Ivane Javakhishvili Tbilisi State University
Faculty of Law

Journal of Law

№1, 2018

უნივერსიტეტის
გამომცემლობა

UDC(უაკ) 34(051.2)
ს-216

Published by the decision of Ivane Javakhishvili Tbilisi State University Publishing Board

ISSN 2233-3746

Dr. Joaquín Rodríguez Álvarez[°]

Social Challenges of Artificial Intelligence: The Case of Lethal Autonomous Systems[**]

Artificial intelligence (AI) has the potential to transform our society in a way that is still difficult to predict but whose implications are going to be deeper than previous technological developments. For the first time in our history, we will be dealing with non-human intelligences, able to perform tasks with direct implications over our material reality with consequences that can even result in direct human casualties. Through this article, we will try to provide elements for the social debate that is structured around the future of AI and its relationship with humanity, by analysing some of the social challenges attached to its core, using the lethal autonomous systems as a paradigmatic manifestation of those risks. This article will present some of the main problems attached to the technology that underlines the urgent need for regulation and deeper analysis about its potential ramifications.

Keywords: *Artificial Intelligence, Social Challenges, Lethal Autonomous Systems*

1. Introduction

We are living in a historical crossroad defined by the massive incorporation of advanced technologies in our daily lives and routines. These technologies for the first time represent not only tools that can help us to develop complex tasks, but they are also able to take decisions without meaningful human control on critical phases of their life cycle[1] with direct consequences for our physical reality.[2] These technologies are able, for the first time, to connect the digital with the non-digital universe in a single plane of interaction, with the ability to gather new data to improve future actions. They even have the potential to determine the way we see and interact with the world, being necessary to rethink the roles that should be reserved for humans and the future of our species as well.[3]

We find ourselves lost in the midst of a fourth industrial revolution, a process that can radically transform both our material and cognitive realities; a transition time that anticipates a completely new holistic approach to a context, where the boundaries between the real and the hyperreal are practically

---

° Professor at the School of Prevention and Integral Safety and Security; lecturer at the Faculty of Law of the Autonomous University of Barcelona; and a member of ICRAC (International Committee of Robot Arms Control).

** Note: This article has been developed thanks to the joint research with Dr. Roser Martinez Quirante in the context of the book, *Artificial Intelligence and Lethal Autonomous Systems*, *A New Challenge for the United Nations*. I would also like to acknowledge the support of Dr Manuel Ballbé in this research.

1 *Winner L.,* Autonomous Technology: Technics-Out-of-Control as a Theme in Political Thought, MIT Press, 1978.

2 *Marx L*., The Idea of "Technology" and Postmodern Pessimism, In Technology, Pessimism, and Postmodernism, Springer, Dordrecht, 1994, 11-28.

3 *Rodríguez J*., La civilización ausente: tecnología y sociedad en la era de la incertidumbre, Gijón, Trea, 2016.

non-existing. This is a time that can give shape to the worst fears of Baudrillard[4] by generating a world where our perception is determined by technology, in a context where technology is able learn, react, and adapt itself to the necessities of a system that is shaped by them; a time that will be defined by the presence of non-human intelligences which are called to play key roles in crucial aspects of our lives such as safety and security, finance, learning, communication, etc.; a moment where our tools will be able to shape our reality in a way never before experienced, generating a perception scope that can limit our understanding of complexity, uncertainty, and social and psychological stability through normality. *"We shape our tools and, thereafter, our tools shape us."*—John Culkin (1967)

Besides, current development of the technological revolution theoretically implies a transformation of the "human condition" as it was understood and defined by Hannah Arendt,[5] providing new meanings to our system of social organisation and individual comprehension of the context. This transformation incubates to the post-human condition,[6] a moment when human and non-human intelligence co-exist evolving into a completely new reality. It is a new context where both intelligences can reshape each other through language by transforming meanings and signifiers,[7] generating new social forms and new lights and shadows, able to determine how we perceive the context. This is a new time that represents a dramatic change from the previous and in desperate need of tools that provide new frameworks of social cohesion and comprehension.

It is a time that fits in Gramsci's definition of "war of positions" when "the old world is dying, and the new world struggles to be born: now is the time of monsters".[8] In this war, our tools need to be renewed if we want to ensure a future of progress and wellbeing for human beings and other species that inhabit this planet. It has been a long time since the moment when Hobbes met Galilei, and the Leviathan was raised as our best attempt to generate certainty, not from an arbitrary system of values as the one provided by the Catholic Church in Western Europe, but from a deep understanding of nature through mechanistic thinking. The dream of Hobbes of finding a methodology that can create certainty in chaos by providing a rational framework, with the notion of causality and humanist ethics at its core,[9] is quickly fading while we feed this age of post-truth. Hobbes' time has passed and the law, understood as a technique[10] as well as a philosophical resource, is showing dramatic signs of exhaustion in its current comprehension while dealing with the new technological frameworks,[11&12] i.e., transformations

---

4 *Baudrillard J.*, Simulacra and Simulation Random House, London, 1994.
5 *Arendt H.*, The Human Condition, University of Chicago Press, 2013.
6 *Braidotti R.,* Posthuman, All Too Human: Towards a New Process Ontology, Theory, Culture & Society, 23 (7-8), 2006, 197-208.
7 *Nietzsche F.,* On the Genealogy of Morals and Ecce Homo, Vintage, London, 2010.
8 *Bates T.,* Gramsci and the Theory of Hegemony, Journal of the History of Ideas, 32(2), 1975, 351-356.
9 *Pardo J. E.,* El desconcierto del Leviatán: política y derecho ante las incertidumbres de la ciencia, Marcial Pons, 2009.
10 *Ellul J., Ellul J., Jurist P., Ellul J., Juriste P., & Ellul J.,* La Technique ou l'enjeu du Siècle, Paris, A. Colin, 1954.
11 *Funtowicz S. O., Ravetz J. R.*, Science for the Post-Normal Age, Futures, 25 (7), 1993, 739-755.
12 *Ravetz J. R.,* Scientific knowledge and its Social Problems, Transaction Publishers, 1973.

that raised questions related to one of the biggest challenges[13] *we have experienced in previous centuries in the rise of new forms of intelligence, or intelligence without consciousness, and how the public and the private must interact and relate to them.*

The present article's main objective is to explore the erosion of paradigms that have been produced in the recent years with the rise of some technological developments, as well as the potential result of their combination, by exploring those deeply affected key elements of our reality, which was never designed to deal with non-human intelligent actors, and how these actors should be comprehended.

It is a new path where philosophy of law is called to play a key role in the development of our theory. Only by understanding that it is precisely the "spirit of the law" of the Leviathan is the only possible way through which we can face the risk associated with the rise of non-human intelligent as an active actor in our society at the moment. It is also important to understand the potential side effects of these technological developments and how the promises of a bright future elaborated by the industry at this stage of development could easily transform into our worst nightmare.

We also have to take into account that we are working with technical developments that we do not fully understand. These developments are giving birth to technologies that have the potential to determine the future paths of development of humanity. The gears of these technologies are controlled right now by the private sector, and not by the public sector, making us question the hidden agendas that have been put in place to generate states of consciousness oriented to comprehend the human as a consumer but not as a citizen who is a subject of rights that protect him/her from deception and manipulation.

With this purpose, we would structure the present article into three sections: The context, where we define the characteristics of our system, the rise of artificial intelligence and the lethal autonomous systems where we would present those technologies. In the third section, we will focus on some of the challenges this technology represents and finally offer some recommendations for action in the last section of the paper.

2. Context

The systemic changes unleashed over the last decades have resulted in a profound reconfiguration of the pillars on which the old scientific, social, legal and other paradigms were based.[14] The old system has been eroded by chaos, contradictions, complexity and uncertainties[15] as was illustrated by Ilya Prigogine, Nobel Prize winner in physics. His research laid the foundations of chaos theory, stating, "Chaos makes life and intelligence possible. The brain has been selected to become so unstable that the slightest effect can lead to the formation of order.[16] "

---

13 *Barrat J.*, Our Final Invention: Artificial Intelligence and the End of the Human Era, Macmillan, 2013.

14 *Sardar Z.,* Welcome to Post-Normal Times, Futures, 42 (5), 2010, 435-444.

15 *Funtowicz S. O., Ravetz J. R.,* Science for the Post-Normal Age, Futures, 25(7), 1993, 739-755.

16 Vid. el trabajo recopilatorio sobre la dignidad como derecho y como valor en *Barak A.,* Human Dignity, The Constitutional Value and the Constitutional Right, Cambridge, 2015. También vemos una exhaustiva

However, even the concept of life evolves, and it has lately been often understood as an object of consumption and a mechanism of production. Values intrinsic to the subject, such as human dignity, are no longer central to the system, but very often ignored or degraded. Life is quantified through algorithms,[17] the body is a vital unit of consumption within the production cycle and death is assumed as collateral in a field that extends from the war to the productive.

In addition, safeguarding the rights of the subjects is contingent to the fiscal balances of the large corporations, which determine their working conditions, not based on ethical or even legal criteria but simply based on economic criteria. However, this situation has led in parallel to the emergence of citizen movements in favour of disadvantaged groups to curb this trend. In the wake of such pressures, litigation, the outpouring of information, etc., little by little, minority rights have been recognised and business organisations have been forced to change their economic policies through corporate social responsibility.[18]

We are facing a phase of development of globalised capitalism in which we can observe a process of transition from Foucault's biopolitics[19&20] to Mbembe's necropolitics.[21] Therefore, the efforts of citizen movements and international organisations will be necessary to stop the crystallization of a form of power defined by its necessity of exercising control over life from both a material and utilitarian perspective (movement control, thought control, etc…). It is a form of power that is also used to avoid regulating those fields of development that clearly represent risks for the society. This is a phenomenon that brings us to the current phase of expansion of the system that is impregnated with the domain of the simulacra of hyperreality;[22] a context where new tools should be generated to adapt to the development of technology.

The structures of advanced capitalism unravelled by Jameson in his work, Postmodernism or the Cultural Logic of Late Capitalism,[23] and the concept of Casino Capitalism that Ballbé points out (almost more chaotic than in the origins of the anomic market[24]) are no longer limited to exercising repressive control over the subject of a form both physical (material) and ideological (subjective), but objectivise the domain over life and death while we appreciate a counter-reaction from deregulation to re-regulation (environmental, financial, labour, etc.) as the only existing hope.

---

perspectiva interdisciplinar en *Düwell M. et al*., The Cambridge Handbook of Human Dignity, Cambridge, 2014.

17 *Ray T., Liew K. M*., Society and Civilization: An Optimization Algorithm Based on the Simulation of Social Behavior, IEEE Transactions on Evolutionary Computation, 7 (4), 2003, 386-396.

18 *Ballbe M., Martínez R.,* Law and Globalization: Between the United States and Europe, 2009, en *Robalino J., Rodríguez-Arana J. (eds.),* Global Administrative Law, Londres, Cameron May.
Ballbe M., Martínez R., Soberanía dual y Constitución integradora, Barcelona, Ariel, 2003.

19 *Foucault M*., Discipline and Punish: The Birth of the Prison, Vintage, 2012.

20 *Paras E.*, Foucault 2.0: Beyond Power and Knowledge, Other Press Llc, 2006.

21 *Mbembé J. A., Meintjes L.*, Necropolitics, Public Culture, 15 (1), 2003, 11-40.

22 *Baudrillard J*., Simulacra and Simulation, University of Michigan Press, 1994.

23 *Jameson F.,* Postmodernism, or, the Cultural Logic of Late Capitalism, Duke University Press, 1991.

24 *Ballbé M.,* Seguridad humana: del Estado anómico al Estado regulador, prólogo a *C. Hood et alii*:, El gobierno del riesgo, Barcelona, Ariel, 2005.

If such a change does not occur, a transmutation of traditional government will lead us to a private indirect management that does not destroy the state, but that transfers the exercise of coercive power to organised parastatal elites for whom the general interest is not a priority. From there, we will observe the rise of the establishment of a necropolitical order, based on the control and economic use of the power to kill; a system whose maintenance requires new and sophisticated social control systems.

In this phase, the system no longer seeks only to "Discipline and Punish[25]" through a complex legal-institutional system. But, as a result of the exponential growth of scientific knowledge, the state and the community are more aware of the associated life processes to cycles like consumption.

A present, in which the system knows that it chooses to decide who lives and who dies, is being configured. How such death will occur is also being planned through generating a complex eschatological strategy that can materialise in an ample menu of possible endings such as violence, war, illness, intoxication, exhaustion, high cost, etc. This is happening in a world that, despite considerably reduced physical distances, thanks to communication and transport technologies, still reproduces models of past exploitation through practices based on massive extraction of resources from peripheral countries and in restricting people's freedom of movement. Condemning many subjects to exploitation and death while the ecological exhaustion to which they have been subjected to certain territories increases the need for that freedom.[26]

Whole regions of the globe suffer from desertification and water impoverishment that impede access to water to entire communities that are forced to abandon their lands due to the impossibility of maintaining traditional farming activities, where artificial intelligence can be used to provide answers and solutions. Because, climate change is also responsible for other phenomena like ecological emigration[27] that throws thousands of people into the arms of human trafficking mafias[28] every year, generating successive humanitarian crises while developed countries apply active policies of border control and entry limitations.

We are before a new system, a new servitude of the glebe, where the West supports its consumption dynamics in a refined version of the idea of a vital space; it is no longer necessary to exercise effective control of a territory, but simply that of its economy. Extraction of materials is guaranteed while free movement of individuals is restricted. Millions of men and women are condemned to poverty, their human dignity is ignored and neglected and new forms of risk commercialisation, such as emission rights, illuminate sophisticated social and environmental erosions. This dynamic contrasts with those of the social classes of Western countries and the elites of the rest of the planet, who benefit from a complex system of privileges.[29]

---

25 *Foucault M.*, Discipline and Punish: The Birth of the Prison, Vintage, 2012

26 *Balibar E., Wallerstein I. M., Wallerstein S. R. I.*, Race, Nation, Class: Ambiguous Identities, Verso, 1991.

27 *Beine M., Parsons C.,* Climatic Factors as Determinants of International Migration, The Scandinavian Journal of Economics, 117 (2), 2015, 723-767.

28 *Janashvili L.*, Human Trafficking: la nueva esclavitud [en prensa], 2018.

29 *Castells M.*, Power of Identity: The Information Age: Economy, Society, and Culture, Blackwell Publishers, Inc, 1997.

The model thus configured leads to a social and ecological exhaustion and requires new instruments of control and consent manufacturing based on the reconfiguration of the human being as a consumer stripped of all intrinsic dignity. And our time is configured around the deregulation of 2000, with a view to a chaotic and deregulated capitalism[30] that turns our own life and bodies into objects of consumption.

Production processes are relocated to places where ecological or labour regulations are virtually non-existent. Workers are not only exposed to unacceptable risks unthinkable in Europe, but also to extreme situations of labour exploitation bordering on slavery, including the use of child labour.[31] In this context, poorly applied artificial intelligence can play a key role as a tool for crystallising inequality and making humanitarian crises invisible. Examples like Cambridge Analytica and its role in the American presidential elections of 2016 give us clues about a model between Huxley and Orwell, in which the soma can be combined with high doses of repression, depending on the link of the chain in which individuals participate.

Life and bodies are not only referred to humans or anthropomorphs, but to all by taking into account the complex eco-systemic relationships of interdependence between species. Life "is a process capable of preserving its complexity and replicating itself. But what is replicated is not matter (made of atoms) but information (composed of bits) that specifies how atoms are arranged".[32]

This conception forces us to consider a kind of post-human security that acquires a new dimension with the appearance of artificial intelligence and wetware (which means the interaction between software and organic tissue) in complex inter-species relations of interdependence. Cross-sectional studies that focus on integral security (a concept coined by the United Nations) and thus overcome the current phase, which is sustained in the constant consumption of vital bodies and units, for medical, scientific, labour, etc., are hence important.

The technological development will probably begin in the next phases of expansion to occupy layers of the system that until now were reserved for humans, thanks to the development of different forms of artificial intelligence, accelerating the dissolution of the human in favour of the non-human or perhaps, with some luck, the post-human leading to life 3.0. A field of play is already being structured, in which the advances in robotics, nanotechnology and, especially, those related to so-called machine learning pose a challenge to global peace. A new context of impunity and lack of democratic control is already being generated in which conflict and war are developed based on a logic that has nothing to do with that which inspired the fundamental treaties that regulate war and its development, for example, The Hague Convention (1899 and 1907).[33]

It was Albert Einstein who, in an interview conducted by Alfred Werner in Liberal Judaism, stated the following: "I do not know with what weapons the third world war will be fought, but in the fourth

---

30 *Arrillaga J., Bolle M. H., Watson N. R.*, Power Quality Following Deregulation, Proceedings of the IEEE, 88 (2), 2000, 246-261.

31 *Wallison P. J.*, Deregulation and the Financial Crisis (No. 31059), 2009.

32 *Tegmark M.,* Vida 3.0. Qué significa ser humano en la era de la inteligencia artificial, Taurus, 2018, 40.

33 *Susntein C.,* The World According to Star Wars, Nueva York, Dey Street, 2016.

world war they will use sticks and stones." Today, we seem to be closer to offering an answer to the first question: if we do nothing to remedy it, the third world war will be fought with autonomous/independent weapon systems and its consequences, as anticipated by Einstein, can be disastrous for the species.

3. The Rise of AI and Lethal Autonomous Systems

Artificial Intelligence represents our next frontier, as space exploration in the 60's and 70's and decoding the human genome in the 90's and 00's, a new land of promises and dangers ready to be conquered. As happened with the previous technological developments, the concept has the ability to embody our wildest dream as pictured in Sci-Fi culture. Therefore, it is important to begin by offering a clear definition. Artificial intelligence "refers to systems that display intelligent behaviour by analysing their environment and taking actions – with some degree of autonomy – to achieve specific goals. AI-based systems can be purely software-based, acting in the virtual world (e.g. voice assistants, image analysis software, search engines, speech and face recognition systems) or AI can be embedded in hardware devices (e.g. advanced robots, autonomous cars, drones or Internet of Things applications). We are using AI on a daily basis, e.g., to translate languages, generate subtitles in videos or to block email spam. Many AI technologies require data to improve their performance. Once they perform well, they can help improve and automate decision making in the same domain. For example, an AI system will be trained and then used to spot cyber attacks on the basis of data from the concerned network or system.[34] On the other hand, Minsky simplified the concept by defining artificial intelligence as "the science of producing machines that can carry out tasks that require intelligence (if developed by humans).[35]"

The critical difference between AI and the other technological revolutions, is that even space exploration and genomic research required a new legal corpus such as the "Space Law Treaties and Principles"[36] or the Genetic Information Non-Discrimination Act of 2008. Those legal frameworks never were intended to deal with "man out-of-the-loop" situations in critical decision-making process. Therefore, we are facing a whole new way of understanding responsibility.

Our entire legal corpus, except for responsibilities derived from supervised persons or the possession of animals, is intended to regulate the social behaviour of adult self-conscious humans; even corporate law cannot be understood without this principle.[37] Being the first time in our history dealing with potentially critical situations conducted without meaningful human control, this provides us with a complete new framework in relation with assumptions of responsibility. There will be situations where algorithms will be fully responsible for actions that have deep implications for our material reality, from

---

34 COM (2018) 237 Final. Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions. Artificial Intelligence for Europe, Brussels, 25.4.2018.

35 *Minsky M.,* Society of Mind: A Response to Four Reviews, Artificial Intelligence, 48(3), 1991, 371-396.

36 UNOOSA, Out Space Law, <http://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties.html>, [10 September 2019].

37 *Zhi-peng H. E.,* Globalization and the Shift of International Law to Humanism [J], Jilin University Journal Social Sciences Edition, 1, 014, 2007.

selling stocks to directly killing people through the use of weapons, while a big temptation to recognise these new players as persons exists.[38] There will be a new layer of complexity that just adds risks to our equations.[39]

Another important thing that we should consider is that AI found its origins back in the 1930s when Alan Turing described the first artificial intelligence system. It was an abstract computer machine with unlimited memory and a scanner that moved back and forth through it, symbol by symbol, reading what it found and writing more symbols. The actions of the scanner were dictated by an instruction program that was also stored in its memory in the form of symbols. This opened the possibility that the machine would work while modifying or improving its own program.[40] Therefore, we can say that all modern computer systems are basically Turing machines.

A few years later, in 1952, the Turing test[41] was created to determine if a machine was really intelligent. To overcome it, the machine must be able to trick a human into thinking he/she was an equal, in a deeper way that the recent controversy related to Ashley Madison showed us.[42] Four years later, Minsky and McCarthy, with Shannon and Rochester, organised a conference in Dartmouth and published the term artificial intelligence.[43]

Thus, we face a system that has been evolving for more than 50 years and today those fields where AI has been already put in place are practically innumerable and its decisions-making has real, tangible and sometimes dramatic consequences. In this sense, an article published by The Atlantic entitled "How Algorithms Can Reduce Minority Credit Scores"[44] reveals how the massive use of artificial intelligence algorithms by financial entities can crystallise into marginalisation dynamics regarding minorities, making it necessary to include human controllers that can correct these biases. In the same way, The

---

38 *Willick M. S.*, Constitutional Law and Artificial Intelligence: The Potential Legal Recognition of Computers as "Persons", In IJCAI, 1985, 1271-1273.

39 *Perrow C., Normal* Accidents: Living with High Risk Technologies*,* Updated Edition, Princeton University Press, 2011.

40 *Turing A. M.,* Systems of Logic Based on Ordinals: Proceedings of the London Mathematical Society, s2-45(1), 1939, 161-228.

41 *Turing A. M.*, Computing Machinery and Intelligence, in *Epstein R., Roberts G., Beber G. (eds.),* Parsing the Turing Test, Dordrecht (Países Bajos), Springer Netherlands, 2009, 23-66.

42 **Ashley Madison created more than 70,000 female bots to send male users millions of fake messages, hoping to create the illusion of a vast playland of available women.**
***Newitz A.,* Ashley Madison Code Shows More Women, and More Bots, <https://gizmodo.com/ashley-madison-code-shows-more-women-and-more-bots-1727613924>, [10/09/2018].**
***Dans E.,* Ashley Madison: How Much AI do You Need to Trick a Horny Man? <https://medium.com/enrique-dans/ashley-madison-how-much-ai-do-you-need-to-trick-a-horny-man-b137f8c56002>, [10/09/2018].**

43 *Alandete D.,* Necrológica: John McCarthy, el arranque de la inteligencia artificial, El País, 27.10.2011. Vid. *Guillén B.,* El verdadero padre de la inteligencia artificial, OpenMind, 4.09.2016.

44 *Waddell J.*, How Algorithms Can Bring Down Minorities' Credit Scores, The Atlantic, 5 de junio York, 2018, <https://www.theatlantic.com/technology/archive/2016/12/how-algorithms-can-bring-down-minorities-credit-scores/509333>, [20-8-2018].

Guardian[45] warned about the appearance of "prejudices" related to gender and race in artificial intelligences due to the processing of natural language in open sources that alters the theoretical neutrality of artificial intelligence, something that was recognised by companies such as Facebook,[46] who promised to increase the phases under human control.

Algorithms also played a decisive role in the 2008 financial crisis, as explained in an article published in The Guardian,[47] entitled "Was software responsible for the financial crisis?," where it focuses on the manipulation of perceptions exerted by the algorithms and the subsequent domino effect that was triggered due to the automation of sales orders before certain events. The resultant consequences, approximately a decade of recession, offers us a good example of the magnitude of the problems that can arise due to the extensive use of artificial intelligence without meaningful human control, especially so when some countries are actively researching and designing lethal autonomous systems.[48] Some uses of AI represent some of the biggest risks humanity faces right now, whose implications can be dramatic for humanitarian law, the law of war, etc.

Among the vast range of technologies derived from artificial intelligence, its possible applications for military use will be the focus our attention in this paper due to the risks they represent for the evolution of the system itself and the guarantee of basic rights and freedoms. We focus specifically on our interest in lethal autonomous weapon systems (LAWS).[49] These systems are characterised by the integration of artificial intelligence in such a way that they have the intrinsic capacity to approach decision processes outside human control or supervision in a meaningful way.[50]

The main difference between the autonomous weapon systems (AWS) and the LAWS would be that the former are merely defensive in nature (anti-missile shields, for example), while the latter have the ability to identify and eliminate military objectives, including people, without significant human control in the process. This means a delegation of lethal capabilities to robotic entities.

The risks not only affect the very nature of the technology itself but also its social and political consequences. Appearance of a varied list of new weapons systems gives rise to a new arms race that can determine the course of conflicts not only of the future, but of the present; in some cases, they are fully operational (although not totally autonomous from human control). The Phalanx air defence system of the US Navy, which allows it to repel attacks in automatic mode is one such example.[51]

---

45 *Devlin H.,* AI Programs Exhibit Racial and Gender Biases, Research Reveals, The Guardian, 13 de abril de 2017 York, <https://www.theguardian.com/technology/2017/apr/13/ai-programs-exhibit-racist-and-sexist-biases-research-reveals>, [14-8-2018].

46 *Lee D.,* Facebook Adds Human Reviewers After 'Jew Haters' Ad Scandal, BBC News, 20 de septiembre York, 2017, <https://www.bbc.com/news/technology-41342642>, [20-8-2018].

47 *Dodson S.,* Was Software Responsible for the Financial Crisis?, The Guardian, 16 de octubre York, 2008, <https://www.theguardian.com/technology/2008/oct/16/computing-software-financial-crisis>, [14-8-2018].

48 Future of Life Institute, Benefits and Risks of Artificial Intelligence, York, 2018, <https://futureoflife.org/background/benefits-risks-of-artificial-intelligence/>, [8-2018].

49 *Waters R.,* AI Progress Sparks Cyber Weapons Fears, Financial Times, 20 de febrero York, 2018a, <https://www.ft.com/content/c54002ee-1668-11e8-9e9c-25c814761640>, [20-8-2018].

50 *Roff H.,* Meaningful Human Control or Appropriate Human Judgment? Necessary Limits on Autonomous Weapons, documento informativo preparado para la conferencia de revisión de la UNCCW, 2016.

51 *Horowitz M. C., Kreps S. E., Fuhrmann M.*, Separating Fact from Fiction in the Debate Over Drone Proliferation, International Security, 41 (2), 2016, 7-42.

In 2018 census, the International Committee of the Red Cross counted some 130 autonomous weapon systems in the world, although other studies estimate the number to be 300.[52&53] These would include semiautonomous weapon systems as they would be subject to human oversight at key stages such as selection of targets. This applies to Patriot or drone missiles like the Reaper model.

However, the current article does not focus on the analysis of weapons systems with remote human control (AWS or weapons with significant human control), but on the potential risks for the future posed by the deployment of a type of technology with strong artificial intelligence or without significant human control. These could be called lethal independent weapons systems (LIWS) or independent lethal weapons systems. Their regulation is urgent due to their possible hybridisation with other types of weapons, such as nuclear or biological, which together with AI are a real threat and more present than ever. Its emergence is framed, as we shown, in an increasingly unstable and unpredictable international scenario. As D. Mourelle says, "The world is making geopolitical tightrope walking about the abyss. But on this occasion, nothing guarantees that in the next nuclear crisis we will have as much luck as in the previous ones".[54]

Our analysis is focused in sum on those weapon systems capable of selecting and attacking targets without human intervention[55] and whose applicability is usually theoretically restricted to military objectives in non-populated areas. The rise of cybernetic systems capable of rapid development, high processing power and artificial intelligence forces us not to be naive and realise that there are no limits for their use as autonomous weapons in urban spaces, without a formal declaration of war. This is a technology that, if it reaches the hands of non-state actors such as terrorist organisations, can open a new scenario that conditions the development of artificial intelligence even in non-weapon applications.

One of the biggest challenges that we face, and that the United Nations wants to solve, is that there is no internationally agreed definition of autonomy or significant human control for the LAWS or consensus about the characteristics or traits to clearly identify them. It is necessary, then, to provide elements that allow us a classification that facilitates its regulation through a deeper understanding of their nature and AI itself.

More or less, we could understand that this type of independent weapons has three basic characteristics:

- They can move independently through their environment to places they choose arbitrarily. Its capabilities are: mobility, persistence, orientation and navigation;

---

52 *Sassoli M.,* Can Autonomous Weapon Systems Respect the Principles Of Distinction, Proportionality and Precaution?, 2014. Conferencia celebrada durante el comité de expertos Autonomous Weapons Systems: Technical, Military, Legal And Humanitarian Aspects, Comité Internacional de la Cruz Roja, Ginebra, Suiza.

53 *Roff H.,* Meaningful Human Control or Appropriate Human Judgment? Necessary Limits on Autonomous Weapons, documento informativo preparado para la conferencia de revisión de la UNCCW, 2016.

54 *Mourelle D.,* La amenaza nuclear del siglo XXI, *El Orden Mundial*, 27 de noviembre, York, 2017, <https://elordenmundial.com/2017/11/27/la-amenaza-nuclear-en-el-siglo-xxi/>, [17-8-2018].

55 *Asaro P.,* On Banning Autonomous Weapon Systems: Human Rights, Automation and the Dehumanization of Lethal Decision-Making, International Review of the Red Cross, 94, 2012, 687-709.

- They can select and shoot against targets in their environment. Their capacities are: identification of objectives, discrimination to categorise objectives, prioritisation of objectives and selection of the type of weapon appropriate for the objective;[56] and

- They can create and/or modify their objectives by incorporating observation of their environment and communication with other agents. Its capabilities are: self-determination, self-commitment and autonomous communication with other systems.[57]

Here arises a question which we must face: what degree of artificial intelligence or intelligent behaviour is necessary for the legal system to consider the prohibition of AI? Whether they have significant human control during different phases of the lethal action process (implementation, validation and execution) will ultimately makes the difference.

If we look at the census prepared by the Future of Life Institute, there would currently be 256 systems categorised and qualified as autonomous.[58] However, to date, most states argue that everyone has human control or adequate human judgment at some time. That is, all the systems developed so far depend, or should depend, on human supervision or prior human judgment in at least some of its critical phases (selection of objectives or cancellation of the order). However, parallel systems are investigated and developed with total autonomy, which sooner or later must be analysed to check if they meet legal requirements. Because, the current situation of practical non-regulation of the LAWS allowed by the inactivity of the anomic can result in a competitive race between governments.

States justify AWS by assuring that they are not intended for offensive purposes but for defence, that is, simply as automatic weapons defence systems (AWDS).[59] But that seems more like a subterfuge to legitimise absolutely lethal systems endowed with the capacity to become independent of their creator and controller.

It is essential to develop an international regulation that allows for the restriction of its uses by not allowing the existence of communicating vessels between the development of defence systems and those whose purpose is lethal action against people. Otherwise, it could be attributed to a synthetic being, with humanity not having the power to decide, in a conflict, whom to target based on the general interest, that is, a license to kill that should be exclusive to the public power.

For this reason, several initiatives have emerged over recent years to generate an international ban on this type of weapon, such as the Stop Killer Robots campaign. It is a movement founded in 2013, made up of numerous non-governmental organisations that range from technology companies to human rights organisations. Its objective is to direct international normative processes towards the prohibition of

---

56 *Bothmer F. von*, Robots in court: Responsibility for Lethal Autonomous Weapons Systems, en *Brändli S., Harasgama R., Schister R., Tamò A. (eds.),* Mensch und Maschine – Symbiose oder Parasitismus*?*, Berna: Stämpfli, 2014.

57 *Martinez R., Rodriguez J.,* Inteligencia Artificial y Armamento letal autónomo, El nuevo desafío para naciones unidas, TREA, 2018.

58 Future of Life Institute, Benefits and Risks of Artificial Intelligence, York, 2018, <https://futureoflife.org/background/benefits-risks-of-artificial-intelligence/>, [14-8-2018].

59 *Warren A., Hillas A.,* Lethal Autonomous Weapons Systems, Adapting to the Future of Unmanned Warfare and Unaccountable Robots, 12, 2017, 71-85.

autonomous weapons, considering that it represents a threat superior to that posed by nuclear weapons. It uses the report "Losing Humanity: The Case Against Killer Robots" to argue that lethal autonomous weapons do not meet the requirements of international humanitarian law and argues about what should be done with the blinding laser, viz., preventive prohibition of their use and development.

4. Main Problems Related to AI and Laws

One of the main characteristics of AI is its ability to gather new data to improve future actions through what is called machine learning. Therefore, deep learning defined learning techniques that combine layers of neural networks to identify the profiles of a set of data needed to make decisions. In this way, the existence of multiplicity of layers between the input data and the output data is recognised, configuring the outputs of the previous layers as inputs for the following, which generates what has been known as artificial neural networks.[60]

According to Marcus Shingles, the opportunities derived from these technologies are huge and include obtaining information from "the sleeping giants of the data,"[61] improving decision-making and "taking advantage of the collective wisdom of the community". Perhaps this last one embodies one of the promises of greater social interest associated with artificial intelligence, but, at the same time, has the intrinsic ability to draw dystopian scenarios in which social control and lack of privacy give shape to an authoritarian society.

This is fundamentally because data is the raw material, the blood, of the system. Without extensive sets of available data, development of artificial intelligence would be a mere chimera. As T. Rosembuj says, the data are "the main raw material of the algorithm, such as cotton, wheat or fuel in the last century. Data processing is the digital and virtual essence: without data there is no algorithm and without algorithm it is difficult to argue that there is artificial intelligence, digital goods or virtual goods".[62]

Thus, the value of data lies precisely in its infinite reuse: "The value of the data is calculated on the basis of all possible ways in which they could be used in the future and not simply on the basis of their current use." In this way, the recombination of data, its accumulation and its extension are its real value and, therefore, the impulse for its accumulation by organisations such as Google, Facebook, Twitter, Amazon, Visa and a long list of other organisations.

The great paradox here seems to lie in the fact that the initial data is susceptible to being eternal, repeated and repeated continuously and applied systematically, which would facilitate processes of social evolution through a conservative vision of human and social progress by artificial intelligence. In addition, if personal data has been put in place, the subject will lose the trace of its identity due to the deprivation of personal rights. The origin of the data and the explicit consent of its owners for their use

60 *Kaplan J.,* Artificial Intelligence, Oxford University Press, 2016.

61 *ITU, XPRIZE,* AI for Good Global Summit Report, 2017, <https://www.itu.int/en/ITU-T/AI/Documents/Report/AI_for_Good_Global_Summit_Report_2017.pdf>, [14-8-2018].

62 *Rosembuj T.*, Governing Artificial Intelligence, LLR, n.2, 2017.

for weapons purposes is, therefore, another main problem related to the development of laws that should be addressed immediately.[63]

Another problem that AI presents, at least theoretically, regarding the current state of development of technology is related to its potential development. The actual phase is dominated by what we know as narrow AI (specialised artificial intelligence, reduced or weak), which means that it is designed to perform a limited task (for example, only facial recognition, internet searches or driving a car) according to our current technical capabilities. However, the long-term goal of many researchers is to create what has been called artificial general intelligence or strong and independent Intelligence (SAI).[64]

The difference between the two concepts is that while reduced artificial intelligence can surpass humans in what would become a specific task, such as playing chess or solving equations, the SAI can perform any cognitive task as well as humans and even overcome them in what is called Superintelligence.[65] Therefore, the first objective of any state should be to develop a safe and beneficial AI whose objectives coincide with the wellbeing and progress of humanity, because *"if we stop being the most intelligent beings on the planet we may also lose control.*[66]*"*

A hypothetical development of the SAI would entail profound consequences not only for our society but for the same legal order, since it would advance in the generation of systems that would behave rationally, or the same systems of behaviour automation that in the theoretical plane would be linked to the phenomenon of technological singularity. This implies computer equipment, a computer network or robot that could improve itself recursively. It is said that the repetitions of this cycle would probably result in an out-of-control effect, an explosion of intelligence, as the mathematician Irving Good called it in 1965;[67] a very difficult phenomenon to predict and whose consequences could be dramatic, or not. This scenario, despite being recognised as highly unlikely in the short and medium term, cannot be ignored and it is necessary to generate contingency systems for the potential and non-potential risks that such technology could unleash as a weapon of mass destruction.

Therefore, for the first time, we are facing a technology that has the ability to act in both the digital and physical realities with unimaginable consequences. Furthermore, this technology can learn from each interaction, gathering new data that will allow it to improve its performance in the future and which in some cases even can learn without the necessity of data, as shown by AlphaGo Zero.[68]

A set of characteristics that represent a dramatic change over some of the current pillars of the philosophy of law like the social contract, as it was understood from its beginning, like a tool able to grant freedom because all members of society forfeit the same number of rights and the same duties.

---

63 *Sharkey N.,* The Ethical Frontiers of Robotics, Science, 32(5909), 2008, 1800-1801.
— *Sharkey N.,* Saying No to Lethal Autonomous Targeting, Journal of Military Ethics, 4(9), 2010, 299-313.

64 *Goertzel B., Pennachin C. (eds.),* Artificial General Intelligence, Nueva York, Springer, 2007.

65 *Bostrom N.,* A History of Transhumanist Thought, Journal of Evolution and Technology, 14(1), 2005, 1-25.

66 *Tegmark M.*, Vida 3.0. Qué significa ser humano en la era de la inteligencia artificial, Taurus, 2018, 115.

67 *Chalmers D.,* The Singularity: A Philosophical Analysis, Journal of Consciousness Studies, 17(9-10), 2010, 7-65.

68 *Silver D. et al,* Mastering the Game of Go Without Human knowledge. Nature 550, 19 October 2017, 354–359.

Equality seems as humanity. What happens when critical decisions are not taken by humans? How deep can be the affectation, to the very root of the system?

In his time, Rousseau argued that it is absurd for a man to surrender his freedom for slavery; thus, the participants must have a right to choose the laws under which they live. But now, these relations could change because the rise of new players, whose lack of responsibility is complete, but whose consequences could have deep affectations in our material reality, even conditioning the way we perceive reality and act, as Cambridge Analytica has shown us.[69]

Although social contract imposed new laws, including those safeguarding and regulating property, there were theoretical restrictions on how that property can be legitimately claimed. As an example, land included three conditions, viz., land should be uninhabited, the owner claims only what is needed for subsistence and labour and cultivation give the possession legitimacy. But in the land of the AI and hyperreality, there are substantial doubts about the applicability of these ideas and how these restrictions should be put in placemaking, making it necessary to rethink social contract.

Presently, we are dealing with non-conscious intelligences, at least in the current phase of development where just soft-AI has been developed and put in place. However, theoretical future scenarios, like the ones imagined by Bostrom[70] among other intellectuals, where a self-conscious intelligence could rise due to the combination of deep machine learning algorithms and big data, should make us rethink the fundamentals of our social tools to grant a humanistic approach to the design of technology, avoiding certain scenarios that could result in dramatic transformations of society due to the rise of new actors operating with autonomy/independence. Technological developments like the lethal autonomous systems represent some of the biggest challenges of the last century as a consequence of the existing possibility to delegate lethal capacities to non-human actors.

Besides, if we take into account the classification of artificial intelligence typologies, in addition to the one that distinguishes the narrow AI from the strong AI or the limited from the general, the investigations carried out over the last decades have allowed to establish another that distinguishes four major approaches: systems that think like humans, systems that think rationally, systems that act like humans and systems that act rationally. The first typology corresponds to systems that have information and process it for understanding and predicting.[71] The second, machines work based on the laws of Aristotelian thought. The third one refers to machines that can perform functions of humans and require limited intelligence. Fourthly, we would have systems that automate intelligent behaviour and linked in the theoretical plane to the phenomenon of technological singularity.[72] The laws, in their current state of development, fall into the third category and they are really dangerous, but can be even more so in the fourth category in hypothetical futures.

---

69 *El País,* 17 demayode 2018, <https://elpais.com/internacional/2018/05/17/estados_unidos/1526514308_942521.html>.

70 *Bostrom N.,* A History of Transhumanist Thought, Journal of Evolution and Technology, 14(1), 2005, 1-25.

71 *Battistutti, Cairo O.,* El hombre artificial: el futuro de la tecnología, México DF, Alfaomega, 2011.

72 *Chalmers D.,* The Singularity: A Philosophical Analysis, Journal of Consciousness Studies, 17(9-10), 2010, 7-65.

Hence, it is necessary to understand that the challenges this technology represents have critical implications for our legal systems and the philosophy that they are based on. The rise of AI opens us to a brave new world that has the inherent ability to transform humanity itself, because it has the potentiality to produce changes with deeper implications than the first industrial revolution or even the agricultural revolution during the Neolithic era. When our ancestors evolved from a nomadic existence to the conquest of the physical space, building the first villages and giving a starting point to the urban phenomena, a phase of our history that still evolves is giving place to new geographies, physical and symbolic, in a century where half of the human population of the planet lives in cities.

The agricultural and urban revolution changed the way we organised our tribes, our systems of beliefs and our comprehension of the otherness. It represented a new time for humanity, where we developed new technologies and techniques to deal with the growing complexity of the social-fabric, due to the needs of specialisations required by the evolution of technological frameworks and the needs to provide common sense and meaning to human existence.[73] The rise of religion as an ideological system able to provide certainties in substitution of magic is a good example of how technology and human reasoning operate to solve those spiritual needs linked with the control strategies put in place by the dominant elites to generate social order.[74] A process of transformation could seem organic, just as a natural evolution of the ethics and aesthetics of the tribe associated with the needs generated by technology. But the truth is that this process can never be understood as neutral,[75] because technology is just an amplifier of human will, especially the will of those who are in charge and whose aim is to maintain the status to perpetuate the system of privileges they benefit from.

In this sense, it is necessary to be extremely careful while analysing the potential impact of disruptive technologies such as AI, IoT, or Blockchain over our society, because their development is not neutral at all but respond to specific agendas and interests,[76] which are more aligned with those of the shareholders of the companies that master newer techniques than those of general population that could be described as common interest.[77] This reality used to be a hidden layer of promises of brilliant futures that take us to a technological utopia[78] where humanity is finally able to discharge itself from all those painful and mundane activities necessary for our survival, being able to relegate these tasks to other intelligent beings without consciousness.[79] It will finally break the course that expelled us from Eden's Garden, a historical moment where it will no more be necessary to "earn our bread with the sweat of our work", a moment where even the Marxist maxima of "work dignifies"[80] will lose its sense, because of radical transformation of the human condition.

---

73 *Ellul J., Ellul J., Juris, P., Ellul J., Juriste P., Ellul J.,* La technique ou l'enjeu du siècle. Paris: A. Colin, 1954.

74 *Frazer J. G*., The Golden Bough, In the Golden Bough, Palgrave Macmillan, London, 1990, 701-711.

75 *Heikkerö T.*, Ethics in Technology: A Philosophical Study, 2012.

76 *Marx L.,* The Machine in the Garden,. The Green Studies Reader: From Romanticism to Ecocriticism, London, Routledge, 2000, 104-108.

77 *Mumford L*., The Pentagon of Power, Vol. 274, Harcourt, 1974.

78 *Postman N., Riggenbach J*., Technopoly, Blackstone Audio Books, 1994.

79 *Jasanoff S., Jasanoff S.,* Science at the Bar: Law, Science, and Technology in America, Harvard University Press, 2009.

80 *Marx K.,* The Poverty of Philosophy, Nueva York, Cosimo, 2008.

However, the reality is much more complex and reproduces some patterns that have been observed previously in history by configuring what it could be described as a chiasmic society where the techno-scientific industrial complex is able to promise the fulfilment of new scenarios of wealth and comfort in order to explore disruptive technological frameworks that could generate new patterns of social control by crystallising the power of the ruling elites.[81] We have several examples along the last century where industries, like nuclear power, promise us bright futures of clean and cheap energy able to produce a new way of progress by allowing everyone in the planet to have access to energy, something that was far away from reality. One such example is generating a technological development that not only was unable to produce clean and safe energy but was even responsible for some of the biggest monsters created by humanity such as the Manhattan project. This was because we were developing what we comprehend today as a double-use technology, a technological framework that could be used both in the civil and the military sectors. As a result of the paradigm of the mutually assured destruction during the cold war, an entire generation grew up in fear despite the promises of bright futures. This is a technology that for the first time gave us the power not only of destroying our species, but also to completely transform life on the planet as understood before.

Nuclear power is not the only example of the powers of destruction that human ingenuity has put in place in our planet in the middle of promises of social progress and human development. In the 90's, for example, the genetics industry promised a new age of food security for humanity through transgenic crops that can provide food in all kinds of ecosystems, growing by resisting all kind of threats (from insects to plagues). However, the manifestation of the technology was very different from its original promises, generating a system of capitalistic exploitation that has ended food independence of whole countries like Haiti, where, after an earthquake and the resultant massive destruction, Monsanto offered free seeds, without advising that the seeds were manipulated with the "terminator gene". The genetic modification of the seeds disabled the reproduction of the plant by avoiding the generation of new seeds, making Haiti a captive to Monsanto products for its survival.[82] The green revolution of India has concluded with suicides of thousands of farmers who have lost their way of economic survival[83] because of the genomic industries' strategies of economical exploitation and dependency generation. This is another example of the chiasmic dynamics where promises of utopia can easily evolve into a dystopic scenario where dreams and nightmares coexist as two faces of the same coin.

Maybe this is a lesson that the historic-cultural systems that preceded ours were always very aware of. Janus, the Roman god of technology, was the only one in the Roman pantheon with two faces,[84] representing the forces of good and evil that technology is able to unchain. A deep comprehension of technology can deliver deep changes that can go in the opposite direction than the intended course. Furthermore, there is something that is even more important to the social fabric, viz., any kind of

---

81 *Rodríguez J.*, La civilización ausente: tecnología y sociedad en la era de la incertidumbre, Gijón: Trea, 2016.

82 *Mazzeo J.*, Assistance or Corporate Interest?, 2012.

83 *Sebby K.,* The Green Revolution of the 1960's and Its Impact on Small Farmers in India, 2010.

84 *Ellul J., Ellul J., Jurist P., Ellul J., Juriste P., & Ellul J.,* La Technique ou l'enjeu du Siècle, Paris, A. Colin, 1954.

knowledge comes with a price. “Deep machine learning” and “artificial neural networks”, despite the categorisation into different kinds of concepts, potential applications, and phases of development, gave us the impression of having everything under control, when reality seems to be very different.[85] It is necessary to fully understand that we are dealing with a technology that we are unable to fully comprehend, and whose risks are also beyond our current understanding.

One of the key points that to be addressed in this article is precisely the recognition of incomplete knowledge about the technological frameworks we are dealing with. Understanding that we are giving birth to a kind of society that could easily be described as an “algorithmic society” where in its current phase of development algorithms do not try anymore to fit the necessities of the social fabric or the human. To the contrary, we are passing through a phase where human activity tries to adapt itself to the necessity of algorithms,[86] producing changes in how we think and act to facilitate this kind of ethereal governance of human activity through automatisation in a system that represent a huge advantage in relation with the previous ones. Looking at all its implications, from the social, legal, ethical and technological challenges, we come to the conclusion that reliability is one of the key concepts related to the implementation of the technology.

Elon Musk, co-founder of SpaceX and Tesla, has warned that "in the age of artificial intelligence we could create an immortal dictator from which we would never escape.[87]" He also warned that "the competition for the development of artificial intelligence has become the greater risk for a third world war, since the country that leads the research in artificial intelligence will come to dominate the global affairs.”

The next problem that we are going to present is related to the side effect of massive uses of artificial intelligence, viz., we, as humans, do not have any inherent mechanism that allow us to automatically distinguish between reality and fiction. For centuries, even millennia, different systems of beliefs rose and fell, linked to the destiny of cultures and civilisations and their technical capabilities. We have believed in magic, gods, the old ones and the new ones and we have thought that the earth was flat. Even in a highly scientifically developed context like ours, some of these ideas have shown extraordinary persistence, being believed by broad layers of population.

In addition, perception represents an enormous inconvenience to establish relations of any kind based on a common truth.[88] It does not matter how many times science proves itself worthy by curing illnesses, allowing us to launch satellites, making our smartphones work or turning on our home appliances. There are always going to be doubts, conspiracy theories or other kinds of attempts to provide answers, without considering their quality or applicability to daily life. This problem finds its roots in the very essence of human reason, which most of the time works as a justification method for

---

85 *Yudkowsky E.,* Artificial Intelligence as a Positive and Negative Factor in Global Risk, Global Catastrophic Risks, 1(303), 2008, 184.

86 *Postman N., Riggenbach J.*, Technopoly, Blackstone Audio Books, 1994.

87 *Browne R.,* Elon Musk Warns A.I. Could Create an ‘Immortal Dictator from which We Can Never Escape’ CNBS, <https://www.cnbc.com/2018/04/06/elon-musk-warns-ai-could-create-immortal-dictator-in-documentary.html>.

88 *Ricoeur P.,* The Function of Fiction in Shaping Reality, Man and World, 12(2), 1979, 123-141.

our actions, providing a cohesive history while disregarding its feasibility. Organised religions are a good example of these intellectual efforts that are in clear dissociation with the laws of nature.

Numerous philosophers through the ages had analysed these problems and their conclusion is that reason by itself is not enough for comprehending the nature of our context.[89] Experiences, individual as well the collective, are necessary to give factual sense to our analysis.

However, experience also represents several theoretical problems. The metaphor of Plato's cave is a good example to illustrate it, comprehending the possibility of perceiving not reality itself but just projections of reality, shadows that are hardly sufficient to help us to explain our context and our very own nature. The problem of experience has been deeply analysed and we can observe several answers to the problem. There are those who admit that our perception is conditioned by our own capability of senses; and then there are those who advocate that even perception based on senses can be wrong. We have to accept a common base for analysing reality. In other words, if you, I and all the people we share space with see that it is raining, we should accept it as a correct assumption.[90] But even in this point we face another conflict, as developed by Nietzsche. In "The Genealogy of Morals,"[91] he presents words as a prison that needs to be broken in order to generate a new code that truly allows expressing our context without the meaning and symbols attached to the current significance. The words we use go beyond the meaning that we want to apply to them in a very precise moment, because they carry all their history in relation with the collective, and even with the individual remembering the past experiences associated with the word.

This is something that can also happen to those algorithms that use natural language as basic data, being able to develop patterns that could be described as racism.[92] Words as gay, woman or black gave us good reference of this process as we have recent examples of the role of AI crystallising dynamics of marginalisation. We have to take into account that learning process could condition its reliability and be a major problem in the field of LAWS.

Our morals, as a codification of traditional values, act in a very similar way, being necessary to re-establish the basic parameters we work with to adapt to a new human condition brought by the massive incorporation of technologies in our daily lives. This technology is able to have direct impact over our language and the way we communicate within a moment.[93]

Also related to the problem of perception is the inherent ability that AI can develop to deceive people. The recent demonstration of Google Duplex, the new Google assistant, shows its ability to make people believe that they were interacting with another human, a clear must not from an ethical

---

89 *Hegel G. W. F.,* Fenomenología del espíritu, Buenos Aires: Fondo de Cultura Económica, 1966. *Schopenhauer A*., The World as Will and Representation, Seattle (Estados Unidos), University of Washington, 1959.

90 *Bhaskar R*., Reclaiming Reality: A Critical Introduction to Contemporary Philosophy, Routledge, 2010.

91 *Nietzsche F*., On the Genealogy of Morals and Ecce Homo (ed. Walter Kaufman), Nueva York, Vintage, 1989.

92 *Crawford K.,* Artificial Intelligence's White Guy Problem, The New York Times, 2016, 25.

93 *Zadan N.,* The Future of Human Communication: How Artificial Intelligence Will Transform the Way We Communicate, <https://www.quantifiedcommunications.com/blog/artificial-intelligence-in-communication>, [12/09/2018].

perspective. Therefore, no AI should be allowed to interact with humans without identifying itself as one and must ask for explicit consent to gather data from an interaction. The future is at stake and we should hurry developing legal tools capable of protecting our societies from dystopic evolutions of the technology.

Finally, the last challenge is related to power, its dynamics and how AI can be a determinant for the maintenance of the current status quo or be at the root of deep changes in the structure of the power relations. Technology has the ability to radically modify the sources of collective meaning.[94] There is an interdependent relationship between material culture and cognitive process; our material capacities shape our worldviews. At the dawn of civilisation, old traditions and magical adorations disappeared and organised religion was born, which replaced the sorcerer by the priest and broke the ancient links with nature. From a system that professed its ability to modify the laws of nature through magic, it passed onto another in which nature was simply the playground in which the caprice of a pantheon of gods whose favour was to be won was manifested. This generated a new power structure for whose extension cities were a key element.

It was in the city where the temple stood, from whose peak the high priests monopolised the relationship with the gods and acquired immense power. They too were a technological class[95] that gained its power through knowledge; knowledge that could be scientific. Think of the Mayan rulers who went to the top of a pyramid and threatened their people with a solar eclipse and the fear that those people must have experienced at the moment when the Sun disappeared.

That knowledge can provide such power also explains the gimmicky ways and barriers to access that almost all societies in history have used to seek to protect the holders of this fundamental knowledge[96] from the threat that a generalisation could represent for them. The complexity of the Egyptian and Mayan hieroglyphics offers a good example of this purpose of structuring knowledge in such a way that it would be difficult for ordinary people to access.

From antiquity to today, the role of technology has never diminished in importance; and this importance is easily traceable throughout history, manifested in the emergence of certain inventions that had the ability to profoundly transform the societies that created them. Lin White explains, for example, how the new war machine that was the stirrup that gave birth to feudalism.[97] The combination of a man, a horse and a sword gave rise to a new hegemony on the battlefield and the training needs of these new elite soldiers forced them to abandon their traditional ways of life (agriculture, crafts, etc.) and being full-time knights, becoming a third technical class between the monarchy, the church and the common people and weaving around them the feudal relationships typical of this system that runs through the Middle Ages. It is just one example; the industrial revolution, the communications revolution, etc., all of them reproduced the same mechanism later. Any new technology can provoke a drastic reversal of the internal

---

94 *Ellul J., Ellul J., Jurist P., Ellul J., Juriste P., & Ellul J.,* La Technique ou l'enjeu du Siècle, Paris, A. Colin, 1954.

95 *Veblen T*., Teoría de la clase ociosa, Madrid: Ariel (3.ª edición), 1944.

96 *Veblen T*., The Place of Science in Modern Civilisation and Other Essays, Nueva York, Huebsch, 1919.

97 *White L.,* Tecnología mundial y cambio social, Barcelona, Paidós, 1973.

equilibrium of a system. Let us also think about what the invention of the Gutenberg printing press, closely linked to Luther's Protestant revolution, meant for the power of the Catholic Church, the ideological monopoly of the Vatican over Europe, proposing a relationship with god without intermediaries and a direct and wider access to religious arcana.

Any given community needs constant technological progress to perpetuate itself in a context of competition with others, strong control over the technological system to preserve the internal status quo, as well as a belief system that gives a collective meaning to the community while justifying the social order. In relation to all this, we can affirm that a more complex technological system needs more complex tools of government and that a more complex system of government in turn requires beliefs that are also complex. Everything is interrelated as Marx affirmed that "the hand mill will give us society with the feudal lord; the steam mill, with the industrial capitalist.[98]"

We could talk about a tragedy in three acts that is repeated again and again. First act: a new technology appears and, linked to it, a new technical class associated with the knowledge necessary to implement it. Second act: those who hold power *stricto sensu* open the decision-making process to the technological class in response to an operational need of the system.[99] Over time, knowledge can be extended to a large part of the community because it is necessary for the evolution and perpetuation of the system, bringing it closer to democratic participation and the provision of quality of life, security and order to broad sectors of society.

However, a situation may also arise that scientific progress begins to develop outside the margins of state control and a new technology that can destabilise the fragile equilibrium established between the technical class and the dominant class appears on the horizon, generating a shock as described by philosophers such as Gramsci,[100] Pareto or Mosca.[101]

This situation can lead to two different main scenarios, viz., a new democratic opening of the decision-making process or an authoritarian re-concentration of the control of the material and symbolic means of production in a more closed group of people, which does not necessarily end democracy but erodes it or limits it.[102] In relation to democracy, we must understand that we are, as Nietzsche said, slaves of our own words,[103] and also that this neither in theory nor in practice designates a one-way system. Democracy must be understood in a wide range of possible applications that can be very different from each other, some of which can be, and in fact are, compatible with the people in charge, different techniques oriented to control, the manipulation of public opinion through education, the media, and so on.

---

98 *Marx K.,* The Poverty of Philosophy, Nueva York, Cosimo, 2008.

99 *Nye R.,* The Anti-Democratic Sources of Elite Theory: Pareto, Mosca, Michels, Nueva York, Sage, 1977.

100 *Gramsci A.,* Further Selections from the Prison Notebooks, Saint Paul (Estados Unidos), University of Minnesota, 1995.

101 *Nye R.,* The Anti-Democratic Sources of Elite Theory: Pareto, Mosca, Michels, Nueva York, Sage, 1977.

102 *Pareto V*., The Rise and Fall of the Elites: An Application of Theoretical Sociology, Nueva York, Transaction, 1991.

103 *Nietzsche F.,* On the Genealogy of Morals and Ecce Homo (ed. Walter Kaufman), Nueva York, Vintage, 1989.

Artificial intelligence represents a radical redefinition of organisational and cognitive processes of the construction of otherness, the mechanisms of the state, the symbols that give collective meaning to our society and, in general, the relationship of the human being with its context. Again, we are facing a technology capable of transforming our material reality and called to form new elites, either to deconstruct existing systems of privilege or to crystallise them even more. We face, therefore, the challenge of foreseeing the transformations to come, preparing our communities and defining frameworks that allow new decision-making processes.

In the specific case of the AI weapon application, we are faced with the advent of a new dystopian order. The delegation of the ability to kill in a system, whose future behaviour we are barely able to predict and whose reliability cannot be guaranteed 100% in terms of execution of orders or whether it is in compliance with international law. A delegation of lethal capacities that cannot be justified from an ethical point of view (neither the efficiency, nor the cost, not even the protection of own soldiers), it is a suicide walk towards the abyss that we will only avoid if we are able to equip ourselves with binding legal guarantees that human life cannot be stolen by non-human entities. Certain applications must be restricted while others are strengthened for the purpose of socialising the technology to make it accessible to broad layers of the population in a way that helps to build an open and plural society.

5. Ways for Action

As it has already been exposed, artificial intelligence represents a new phase of the domain of technology over reality, since it can act both digitally and materially in a way that is unprecedented. This requires a multidisciplinary approach that allows evaluating its implications in a holistic way. To do this, it must begin by paying attention to key aspects such as the information on which the system has been built and the data that contributed to its development. In this sense, it is necessary to depart from D. J. Solove's definition of privacy, viz., not a preservation of personal interest against the social interest, but the protection of the individual based on the values of society. He explains, "You cannot fight for an individual right against the most important social good. Privacy issues imply a balance of social interests on both sides of the scale".[104] This notion of privacy and protection of the personal implies a property of the data on the part of the subject that, in case of being transferred, must be done through an explicit consent. Thus, those civilian companies that collaborate in military projects must inform their users if their data has been used in any way in the development of algorithms that may have military use. Explicit consent must be requested even if it is derived from technologies that no longer include the original data sets. This measure could be effective to reduce the incentives that these companies may have to make their technology available for military use.

Another issue that needs attention is the new military escalation that weapons systems can produce, very similar to the one that at the time caused the atomic bomb. This did not lead humanity to its end, thanks to the mechanism of mutual nuclear deterrence, but nothing guarantees that this mechanism will work again with the AWS.

[104] *Solove D. J.,* I've Nothing to Hide and other Misunderstandings of Privacy, San Diego L. Rev., 2007, 44, 745.

Those giants, who provide the LAWS with artificial intelligence with the necessary data to feed their metacognition, do so that they may end up having the most lethal discretionary decisions in their hands. As The Economist has pointed out, "the most valuable resource in the world is no longer oil, but data", and administrative law must act to prevent these monopolistic threats to security and privacy.

Consequently, and considering the last report of the International Human Rights Watch (HRW) and Harvard Law School's article "Heed the Call: A Moral and Legal Imperative to Ban Killer Robots" of August 2018, it is urgent to carry out simultaneous actions of control and regulation of this type of weapons, such as:

- Clearly define the concept of a completely autonomous lethal system;
- Reiterate the general principle that all weapons systems must respect international humanitarian law, the principle of distinction and proportionality, and always with sufficient human control;
- Signing of international agreements on arms control and prohibition of research and development of such systems, as was done with the proliferation of nuclear or chemical weapons;
- Signing of international agreements to verify non-experimentation with weapons with total lethal autonomy;
- Signing of international conventions on the compatibility with international humanitarian law of the development or acquisition of autonomous weapons with human control, in compliance with Article 36 of Additional Protocol I of the Geneva Conventions;[105]
- Approval of state laws to restrict such experimentation and innovation in private centres on these issues under administrative and criminal sanctions;
- Approval of state laws to establish the obligation to have inspectors and compliance delegates in the centres of experimentation and innovation of artificial intelligence.
- Promote multidisciplinary AI research; and
- Promote a general code of ethics for AI.

Bibliography

1. *Alandete D.,* Necrológica: John McCarthy, el arranque de la inteligencia artificial, El País, 27.10.2011. Vid. *Guillén B.,* El verdadero padre de la inteligencia artificial, OpenMind, 4.09.2016.
2. *Arendt H*., The Human Condition, University of Chicago Press, 2013.
3. *Arrillaga J., Bollen M. H., Watson N. R*., Power Quality Following Deregulation. Proceedings of the IEEE, 88 (2), 2000, 246-261.*Asaro P*., On Banning Autonomous Weapon Systems: Human Rights, Automation and the Dehumanization of Lethal Decision-Making, International Review of the Red Cross4, 2012, 687-709.
4. *Balibar E., Wallerstein I. M., Wallerstein S. R. I*., Race, Nation, Class: Ambiguous Identities. Verso, 1991.
5. *Ballbe M., Martínez R.*, Soberanía dual y Constitución integradora, Barcelona: Ariel, 2003.
6. *Ballbe M., Martínez R.,* Law and globalization: Between the United States and Europe, en *J. Robalino, J. Rodríguez-Arana (eds.),* Global Administrative Law, Londres: Cameron May, 2009.

[105] *Sparrow R*., Robots and Respect: Assessing the Case against Autonomous Weapon Systems, Ethics and International Affairs, 30, 1, 2016, 93-116.

7. *Ballbe M.*, Seguridad humana: del Estado anómico al Estado regulador, prólogo a *C. Hood et alii*: El gobierno del riesgo, Barcelona: Ariel, 2005.
8. *Barak A.*, Human Dignity. The Constitutional Value and the Constitutional Right, Cambridge, 2015. *Barrat J.,* Our Final Invention: Artificial Intelligence and the End of the Human Era. Macmillan 2013.*Bates T.,* Gramsci and the Theory Of Hegemony, Journal of the History of Ideas, 32(2), 1975, 351-356.
9. *Battistutti, Cairo O.*, El hombre artificial: el futuro de la tecnología, México DF: Alfaomega, 2011.
10. *Baudrillard J.,* Simulacra and simulation. University of Michigan press, 1994.
11. *Beine M., Parsons C.,* Climatic Factors as Determinants of International Migration, The Scandinavian Journal of Economics, 117(2), 2015, 723-767.
12. *Bhaskar R.,* Reclaiming Reality: A Critical Introduction to Contemporary Philosophy. Routledge, 2010.
13. *Bostrom N.,* A History of Transhumanist Thought, Journal of Evolution and Technology, 14(1), 2005, 1-25.
14. *Bothmer F. Von*, Robots in Court: Responsibility for Lethal Autonomous Weapons Systems, en *Brändli S., Harasgama R., Schister R., Tamò A. (eds.),* Mensch und Maschine – Symbiose oder Parasitismus?, Berna: Stämpfli, 2014.
15. *Braidotti R.,* Posthuman, All Too Human: Towards a New Process Ontology. Theory, Culture & Society, 23(7-8), 2006, 197-208.
16. *Browne R.*, Elon Musk Warns A.I. Could Create an 'Immortal Dictator from which We Can Never Escape' CNBS, <https://www.cnbc.com/2018/04/06/elon-musk-warns-ai-could-create-immortal-dictator-in-documentary.html>.
17. COM (2018) 237 final. Communication from the Commission to the European parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions. Artificial Intelligence for Europe. Brussels, 25.4.2018.
18. *Castells M.,* Power of Identity: The Information Age: Economy, Society, and Culture. Blackwell Publishers, Inc, 1997.
19. *Chalmers D.*, The Singularity: A Philosophical Analysis, Journal of Consciousness Studies, 17(9-10), 2010, 7-65.
20. *Crawford K.,* Artificial Intelligence's White Guy Problem. The New York Times, 2016, 25.
21. *Devlin H.,* AI Programs Exhibit Racial and Gender Biases, Research Reveals, The Guardian, 13 de abril de 2017 [en línea], <https://www.theguardian.com/technology/2017/apr/13/ai-programs-exhibit-racist-and-sexist-biases-research-reveals>.
22. *Dodson S.*, Was Software Responsible for the Financial Crisis?, The Guardian, 16 de octubre [en línea], <https://www.theguardian.com/technology/2008/oct/16/computing-software-financial-crisis>, 2008. *Düwel M. et al.*, The Cambridge Handbook of Human Dignity, Cambridge, 2014.
23. *El País,* 17 de mayo de 2018 [en línea], <https://elpais.com/internacional/2018/05/17/estados_unidos/1-526514308_942521.html>.
24. *Ellul J., Ellul J., Jurist P., Ellul J., Juriste P., Ellul J.,* La technique ou l'enjeu du siècle. Paris: A. Colin, 1954.
25. *Foucault M.*, Discipline and Punish: The Birth of the Prison. Vintage, 2012.
26. *Frazer J. G.*, The Golden Bough. In the Golden Bough, Palgrave Macmillan, London, 1990, 701-711.
27. *Funtowicz S. O., Ravetz J. R.,* Science for the Post-Normal Age. Futures, 25(7), 1993, 739-755.
28. *Future of Life Institute*, Benefits and Risks of Artificial Intelligence, 2018, [en línea], <https://futureoflife.org/background/benefits-risks-of-artificial-intelligence/>.
29. *Goertzel B., Pennachin C.* (eds.), Artificial General Intelligence, Nueva York: Springer, 2007.
30. *Gramsci A.*, Further selections from the Prison Notebooks, Saint Paul (Estados Unidos): University of Minnesota, 1995.
31. *Hegel G. W. F.*, Fenomenología del espíritu, Buenos Aires: Fondo de Cultura Económica, 1966.
32. *Heikkerö, T.*, Ethics in Technology: A philosophical Study, 2012.

33. *Horowitz M. C., Kreps S. E , Fuhrmann M.*, Separating Fact from Fiction in the Debate Over Drone Proliferation, International Security, 41(2), 2016, 7-42.
34. *ITU, XPRIZE*, AI for Good Global Summit Report [en línea], 2017, <https://www.itu.int/en/ITU-T/AI/Documents/Report/AI_for_Good_Global_Summit_Report_2017.pdf>.
35. *Jameson F*., Postmodernism, or, The Cultural Logic of Late Capitalism. Duke University Press, 1991.
36. *Janashvili L*., Human Trafficking: la nueva esclavitud [en prensa], 2018.
37. *Jasanoff S., Jasanoff S.*, Science at the Bar: Law, Science, and Technology in America. Harvard University Press, 2009.
38. *Kaplan J*., Artificial Intelligence, Oxford University Press, 2016.
39. *Lee D.*, Facebook adds human reviewers after 'Jew haters' ad scandal, BBC News, 20 de septiembre, 2017, [en línea], <https://www.bbc.com/news/technology-41342642>.
40. *Martinez R., Rodriguez J*., Inteligencia Artificial y Armamento letal autónomo. El nuevo desafío para naciones unidas. TREA, 2018.
41. *Marx K*., The Poverty of Philosophy, Nueva York: Cosimo, 2008.
42. *Marx L*., The Idea of "Technology" and Postmodern Pessimism. In Technology, Pessimism, and Postmodernism. Springer, Dordrecht, 1994, 11-28 .
43. *Marx L.*, The Machine in the Garden. The Green Studies Reader: From Romanticism to Ecocriticism, London: Routledge, 2000, 104-108.
44. *Mazzeo J.,* Assistance or Corporate Interest?, 2012.
45. *Mbembé J. A., Meintjes L.*, Necropolitics. Public Culture, 15(1), 2003, 11-40.*Minsky M*., Society of Mind: A Response to Four Reviews, Artificial Intelligence, 48(3), 1991, 371-396.
46. *Mourelle D*., La amenaza nuclear del siglo xxi, El Orden Mundial, 27 de noviembre, 2017, [en línea], <https://elordenmundial.com/2017/11/27/la-amenaza-nuclear-en-el-siglo-xxi/>.
47. *Mumford L.*, The Pentagon of Power (Vol. 274). Harcourt, 1974.
48. *Newitz A.,* Ashley Madison Code Shows More Women, and More Bots, https://gizmodo.com/ashley-madison-code-shows-more-women-and-more-bots-1727613924, 2018.
49. *Nietzsche F*., On the Genealogy of Morals and Ecce Homo (ed. Walter Kaufman), Nueva York: Vintage, 1989.
50. *Nye R*., The Anti-Democratic Sources of Elite Theory: Pareto, Mosca, Michels, Nueva York: Sage, 1977.
51. *Paras E*., Foucault 2.0: Beyond Power and Knowledge. Other Press Llc, 2006.
52. *Pardo J. E.*, El desconcierto del Leviatán: política y derecho ante las incertidumbres de la ciencia. Marcial Pons, 2009.
53. *Pareto V*., The Rise and Fall of the Elites: An Application of Theoretical Sociology, Nueva York: Transaction, 1991.
54. *Perrow C.*, Normal Accidents: Living with High Risk Technologies-Updated Edition. Princeton university press, 2011.
55. *Postman N., Riggenbach J.*, Technopoly. Blackstone Audio Books, 1994.
56. *Ravetz J. R.*, Scientific knowledge and its social problems. Transaction publishers, 1973.
57. *Ray T., Liew K. M*., Society and Civilization: An Optimization Algorithm Based on the Simulation Of Social Behavior. IEEE Transactions on Evolutionary Computation, 7(4), 2003, 386-396.
58. *Ricoeur P*., The Function of Fiction in Shaping Reality. Man and World, 12(2), 1979, 123-141.
59. *Rodríguez J*., La civilización ausente: tecnología y sociedad en la era de la incertidumbre, Gijón: Trea, 2016.
60. *Roff H.,* Meaningful Human Control or Appropriate Human Judgment? Necessary Limits on Autonomous Weapons, 2016, documento informativo preparado para la conferencia de revisión de la unccw.
61. *Rosembuj T.,* Governing Artificial Intelligence, LLR, n.2, 2017.
62. *Sardar Z.*, Welcome to Post-Normal Times. Futures, 42(5), 2010, 435-444.

63. *Sassoli M*., Can Autonomous Weapon Systems Respect the Principles of Distinction, Proportionality and Precaution?, 2014, conferencia celebrada durante el comité de expertos Autonomous Weapons Systems: Technical, Military, Legal and Humanitarian Aspects, Comité Internacional de la Cruz Roja, Ginebra, Suiza.
64. *Sharkey N.,* Saying – No! to Lethal Autonomous Targeting, Journal of Military Ethics, 4(9), 2010.
65. *Schopenhauer A.,* The World as Will and Representation, Seattle (Estados Unidos): University of Washington, 1959.
66. *Sebby K.,* The Green Revolution of the 1960's and Its Impact on Small Farmers in India, 2010.
67. *Sharkey N.,* The Ethical Frontiers of Robotics, Science, 32(5909), 2008, 1800-1801.
68. *Silver D. et al*., Mastering the Game of Go Without Human, 2017, 354–359.
69. *Solove, D. J.,* I've Nothing to Hide and other Misunderstandings of Privacy, San Diego L. Rev., 2007, 44, 745.
70. *Sparrow R*., Robots and Respect: Assessing the Case against Autonomous Weapon Systems, Ethics and International Affairs, 30, 1, 2016, 93-116.
71. *Susntein C*., The world According to Star Wars, Nueva York: Dey Street, 2016.
72. *Tegmark M.*, Vida 3.0. Qué significa ser humano en la era de la inteligencia artificial, Taurus, 2018, 40, 115.
73. *Turing A. M*., Systems of Logic Based on Ordinals: Proceedings of the London Mathematical Society, s2-45(1), 1939, 161-228.
74. *Turing A. M*, Computing Machinery and Intelligence, en *Epstein R., Roberts G., Beber G. (eds.):* Parsing the Turing test, Dordrecht (Países Bajos): Springer Netherlands, 2009, 23-66.
75. UNOOSA, Out Space Law, <http://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties.html>, 10 September 2019.
76. *Veblen T.*, The Place of Science in Modern Civilisation and other Essays, Nueva York: Huebsch, 1919.
77. *Veblen T.*, Teoría de la clase ociosa, Madrid: Ariel (3.ª edición), 1944.
78. *Waddell J*., How Algorithms can Bring Down Minorities' Credit Scores, The Atlantic, 5 de junio [en línea], 2018, <https://www.theatlantic.com/technology/archive/2016/12/how-algorithms-can-bring-down-minorities-credit-scores/509333>.
79. *Wallison P. J.*, Deregulation and the Financial Crisis (No. 31059), 2009.
80. *Warren A., Hillas A.*, Lethal Autonomous Weapons Systems. Adapting to the Future of Unmanned Warfare and Unaccountable Robots, 12, 2017, 71-85.
81. *Waters R*., AI Progress Sparks Cyber Weapons Fears, Financial Times, 20 de febrero, 2018a, [en línea], <https://www.ft.com/content/c54002ee-1668-11e8-9e9c-25c814761640>.
82. *White L*., Tecnología mundial y cambio social, Barcelona: Paidós, 1973.
83. *Willick M. S.*, Constitutional Law and Artificial Intelligence: The Potential Legal Recognition of Computers as" Persons", In IJCAI, 1985, 1271-1273.
84. *Winner L.*, Autonomous Technology: Technics-Out-of-Control as a Theme in Political Thought. MIT Press, 1978.
85. *Yudkowsky E.*, Artificial Intelligence as a Positive and Negative Factor in Global risk. Global Catastrophic Risks, 1(303), 2008, 184.
86. *Zadan N.,* The Future of Human Communication: How Artificial Intelligence Will Transform the Way We Communicate, <https://www.quantifiedcommunications.com/blog/artificial-intelligence-in-communication>, 12/09/2018.
87. *Zhi-peng H. E*., Globalization and the Shift of International Law to Humanism [J]. Jilin University Journal Social Sciences Edition, 1, 014, 2007.