was able to purchase a Hungarian passport and some Ecstasy pills as well as a few other illegal products before it was «arrested» by Swiss police.[4]

In criminal law, Gabriel Hallevy, who has tried to solve the criminal liability riddle and that of legal personhood in a very *stricto sensu* approach, at the preface of her book «When Robots Kill, Artificial Intelligence Under Criminal Law» poses the question who is to be held liable should an accident occurs in which a robot is involved.[5] Eventually after deep-deep analysis and researches Gabriel Hallevy made a conclusion: «Why should AI entities be different from corporations? AI entities are taking

larger and larger parts in human activities, as do corporations. Offenses have already been committed by AI entities or through them. AI entities have no soul, and some AI entities have neither body nor soul. Thus, there is no substantive legal difference between the idea of criminal liability imposed on corporations and on AI entities. It would be outrageous not to subordinate them to human laws, as corporations have been. Models of criminal liability do exist and general paths to impose punishment. What else is needed?[6] Perhaps this is one of the most correct choices legal theories about AI liability for today. Another well-known legal researcher Lawrence B. Solum in his work «Legal Personhood for Artificial Intelligences» said so «Thinking about the question whether AIs should ever be made legal persons does shed some light on the difficult questions the law faces about the status of personhood. It is not that we have discovered a theory of personhood that resolves hard questions about the borderlines of status. Rather, thinking about personhood for AIs forces us to acknowledge that we currently lack the resources to develop a fully satisfactory theory of legal or moral personhood»[7] and he is absolutely right. Today, humanity is on the verge of great discoveries that will change the life of our future generations. We are so treacherously let the AI in our lives, not thinking about that one day AI becomes equal to human being and even transcend it. And then we will have an equal share areas of interest on the Earth.

<u>Conclusions</u>

In future entire corporations will exist without any human employees at all. From an instrumentalist perspective all of the aforementioned are tools that serve humanity. Nowadays an autonomous robot incorporates its own internal motivational structure and decision mechanisms, but we are the ones as designers or architects, who choose how these decisions will be taken. We limit or expand the capabilities of an AI system. We choose if the AI should correspond to a humane way and make it possess feelings. The reason that its exist it is because we are their «Creators». But do not forget that we are on the verge of technological revolution. Additionally,

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[4] A three-month-old Swiss art project called «The Random Darknet Shopper» was seized by police this week after spending $100 in bitcoins per week to buy products from Dark Net markets, including ecstasy (which was just $48) and a fake passport (for a mere $25). «Drug-buying robot arrested in Switzerland» by Patrick Howell O'Neill; Jan 17, 2015, 10:48am CT .

[5] She starts by citing a labour accident that occurred in Japan back in 1981: «In 1981, a thirty-seven year old Japanese employee in a motorcycle factory was killed by an artificial intelligence robot working near him.

The robot erroneously Identified the employee as a threat to its mission, and calculated that the most efficient way to eliminate the threat was to push the worker in an adjacent machine. Using its very powerful hydraulic arm, the robot smashed the surprised worker into the operating machine, killing him instantly, after which it resumed its duties without further interference. This is not science fiction, and the legal question is this: Who is to be held? criminally liable for this homicide?» Gabriel Hallevy, When Robots Kill, Artificial Intelligence Under Criminal Law (Northeastern University Press, 2013, Boston, Massachusetts).

[6] Gabriel Hallevy, When Robots Kill, Artificial Intelligence Under Criminal Law (Northeastern University Press, 2013, Boston, Massachusetts).

[7] Gabriel Hallevy, When Robots Kill, Artificial Intelligence Under Criminal Law (Northeastern University Press, 2013, Boston, Massachusetts).

according to Moore's Law[8], microchips advance every 18 months and the AI's capabilities will reach a new high, thus being superior to that of a human being. Thus, in near future AI be self-recognized as an independent Body, which will make their own decisions and actions. And then quite logical question about conferring exceptional legal and social Status for AI or Robots with AI in this new specific form of relations between Human and Non-Human being species will arise.

But how we can understand that?

One well-known test is Alan Turing's test was introduced by Turing in his paper, «Computing Machinery and Intelligence», while working at the University of Manchester It opens with the words: «I propose to consider the question, 'Can machines think?»[9]. Turing proposed that the question whether a machine can think be replaced with the following, more operationalized, inquiry. The computer that is a candidate for having the ability to think shall engage in a game of imitation with a human opponent. Both the candidate and the human being are questioned by someone who does not know which is which (or who is who) – the questions are asked via teletype. The questions may be on any subject whatsoever. Both the human being and the computer will attempt to convince the questioner that it or she is the human and the other is not. After a round of play is completed, the questioner guesses which of the two players is the human. Turing suggested we postpone a direct answer to the question whether machines can think? Turing's new question is: «Are there imaginable digital computers which would do well in the imitation game?» This question, Turing believed, is one that can actually be answered. In the remainder of the paper, he argued against all the major objections to the proposition that «machines can think». The disadvantage of Turing's test is that it avoids direct confrontation with the difficult questions about what «thinking» or «intelligence» is. Turing thought that he had devised a test that was so difficult that anything that could pass the test would necessarily qualify as intelligent. In any case, ability to think of machine intelligence has been proven in such a way .

Therefore, on the one hand we see a way how to prove the «thinking» of AI, but from another hand it is not clear how to distinguish do the object's intellectual abilities are developed so well to be an independent unit and be held legally responsible.

It is obvious that if the AI late early fully recognizes itself as a separate species, which will be on an equal footing with the other views of the planet Earth, and when it becomes worldwide accepted then the AI will receive legal and social status and will be held legally responsible for their actions.

From my legal point of view, in this case it will be necessary first to define clearly a moment when the Human fully disclaims responsibility for the actions of the AI. The legal responsibility of the AI should start, only in the case, when the strict «liability zones» would be established between Human as a «Creator» or «Master» (as engineer or programmer or owner) and the AI or Robot with AI as a conscious, autonomous «non-human» organism , which will capable to make adequate evaluation of its surroundings , realize its actions and acts, and will be carried the moral, social, as well as legal responsibility in correspondence of norms, traditions and laws established for him by Human.

Secondly, if an AI being is given the same legal responsibilities as a human, shouldn't it also have the same legal rights as a human? Granting the special legal status (legal personality) with it's natural (but rather unnatural) personal fundamental rights and obligations. For example in labor sphere, the right to enter and perform contracts, the obligation to carry insurance, the right to own intellectual property etc.

Finally, the rapid development of Artificial Intelligence technology requires current legal solutions in order to protect society from possible dangers inherent in technologies not subject to the law. The type of legal system involved common law jurisdictions or those countries with a Roman law that we are using in our life are simply not ready for dealing with AI system. That's why we need for the total reloading of law. Creation of new international or even global legal standards and norms. It's necessary a creating a special judicial institutions, which will be competent in the objective legal assessment of the actions of AI (in case if AI will break the law). Especially establishment of special educational centers for the staff of these agencies which will have legal and technical qualification.

At last I want to say, many scholars over the past 20 years has been actively studying the issue. But the process of evolution of the AI does not stop. Right today these electronic systems are managing such processes, failure of which may result in catastrophes with human casualties. Granting legal status of AI and ensuing it's legal liability is a reality rather than science fiction. In order to avoid a mistakes, humanity need to built conceptually new strong global legal system which will be able to regulate the relations between Human and AI.

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[8] «Moore's Law is a computing term which originated around 1970; the simplified version of this law states that processor speeds, or overall processing power for computers will double every two years. A quick check among technicians in different computer companies shows that the term is not very popular but the rule is still accepted». Excerpt taken from http//;[www.mooreslawcrgl.
[9] «Computing machinery and intelligence» was published by Alan Turing in 1950.