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ELEN CRISTINA CARVALHO NASCIMENTO

BIOETHICS, ARTIFICIAL INTELLIGENCE AND ROBOTICS:

a contemporary debate

Rio de Janeiro

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Thesis presented to the Programa de Pós-Graduação em Bioética, Ética Aplicada e Saúde Coletiva (PPGBIOS), Núcleo de Bioética e Ética Aplicada (NUBEA), as a partial fulfillment of the requirements for the Ph.D. title in Bioethics, Applied Ethics, and Public Health. Advisor: Rodrigo Siqueira-Batista. Co-Advisor: Eugenio da Silva.

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A CONTEMPORARY DEBATE

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DEDICATORY

As the pandemics of COVID-19 stormed our lives, locking many of us in isolation, I started reviewing my old memories. I realized that one of the things that shaped my uniqueness is that I had a 'big brother,' an indigenous cousin who led other kids and me to hunt our food independently of adults' assistance. He taught us to get our sweets from sugar cane plantations and mango trees, while our proteins would be from hunting frogs, which he was cleaning after, and we were cooking ourselves to eat with cassava flour. We were between 5 to 10 years old. My dearest cousin Rogerio was a protector and helped me to learn to ride a bicycle. He was murdered at the age of 18, being part of the statistics, where boys with dark skin are erased from an unequal society in Rio de Janeiro, Brazil, with no justice at their side.

My grand-aunt, Teresa, who took care of him, is also an indigenous Puri – a tribe considered formerly extinct – and always was a model of this person who thinks the family is the community. She offered to take care of my brother when he was a baby, and my mother could not handle the difficulties she was having while he was sick and about to die. She saved my brother by giving him the care he needed, and she had the same solidary attitude with other mothers. My grandmother Dulce, who I can never thank enough, took care of all her grandchildren as all the mothers had to work and be out of the house most of the time. She was a daughter of a daughter of enslaved black Africans, Paula. Her father, Victorino, was the son of the Portuguese ‘colonizers’. He was disinherited when he decided to marry a black woman, a widow with five black kids. They had to work in the fields to feed themselves and put all the kids to work with them, his kids with Paula and the older kids she already had. I thank all of them for the person I am. Although I was raised in a culture that makes us despise this heritage, I am proud of their dignity and their actions, and the love they expressed through care.

The sun does not more certainly shine in the heavens than that which I now affirm is true. Some miracle might have produced it, yet the stages of the discovery were distinct and probable. After days and nights of incredible labour and fatigue, I succeeded in discovering the cause of generation and life; nay, more, I became myself capable of bestowing animation upon lifeless matter.

SHELLEY, 1823.

AUTHOR

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ABSTRACT

NASCIMENTO, Elen Cristina Carvalho. **Bioethics, artificial intelligence and robotics**: a contemporary debate. Thesis (P.h.D.) – Nucleo de Bioetica e Etica Aplicada, Universidade Federal do Rio de Janeiro, Rio de Janeiro, 2021.

Bioethics is an ethics that is attentive to the impacts of actions in life, from scientific research to industrial practices. This thesis deals with Bioethics, which focuses on the invisible elements present in relationships—unlike the Bioethics dealing with life and death, where the right to autonomy should prevail, such as the cases related to reproduction, abortion, euthanasia, or genetic manipulations such as CRISP (Clustered Regularly Interspaced Short Palindrome Repeats). The 'relationships' discussed here are about the 'things' that seem not to be present or a part of a given situation. It may be the poor health of miners in different parts of the globe that make technology possible; it can be abusive workload in China that makes it possible to have technological devices at affordable prices. They are elements made 'invisible' that create tensions to break illusions like "AI will offer all the solutions we need" or "robots will save us." Therefore, the thesis argues that these examples are replicated in similar analogies because they follow an epistemological matrix. Bioethics of Non-Presence is a concept that aims to broaden the understanding of the epistemological question inserted in the relationships provided for in Human-Computer Interaction (IHC) and Human-Robot Interaction (IRH), where the question of knowledge extends to how ideas are in projects they highlight the impacts they have on life, the environment and relationships. The HRI analysis goes beyond what we feel for objects like robots. Robots stimulate philosophical questions about what would be the desirable ethical perspective to mediate these relationships. Also, relations with objects go beyond objects, and Bioethics draws attention to the regulatory character that chooses the model that should prevail, presenting the arguments for such a defense. Investigations on AI – followed by the theme 'conscience' – lead to social and philosophical discussions since the Western scientific model overlaps, through science and technology, with different types of models that coexist in the same culture and with distinct cultures. The methods applied in this work combine literature reviews and theoretical research. The results are the publications of Chapters 2, 3, and 5 of this thesis, while Chapters 4 and 6 are adaptations of published or forthcoming texts, available in items 10.2 and 10.3 of the Appendix. When examining how ideas and ideals impact life on Earth and how they are embedded in scientific discoveries and computer systems, a distinction must be made between what is truth and what is a production of truth. In conclusion, the search for creating a Bioethical perspective for a new world revolution driven by computing, when AI and its satellites spread only one type of discourse, is about to propel a 'Bioethical turn.'

Keywords: Bioethics. Design. Ethics. Robots. Technologies. Epistemology.

RESUMO

NASCIMENTO, Elen Cristina Carvalho. **Bioética, inteligência artificial e robótica**: debates contemporâneos. Tese (Doutorado em Bioética, Ética Aplicada e Saúde Coletiva) – Núcleo de Bioética e Ética Aplicada, Universidade Federal do Rio de Janeiro, Rio de Janeiro, 2021.

A Bioética é uma ética que está atenta aos impactos das ações na vida, desde a pesquisa científica até as práticas industriais. Esta tese trata da Bioética que tem o foco nos elementos invisíveis presentes nas relações. Diferentemente da Bioética com o foco nas questões de vida e morte, onde deve prevalecer o direito à autonomia, como reprodução, aborto, eutanásia ou manipulações genéticas como o CRISP (Clustered Regularly Interspaced Short Palindrome Repeats). As 'relações' aqui tratadas são sobre as 'coisas' que parecem não estar presentes ou não fazem parte de determinada situação. Pode ser a saúde prejudicada dos mineiros, em diferentes lugares do globo, que possibilitam que a tecnologia aconteça; pode ser a carga horária abusiva de trabalho na China, que torna possível ter dispositivos tecnológicos a preços acessíveis. São elementos tornados 'invisíveis' que criam tensões para quebrar ilusões como "A IA oferecerá todas as soluções de que precisamos" ou "os robôs nos salvarão". Portanto, a tese discute que esses exemplos se replicam em analogias semelhantes porque seguem uma matriz epistemológica. *Bioética da Não-Presença* é um conceito que visa ampliar a compreensão da questão epistemológica inserida nas relações previstas na Interação Humano-Computador (IHC) e na Interação Humano-Robô (IHR), onde a questão do conhecimento se estende a como as ideias se destacam nos projetos, aos impactos que causam na vida, no meio ambiente e nos relacionamentos. A análise do IHR vai além do que sentimos por objetos como robôs. Os robôs estimulam questões filosóficas sobre qual seria a perspectiva ética desejável para mediar essas relações. Além disso, as relações com os objetos vão além dos objetos e a Bioética chama a atenção para o caráter regulatório que escolhe o modelo que deve prevalecer, apresentando os argumentos para tal defesa. As investigações sobre IA – seguidas do tema 'consciência' – levam a discussões sociais e filosóficas, uma vez que o modelo científico ocidental se sobrepõe, por meio da ciência e da tecnologia, a diferentes tipos de modelos que convivem em uma mesma cultura e com culturas distintas. Os métodos aplicados neste trabalho combinam revisões de literatura e pesquisas teóricas. Os resultados são as publicações que compõem os Capítulos 2, 3 e 5 desta tese, enquanto os Capítulos 4 e 6 são adaptações de textos publicados ou a publicar, disponíveis nos itens 10.2 e 10.3 do Apêndice. Ao examinar como as ideias e ideais impactam a vida na Terra e como estão embutidos em descobertas científicas e sistemas de computador, há que se fazer distinção entre o que é verdade, e o que é produção de verdade. Em conclusão, a busca de como criar uma perspectiva Bioética para uma nova revolução mundial impulsionada pela computação, quando apenas um tipo de discurso se difunde pela IA e seus satélites, está prestes a impulsionar uma 'virada Bioética'.

Palavras-chave: Bioética. Design. Ética. Robôs. Tecnologias. Epistemologia.

SUMÁRIO

1 PROLOGUE

> The becoming machine axis cracks open the division between humans and technological circuits, introducing bio-technologically mediated relations as foundational for the constitution of the subject. (BRAIDOTTI, 2013, p. 67).

The following texts present a journey on the contemporary questions that have been challenging society about the moral values concerning technologies and its impacts on lives, from biological bodies to mental health and well being. The questions of this thesis started with thinking about how the relationships with new technological developments are changing the sense of being human. That happened to unfold other questions such as "why bioethics?"; "what would be a bioethical approach for AI?"; "what, in human behavior, is possible to decode, and why?" and, "why do we need robots?".

Based on these preliminary considerations, the present Prologue (Chapter 1) has the scope (1) to briefly present the problem that will be addressed in the thesis and (2) to explain the structure that was adopted to conduct the pertinent discussions.

In the years dedicated to this research, it has been clear that the world is changing with technological revolutions much faster than we could discuss it through the lens of ethical traditions. Each time I search on databases for publications regarding Bioethics and different types of social robots, or even Bioethics and AI, I see that the attention to this research is still scarce, considering the popularity of topics such as AI and robotics. With the knowledge of my previous studies in Design (NASCIMENTO, 2017) I decided to open the Bioethical discussion about human-computer interaction (HCI) by investigating AI and robotics.

In Design I started with a question about what would be the scientific value of art. The investigations started looking at the contemporary intersections of art and science, speculating its contribution to cognitive developments in society, based on studies and discussion of HCI. While Design is a historical product of this intersection it is driven by ethical concerns expressed on the capacity to imagine how things can be and materialize the ideas through objects and projects. Being a 'branch' of the industrialization process and focusing on the markets Design lost its contemporary utopic perspectives. Those perspectives were imagining a world where it is necessary to rethink knowledge itself if we aim to change society.

I enter Bioethics going to a course of Philosophy of Science offered by Professor Rodrigo Siqueira-Batista at Instituto de Estudos em Saúde Coletiva (IESC) at Universidade Federal do Rio de Janeiro (UFRJ) for the Programa de Pós-graduação em Bioética Ética

Aplicada e Saúde Coletiva (PPGBIOS). It was a perfect fit for the needs I had to deepen the Design studies into the Philosophy waters. Moreover, for the PhD, I was interested in discussing the 'posthuman', a human different from the human from the Enlightenment. Posthuman is the invisible human, the one not taking into account by the Enlightenment. Yet, the posthuman is also the cyborg, the human with a life mediated by technologies, products, devices, anxiety, excessive needs. As computing systems became ubiquitous, we have no choice but to interact with them on types of equipment and devices. From credit cards paying all that we consume to transport tickets, operations made on smartphones and home computers. Those are all trackable data, no matter if public or private. Our general habits, physical features, health information, and consumer profile are flowing on Big Data, feeding machine learning (ML), and improving artificial intelligence (AI).

Authors Cathy O' Neil and Virginia Eubanks, exemplify how the information (or the lack of it) stored by institutions, companies, and organizations impacts people's life by, for instance, denying their access to work and specialized health assistance. There are many contradictions and sometimes opposed intentions embedded in technologies. Often, what is supposed to provide solutions result in generating more problems. For instance, an employer may be more interested in how much a potential employee will cost to the organization than the person's merits and qualities. In that case, if automated systems identify that the person is "overweight" or has other different specificities like a particular health condition, advanced age, or in the case of women the propensity of getting pregnant, it may eliminate them as a "good candidate", condemning them to have fair opportunities and make their living.

In that case, if the goal is merely financial, all the system and people have to adjust to a single objective which has nothing to do with what is better for society, for the quality of life, and even to accomplish the goals announced by the institutions. For instance, if it is a Health institution the goal is to assist, save lives, and have no discrimination. In Education, the goal is to prepare new professionals to act and interact with knowledge and wisdom, promote an environment of inclusion and diversity as those are aspects that increase the capacity of professionals to understand the world, its challenges, as to think of new perspectives.

The fact that most organizations follow the examples of financial markets and their concerns creates many layers of invisibility related to the human, social, environmental, and cultural aspects. The invisibility not always can be addressed in objective ways. They spread to the ambiance, are embedded in the relationships, expressed in gestures, looks, and small actions often confused by 'traits of personality, behaviors, 'instinctive reactions', and so on. That is, they are a nonpresence of the untold, unthought, unseen.

How does Bioethics deal with the intangible? Simply discuss ethics from the formal constructions does not give room to enter the *nonpresence* of things. How a number of misunderstood, misconceptions, misjudgments generate mismatches, inadequacy, and tensions that impacts bodies and minds? From the concept of body politics to the domestication of bodies by behavioral control, the nonpresence is the most influential barrier to the desirable ethical environment, as what we cannot properly translate, we cannot discuss. Therefore, the *Bioethics of Nonpresence* is the proposal to investigate the overflowing activity of the embedded ideas that overrepresents certain aspects while making a large number of others invisible.

The second chapter of this thesis is an introduction of the basis for the *Bioethics of Nonpresence*. It was converted to a book (NAS, 2021a) and discuss the ideas behind AI, virtuality, and robots. Epistemology has a 'glitch'[1]. Epistemology is a conjunction of Greek words, *episteme* and *logos*; therefore, it is "understanding" (*episteme*) "logic" (*logos*), known as "theory of knowledge". (ref Stanford Philo) Although Western culture tends to universalize concepts, epistemology varies from author to author, from logic to logic.

The ideas generated in the discourses of knowledge represented in the Western tradition, which associates science with the seek for truth, are often not evaluated. Neither the mistakes of first assumptions questioned enough to create changes for the ethical responses in need. The untold, the between-the-lines, are the values behind theories. Nowadays, we discuss bias in algorithms. But try to fix the bias in algorithms is like purifying one drop of the seawater when environmental problems impact the entire ocean.

Following this metaphor, the question to pay attention to is outside the ocean. If we keep giving attention to the consequences without looking at the causes, the problems will keep appearing as a loop of a crisis generated by constant unsolved ethical tensions. Because of that, I decided to navigate in the Philosophy waters looking for the answers in Western knowledge roots, the one I am raised in and which represents the base of all ethics perspectives we work in Bioethics. That said, Chapter 2 is an essay linking the questions of knowledge connected to the theme of AI, robotics, and other aspects of technology. It also aims to raise the question of how we are affected by the problematic parts of Epistemology.

[1]Glitch is a term used in computing and electronic, mostly identified with video images. It represents a flaw difficult to fix. In electronic art it became incorporated to the aesthetic discourse.

Chapter 3 is a published review[2] that discusses "the brain and the robot" within the analysis of technologies itself. What do we want from technologies? To overcome human capacities and help the human to live longer, maybe forever. The danger is if the "superintelligence", also known as 'strong AI' gets bored of humans and decides to cause them harm. Because humans cause harm to humans, how can AI make a distinction between which harm is okay to do and which one is not okay. That has been the question all along this journey. The conflicts are in the way of thinking. The way of thinking has a heritage of thousands of years and, despite the proposal of different narratives, from century to century, most of the knowledge hold on the ancient roots.

Thus, Chapter 3 reminds discusses on Philosophy of Technology reminding authors as Heidegger and Simondon: (1) discussing technology has nothing to do with technology because it has intentions embedded; (2) technology is not apart from the human. It reflects the human and their relation with one another. I must say, I started this investigation with a very optimistic mind. Because I see technology integrated with human creativity I believe it can represent different ideas. However, as present in most of the texts that compose this thesis, most technologies are used to achieve results that do not consider people's well-being. Even worse, the environmental impacts are overwhelming. All technologies have environmental and human impacts not taking into account, "as we progress to a destination that never comes" (YOHA et al., 2013).

In that sense, the discussion about the transhumanist project as a way to see the body and its brain as a separate matter, manipulated (body) and computable (mind), speculate about possible problems for reaching the project of a 'super AI' while the bioethical reflections are about to discuss if such a concept as 'transhumanism deserves special attention in research developments for the highest standards for scientific goals. If this project is supposed to serve well the whole society or if it benefits small groups. As presented in the long discussion in Chapter 2, the ideals that led to transhumanism are a consequence of a body detached from its head and a mind that sees itself detached from the environment. While some of us may sympathize with the infinite possibilities of an imaginary and creative world projected by the minds, it is time to think of creativity in science should change the focus to enhance the environment rather than the human.

It is a shift in the paradigm announced for many decades but difficult to change in practice: the human should be no longer the center of the concerns. It is a comprehension that

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[2]NASCIMENTO, E. C. C.; SIQUEIRA-BATISTA, R. The brain and the robot: Bioethical implications in transumanism. **Ciências & Cognição**, v. 23, n. 2, p. 237-242, 2018.

the human is part of the environment, and its well-being is reflected in it. The idea of wholeness is also presented in Chapter 2 as a counterpoint to the mind-body division. Although this is not a new discussion, I argue that is still the most important barrier to overcome in science and technology as the epistemological case is also about the ethical implications which come with it. The barriers are about identifying what is turned invisible. For example, people get excited with many technological projects, even scientists and academics. But they don't know or rarely associate the human and environmental costs of those projects. The diseases caused by the extraction of raw materials, the exploitation of work that results in a bad health, and suicide. The disruption in ways of living of many populations and environmental problems that seem local, but end causing an impact on everyone, everywhere.

Moreover, the barriers are at subtle levels. Engineer projects meant to be a solution for energy or AI meant to help in different fields have many certainties in their goals and the *nonpresence* of the 'undoubtful' demonstrate a vocation in science to act by dogmas[3]. Part of the dogma is to reinforce hierarchy by separating the people who have the authority to determine how things should be and the ones who don't have enough knowledge to be heard. Nevertheless, people need to be heard. They need to discuss the technological solutions with the specialists. Their perspectives may change the way experts were thinking of applying a project.

If now is too late to discuss this, we have no hope for the future of humankind. The barrier is the human itself and when knowledge is used as an unchangeable belief.

In the case of computer systems, the logic applied to its developments is a part of the same epistemology and, as it is not designed to deal with the human diversity of culture and knowledge, among multiple characteristics, AI, machine learning (ML), Deep Learning and Big Data are taking us back to the past, instead of leading us to the future. That is the discussion presented in Chapter 4.

No wonder that from far-right to the left, all the world is evoking their lost traditions. The utopia of a high technological future with the possibility of hybrids, cyborgs, and the openness to the unknown, loses to the old, monotheist, and patriarchal project of "tradition,

[3] Dogma represents a belief in unquestionable certainty. Therefore, in Philosophy of Science, various authors criticize the Cartesian logic where a mandatory result is required, even if the results are inconclusive. It tends to erase possible and different results in favor of previous findings, even if those are antiquated. Rather than seeing science as a process of knowing, it must stand for what is already known. It frequently creates an ambiance of intolerance towards alternate approaches in observing and explaining phenomena.

family, and property"[4]. Before an AI be ready to accomplish a task, it needs to learn. For instance, if the goal is to identify human activity, sounds reasonable to choose all Hollywood movies produced in the last decades as a database for Machine Learning. However, the result is a stereotype of human activity: men fight with each other, women take care of the house (YOU…, 2018). This is because the conclusions are based on quantity and repetition.

Following the same discussion of a past dressed with a supposed future, Chapter 5 examine how robots came into life, what they represent in the imagination of this society and, why robot sex is overwhelmingly represented in female bodies to be assembled and disassembled, turned on and turned off. The history goes back to industrialization, the mechanization of the relationships, and the use and abuse of the most vulnerable bodies. Therefore, robots relight discussions of gender, race, and inequality surrounded by disturbing points such as rape and pedophilia. A bioethical discussion related to the objects, their interrelations, and intersections with humans is why people, as things, don't complain. The way of life where humans are controlled by the clock prevails. The means of production of the whole economic system prevails above the differences of culture and political systems.

In that sense, Chapter 6 proposes that the discussion of AI and robotics as a contemporary debate requires to go back to the concept of the automation of individuals and society, from the perspective of biopower and biopolitics. Michel Foucault created the concept of biopower and biopolitics by exploring the characteristics of the paradigm shift of the Modern Age when the previous moral control of the Church is transferred to society by the ideas of the Enlightenment. In the 21st Century, with the digital revolutions, more concepts will appear to highlight the control of minds and bodies through infrastructure systems organized by computation. All those systems generate experiences and although we don't need to see things deterministically, leaving room for the unpredictable consequences of a reorganization of lives aligned with the understanding of *autopoiesis*[5], consciousness is shaped

[4] The conservative model of family that structures society is the most popular claim among the 'far-right wing' against a supposed socialist/communist model that supposedly claims the eradication of old values. Yet, most of all populations worldwide follow the traditional model of a family as an isolated nucleus sustained by the patriarchal ideology, independently if they are "progressists," "democrats," or "nazists." None of them question how the model of the family is imbricated with general problems of social justice. An alternate approach to understanding the problem is available at: Engels, Friedrich. "The origin of the family, private property and the state (1884)." *New York: International* (1972).

[5] "Autopoiesis, or 'self-production,' is a concept introduced in the 1970s by the biologists Maturana and Varela to differentiate the living from the nonliving. An autopoietic system was defined as a network of inter-related component-producing processes such that the components in interaction generate the same network that produced them." Geyer, F. (2001). Sociology of alienation. *International encyclopedia of the social & behavioral sciences*, 388-392.

by information and experience. Therefore, the bioethical discussion of systems of representation is a *Bioethics of Nonpresence*.

Although autonomous living systems have the potentiality to find a way to reorganize themselves under the constant surveillance of ubiquitous computing, it is necessary to open space for projects that offer alternative and creative ways to coexist with the invisible waves of communication systems. Therefore, from the bioethical perspectives, biopower strategies will only be hacked with the help of aesthetics. New and different designs and applications of technologies. New materials, friendly to the environment, to be discovered. Although nature can recover, until now humankind is not investing enough in this recovery. Yet, we cannot expect nature will recover from a subsequent environmental crisis. In the 21st Century is not possible to discuss technologies without considering their environmental and populational impacts.

The role of Bioethics is also to stress those points until engineers and computer scientists give priority to compromise in finding better solutions for the problems we are experiencing with their creations by open discussions with different fields of knowledge. As a matter of applying and finding new methods and knowledge, it would be desirable that every lab could have a visitor(s) from an afar different area of study. Interdisciplinarity costs more time but is a time we must invest if we want to fix problems that seems unsolved. The process of knowledge and findings require transdisciplinary and transcultural brainstorms.

For instance, the unsolved ethical problems in AI repeats the patterns of Western modern medicine when focusing and taking care of the consequences of sickness diverts from looking into the causes and investing in prevention. It is also the same pattern in drugs designed to treat a problem and causing other problems that will require further treatments. It is a continuous profitable loop when, as a society, we could make better use of the resources for research and development from different approaches. Bioethics perspectives have indeed been working to detach medicine from those patterns and open the views on the public health field for about half-century. The suggestion that sickness also express types of suffering indicates that health care has also to do with the environment, social justice, the quality of life and the quality of relations we want to encourage in a community.[6] Now we have health care interconnected to technologies in many ways: they are clinical tools, research support, and they

[6] It has been a process of ideal goals, while, in practice, Bioethics has often been operating more as a "tool" applied for specific problems, dilemmas in decision-making, and questions of ethics in research. As the field increases its reach, the impact of representations in life, brought by the criticism of racism, sexism, speciesism, and so on, conquers its space in the Public Health field as the whole idea of health must be related to the concept of care.

have ethical implications when influence decisions which reinforces innequality and prejudice. Moreover, the concept of health care overflows to the practices in society that are impacting bodies and ways of living.

In conclusion, technology is about understanding that there are intersubjective dialogues through objects, projects, and actions that are always purposing challenges to find creative ways to provide responses. If the "pure reason" of Enlightenment was not enough to affect humankind for the best actions capable to contemplate the needs of a peaceful community, we need to discuss, elaborate, and propose a new kind of ethics that could work better on this new condition. We need Bioethics, but first, we need a comprehension of what is Bioethics. Can it be effective as a 'tool' to solve problems, or it needs to provoke a revolution in education by unifying different fields and cultures, with all its diversity, to spread ethical perspectives within every path of learning? As a start, giving the broader and compact understanding of Bioethics as an "ethical reflection around human acts that definitively alter life processes" (SCHRAMM; KOTTOW, 2001).

The impacts of a new technological world on lives have never been an easy discussion. Since modern industrialization, the human body has been conditioned to the temporality of the machines. If that opened a way for various illnesses, most of the time, industrialization was not put on the account of the troubled experience in society. A new way of life, from 'modern times' summarized a political and economical project where the first robots were – and still remains – the humans slaved and forced to subordination.

2 METHODS

Question: What bioethical questions emerge from the relations between humans, robots and AI?

Figure 1: Many questions

Source: https://reflectiveimaginarium.wordpress.com/2011/05/19/which-method/.

2.1 MANY QUESTIONS

This work starts with questions about the posthuman, which combines the gap in social justice left by the humanistic tradition with the enormous change in life driven by technological revolutions.

In the first moment, the pre-project was adapted to understand how technologies used in health care and biofeedback systems could be changing our perceptions of body and life and the bioethical aspects of those technology uses.

The preparation of this project required a pre-research on the topics of Big Data and Health. Other studies on human-computer interaction (HCI) were previously completed for the Master's Thesis. From the understanding of all the data collection represented by the 'Big Data' scenario, we found questions of social justice, as will be discussed in chapters 5, 7, and 8, regarding the AI suggestions based on 'Big Data.

The thesis presents independent chapters, already published or to be published. That gave us the leverage to work on broad, separated topics within the significant investigation presented in the title: "Bioethics, Artificial Intelligence, and Robotics."

The following steps represent the process of this research that is reflected in the chapters.

- Literature Review was the primary method among all the topics regarding AI, robotics, and bio/ethics. The first book indicated to me was "O cérebro e o robô: Inteligência artificial, biotecnologia e a nova ética", where the author, João de Fernandes Teixeira, takes a journey on a broad topics relating ethics, consciousness and AI. This literature review resulted in a published article (Chapter 4).

- The second step started when we came across sex robots: would that become a fashion? What are the impacts on human relationships and life?

  An extensive literature review, combined with the look for sources that would give clues about the 'user experience,' was conducted.

  From this moment, the thesis proposal was combining the fact that robots are 'material' products with a requirement of AI, which is an 'immaterial product.' Those elements together made it evident that the central question of this research is about what invisible issues emerge among HCI and human-robot interaction (HRI).

Figure 2: Research methodology

Source: http://clipart-library.com/cliparts-research-methodology.html.

The question posed with the sex robot is related to representation and the impacts those types of projects have on society. The questions of representation presented the challenge of translating to Bioethics the discussions from Design, Communication, and Arts regarding the non-visible elements that compose a content.

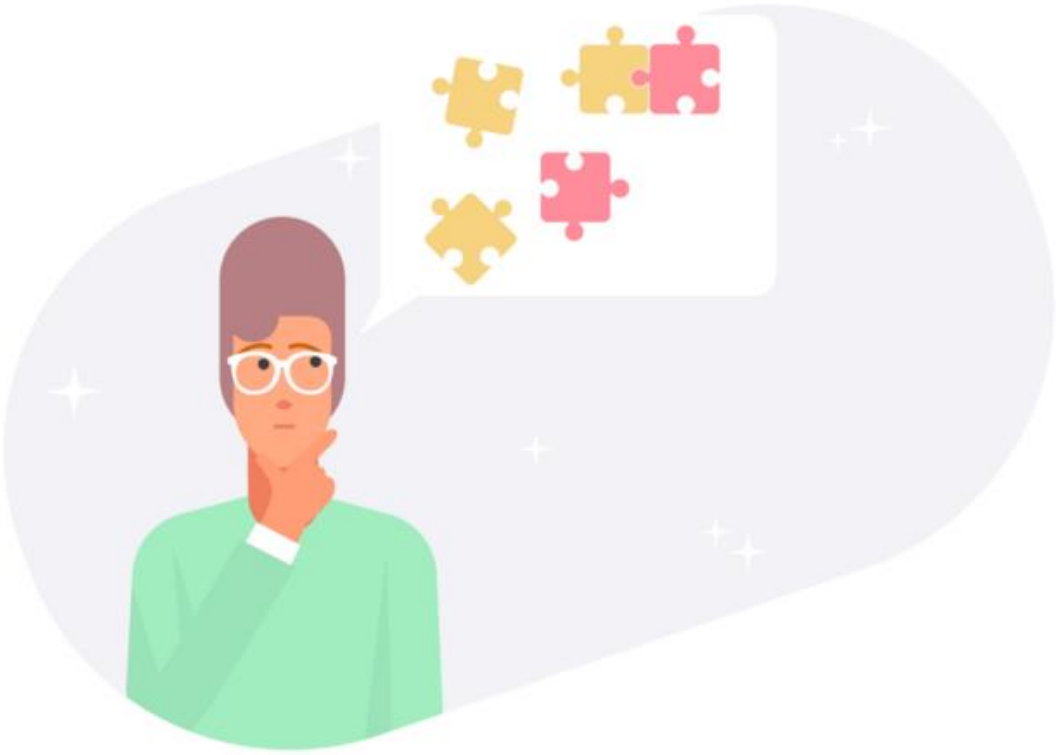
The literature review followed the steps of combining academic and journalistic publications with any other content or report by general people on the web — some expressing their impressions on the theme, some sharing their experiences with sex robots. Yet, the data are still scarce in all those levels (academic papers, journalistic reviews, and public reviews).

This research was done within two years and generated a paper published and one to be published (Chapter 6). The first paper generated extensive study and debate among me, the supervisor, and co-supervisor; the second was worked with the supervisor at the Philosophy Department at Monash University and other professors.

When I understood that it would be difficult to get more meaningful data about this theme, I started to open to other uses of robots in a 'social context and visited a Hospice in Melbourne that uses robots as pets with patients. But the connection and engagement of the patients with the robots were not enthusiastic. Thus a new literature review on that specific theme was not justified as I was already improving the studies of AI at that time.

However, the evidence about such interactions was that those technologies are designed to replace something. That is the complexity to be analyzed as replacing a lost leg or a lost arm is not the same as replacing friendships, careworkers, and partners.

Figure 3: Complexity



Source: medium.com

The pieces to put together were:

- What the robot representations are, and how they might impact people.
- How AI and other features enhance the perception of robots as exceptional.

As AI studies developed from the theory to its applications, the attention diverted to the topics where the ethical problems frequently appear: a collection of data, interpretation, and its

application in society. The main questions with bias arise in cases of race, gender, and other types of prejudice.

Those studies generated two book chapters (available in Portuguese in Appendix: 11.1) and a discussion presented in chapters 5, 7, and 8.

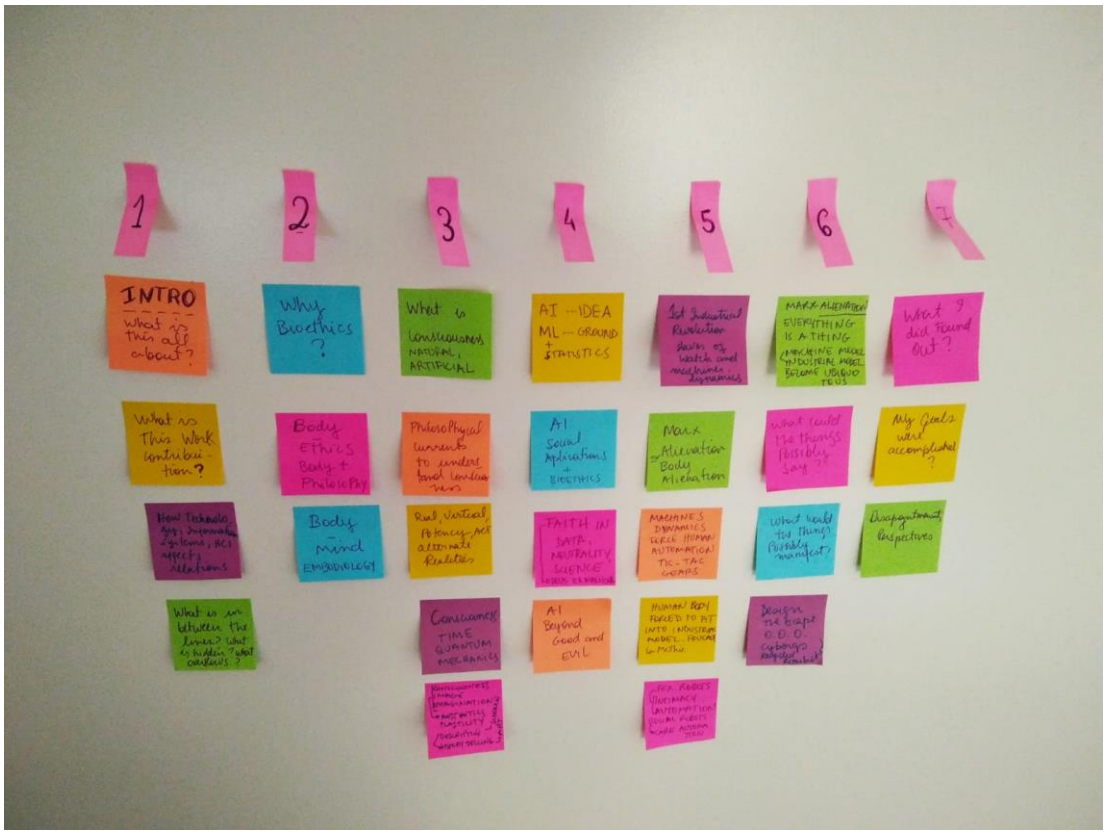
After identifying that the robots discussion and the AI discussion divert to different paths, typically, in a thesis, it would be desirable to pick one of those topics. At that stage, the investigations were advanced, and the chronogram was near completion.

The gap to combine both themes was related to the Bioethical approach to those contemporary issues.

From there, I started to write the chapter after the general introduction of this work. At this point, I wasn't sure if I would elaborate on the broad questions this research brings with the required academic rigor, making sense of all connections and questions raised.

To help my creative process with the focus needed, I organized the thesis observations with post-its on the door of my wardrobe.

Figure 4: Creative process



Source: Author's image.

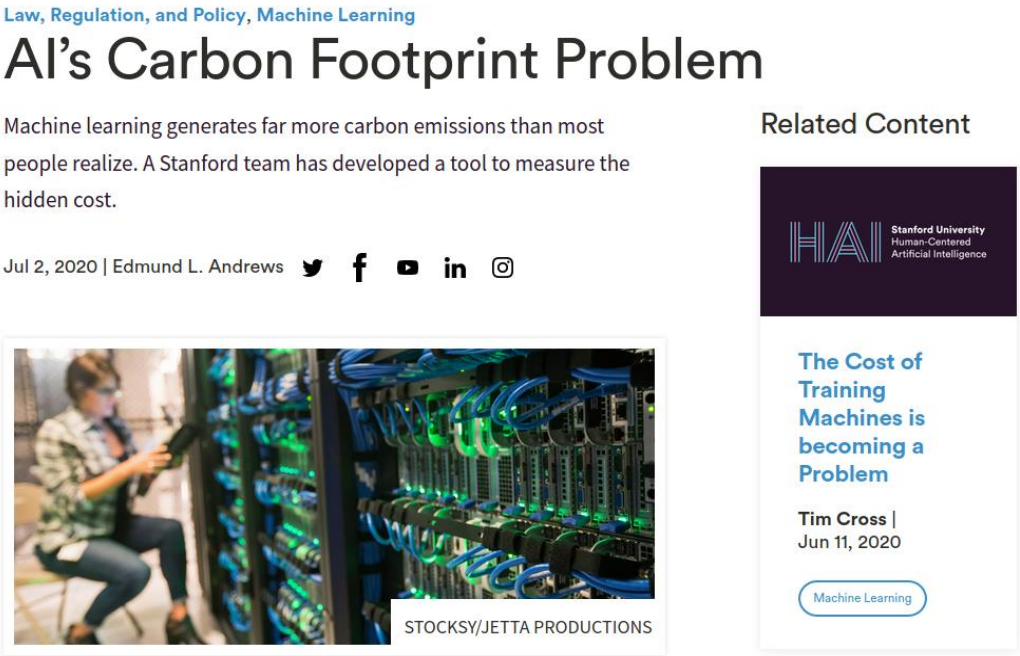
This process happened during the pandemic at the University of California, Irvine. While the original plan designed for the research visitor program was to work in a lab environment with the Informatics Department, the pandemic restrictions diverted my attention to the 'non-presence, that is, the epistemology hidden on the machines.

The concept of *nonpresence* was shown already in the first papers published, discussing sex robots. Nevertheless, it was scattered among the 'bioethical' arguments. The dispersion of critical thinking is common, with many articles discussing technologies considering ethical aspects.

Moreover, from biopower to biopolitics approaches, a new Bioethics appears when evoked to analyze questions of society with impacts on well-being such as prejudice, and the substantial changes technologies impose on life, leading to environmental concerns.

While environmental studies have often been critical of the industrial modes of life, the discussion is amplified with the new technological developments. Researchers, leaders, and activists are raising the questions of intersections between race and the environment. The populations exposed to mining and other types of environmental exploitation that sustain the technological developments are people of color, people of the South, and those who suffer from inequality.

Figure 5: Carbon emissions



Source: https://hai.stanford.edu/news/ais-carbon-footprint-problem#.

Moreover, the carbon footprint of 'invisible' things such as Machine Learning, AI, Blockchain, and NFT (Non-fungible token) have started to be discussed more recently, opening one more layer to combine in the repertoire of emerging technologies regarding bio/ethical concerns. This is a topic worth developing in further studies.

All experiences and discussions during this journey involved and included the presence of different people, from the classes within the Post Graduation Program of Bioethics, Applied Ethics, and Public Health (PPGBIOS) to other environments like the classes of the Bioethics program at Monash University. It helped shape and sharpen the knowledge presented here with a broad understanding of what stands out in terms of bioethical perception regarding emerging technologies such as AI and robotics.

3 BIOETHICS OF NONPRESENCE: BODY, PHILOSOPHY, AND MACHINES

Abstract

This essay presents a discussion of how body and mind transformations guided by technological revolutions have their influence on epistemology. I argue that bioethics is new ethics that combines the complexities of a world – and human relations – mediated by technologies. Therefore, rather than a mere tool to solve problems, this essay advocates bioethics as a theory field and proposes that the understanding of *nonpresence* as a device to enter the invisible realm of physical and symbolic impacts that ideas have in life. Ideas transform into anything: artificial intelligence, human-computer interaction, and robotics. Ideas impact and transform bodies and consciousness equally. Therefore, this essay raises epistemological discussions seeking the foundations of technological projects. From mind-body division to a concept of wholeness, the text offers an opportunity to think about which concept better serves a most inclusive ethical perspective. In conclusion, I share ideas about possible solutions to the problems presented by centuries of mining, extraction, and, in most cases, a lack of consideration for lives as an invitation to all of us to compromise with the change we want to see.

3.1 Overview

> Our bodies are not just being synthesized bit by bit; they're also being connected to the Net. Soon we'll all be always on, thanks to fast-spreading connectivity between monitoring devices on (or in) our bodies, on the one hand—and health care practitioners, their institutions, and their knowledge systems, on the other. (THACKARA, 2005, p. 202).

The emergence of new technologies and their availability to an increasing number of people across the planet have suggested that **we are facing a different human condition**. The constant quest for knowledge makes it possible to change the human biological body through all biotechnological developments, such as artificial organs, implants, and various types of chemical substances. Moreover, in a broader sense, the relationship with technical objects such as a cell phone and the ubiquity of computing in our daily lives could define us as cyborgs (NASCIMENTO, 2019).

The human body has been reorganized through devices used to enhance functioning, control biological processes, and monitor health conditions, such as contraceptive implants,

pacemakers, and bionic limbs. Moreover, gadgets with applications that store and analyze data motivate the practice of quantifying the self.

Quantifying the self enables individuals to develop awareness of their body patterns to understand the correlation between calculations and health/well-being. However, there is a danger when such calculations might become a focus capable of obscuring other aspects of the self, also stimulating a split of identity.

How could that happen? For example, the data collecting will highlight "the perfect diet," the standard number of hours one should sleep, and the "perfect duration of time" for exercise, according to the person's features and diet. If the person is a vegan, the apps may not be informed enough to make calculations; if for some particular reason the person burns calories in a different way than the standards, the data will not be accurate. In general, those technologies can point out when someone is overweight, leading to discussions about measures and comparisons when there are distinctions between bodies and its ethnicities. Moreover, Apps cannot perceive the characteristics which create plasticities, such as awesomeness, loveliness, the effects of lights reflecting bodies, and the beauty of movement. That is, a body swinging in balance reveals integrity, but the idea to match with an 'ideal goal' may create anxiety and have other psychological impacts.

Therefore, the ‘quantified self’ (QS) creates an imaginary future of a citizen who lives 24/7 collecting, exposing, and sharing data. And, to achieve the status of "best person" and "best professional," he/she works to be optimally fit physically, cognitively, and emotionally (GREGORY; BOWKER, 2016).

That is a perfect example of a cyborg era where the artificial body crosses the traditional human being's identity, supposed to be based on biological aspects.

The fact taken into account is how much this self-surveillance can distort the perceptions about the body.

Above all, this essay offers a broader view of how technologies are changing the human perspectives of life and how to present bioethical analyses considering new or unpredictable circumstances.

While the advances in medicine are making it possible to materialize different options of gender identity and enhance human capacities to avoid the decay of aging, the most ambitious project is an unsolved problem following humankind for millenniums: avoiding death.

That brings into question how relationships with humans and machines have developed and changed the world.

On phenomenology, the study of experiences (SMITH, 2018) that led to consciousness observes "subject" and "object" relations as motions with information in between. Moreover, emotions create motions, and given concepts such as "subject" and "object" lose strength as they may change positions even to other definitions different from "object" or "subject." Ontology is the study of "being," considering that mutable (phenomenological) experience expresses relations between all entities that exist. Therefore, phenomenology and ontology are "key-words" to the discussion of human-machine relations.

Further, in the current terminology, the **human-computer interaction (HCI)** changes our perception of existence. From a perspective that nature and nurture occupy the same body that rationalizes as much as it feels, the traditional-modern statement of a body that cannot be modified by nature and culture loses strength. That is not a new discussion. It first draws attention to the relationship between humans, from social to psychological phenomena advocates by authors such as Emile Durkheim, Sigmund Freud, and Karl Marx in the 19th Century. Ultimately, their analysis showed how industrial life has impacted minds and bodies and provoked political, psychological, and social transformations.

In the 20th Century, when communication revolutions ascend with increasing speed, the machinery in life goes from epidemic to pandemic. Despite the tremendous political, cultural, psychological, and ethnic differences between all the people in the world, life is mediated and operated by machines created for the best use. All must adapt to them, even with all the evident limitations they have.

Phenomenological and ontological approaches invite the observation of phenomena without applying the standard logic. For instance, to consider metastability as a combination of different reality dimensions composing a heterogeneous structure (DELEUZE, 2001).

Metastability includes what is and what is not. Different potentialities in a single event. The untranslatable and unpredictable aspects of a process of being. For instance, when manufacturing a brick, a slight change in the oven temperature may result in different units. For instance, ‘ontological’ is the interrelation between the matter (clay, in the case of a brick), the mold, and atmospheric conditions. It represents a process of individuation (SIMONDON, 1995), where an individual has the matter transformed according to the information. A beautiful example of individuation is the nature of quartz crystals, as it represents the spreading of the being in different directions: a pure image of the form in movement.

One of the challenges of bioethics is to reveal how culture affects our modes of existence and, ultimately, our health, to the scientific realm. For instance, the permanent conflict with separations such as "mental" and "physical" health creates a blockage to

understand how they continuously affect each other. Just think how much energy it involves to draw a model, build a mold, construct and have the technology to transform it (in the case of a brick, the fire, the oven, the materials and tools to make the mold). We could not separate the energy spent on mental or physical. Nevertheless, there are other layers of energy involved. Furthermore, if we think of a robot, those layers multiply. There is potential bioethics consideration from each piece's design that compose a robot to the supply chain of all materials involved. For example, electronic devices' raw materials depend on mining and extraction of different types of metals and fossil fuels, which are a cause of enormous environmental, health, and labor problems. Engineers and Designers may excuse that they cannot respond to problems grounded in politics and regulations. However, they can redirect research and development to analyze how things could work with different or recycled materials.

The labor problem extends to the factories of end-user products. In order to have affordable devices and maintain the profits of the industry, exploitation of labor in some parts of the world compares to the first industrial revolution in terms of lack of human rights (MACHINES, 2016).

In summary, while all the world consumes what is produced cheaper elsewhere, globalization weakens the responsibility industry must have with their workers (BAUMAN, 1998). The B*ioethics of Nonpresence* pays attention to what is not there: the abyss of humanity, which makes it possible to go back to outrageous work conditions practiced two centuries ago.

Globalization cares about profits and investors, living global problems with the individuals. Their governments choose not to pay attention to the vulnerability created by this system. It results in the shrinking of human rights to attend to the abstract demands of financial markets.

In those cases, the *nonpresence* of what cannot see on the products are also the suppressed rights and concerns with the environment and lives in general.

In addition, the fast speed of technological developments in communication did not leave a room to understand better how the increased use of Wi-Fi - and the science it represents - impacts bodies, minds, and Earth (RANDALL; MATTHEWS; STILES, 1997; RESONANCE…, 2013).

Fiber-optic technologies, electromagnetic waves, constant noise, and various interferences by devices permanently connected in its surroundings transverse the human

body. Its results rely on territories where science continues without a full understanding. In this scenario, also non-human beings share the effects of a stressed-out Anthropocene.

At its subatomic level, beings are susceptible to changes around them. Looking from the magnifying glass, divisions such as "inside" and "outside" of the body does not make sense. Our bodies are condensed matter composed of a plurality of beings affected and affecting all existence.

Thus, the impact of technologies on the physical body remains inconclusive because science does not agree on basic concepts such as matter to present definite answers for such complexity. If the understanding of matter is reduced to what we can see or perceive by the five human senses, then a classic Aristotelian logic is supposed to solve the questions with only one possibility of 'adequate' answer. Otherwise, if microparticles and what is invisible to human eyes also have the status of the matter, it requires a 'quantum logic' with multiple possible answers for each question (PRIEST; TANAKA; WEBER, 2018).

Facing those challenges, the discussion presented here is about bioethics as ethics for the bodies, where the understanding of 'body' is amplified to the invisible realms of physics. Otherwise, a proposition focused on the body as perceived by modern science is locked on ‘mind-body’ separation. Assuming that mind and body are a whole, bioethics' ‘bio’ prefix is a reminder for the attention to all sorts of life: humans, non-humans, general elements of nature and culture.

Therefore, the bioethics to cover "form" and "content" go from ideas to their representations, impacts, and movement—the *nonpresence* is a concept to reinforce the invisible image. As an analogy, it represents the will of becoming present in every seed.

A *nonpresence* represents implicit ideas, perceptions, conclusions about an object, and the phenomena composing its surroundings. For example, when a physicist says the double-slit experiment is incomprehensible, the judgment followed by a classification corresponds to a certain logic. As bioethics concerns justice, ethic evaluation demands a closer look at the *nonpresence* attributes of facts.

Attempts to explain the *nonpresence* by evoking metaphysics disperse physics's tension of all matter involved. Therefore, a physicalist view supposes that invisible and inaudible matter is only difficult to perceive through the senses, but it does not mean phenomena is not there. Moreover, phenomena are always a relationship with specific characteristics that can change the course of events.

Therefore, physicalism, as a materialistic approach, focuses on the material world. However, if this world's observation changes to subatomic particles, it is beyond what the

human senses can perceive. Therefore, there is always a possibility of misinterpretation of what is material and immaterial, what is physics, and what is metaphysics.

For instance, one can ask if it is possible to detect chemical aspects of specific emotions. Even if knowing the formula cannot fully explain phenomena such as consciousness, it may be possible to translate smiles, thoughts, and rage into frequencies. The technology appears to be not advanced enough as the noise range covers the identification of distinctions. That said, from a personal experience of building an interactivity ambiance with a sound sonar sensor (NAS, 2015), I noticed that even what cannot be measured and codified is still there, influencing the results and challenging the computer programming adaptation.

While ancient techniques expressed in a simple watch influence the mechanistic analogy of the body, the energy source is made of visible elements ruled by precise calculation and engineering in a watch. While the discovery of electricity changed that (visible, identifiable, and material) paradigm on the understanding of energy as a constant movement of bodies in motion and friction, that was not well updated into knowledge systems. It remains a problem and conflict in theory that challenges all science areas to analyze problems better, apply methodologies, and find solutions.

A possible revolution on bodies' perception would be to find its frequencies and how they tune with other bodies, the environment, and even ideas. Despite the claims that bodies, in general, are in tune with the Earth (and even with all celestial bodies) (ZHU; DACSO; O'MALLEY, 2018) and, the technology of communications disturbs a possible balance in this 'bodily-intuitive' connection, the understanding of such phenomena seems not to be on the main agenda of scientific discussions and discourses. With a few studies in that area, the results are conflicting and inconclusive (DIAB, 2019), which is a barrier for any possible adaptation of a better co-existence with those technologies. For instance, some beings are possibly managing to overcome the stress caused by technological changes, and may even be able to take advantage of space's flow of information by re-tuning and tuning-in.

Minds connected in space as it would access a radio station, and understand the biochemicals influencing each body could facilitate this syntonization with different forms of synchronization as shown in ‘brain to brain’ studies (RAO; STOCCO, 2014) and the use of biofeedback trackers (CONSTANTINI, 2014). Also, nutrition and practices such as yoga, sports, and meditation are potentially tuners (KERR *et al*., 2011).

The idea that nutrition refers to material and immaterial elements presented by ancient Greeks, Pythagoras, and Plato shows that music, for instance, has therapeutic properties. (B.SIMON, 2015) If that is true, it would be reasonable to create a "quality control" for every

musical content flowing in the market. That is a premise grounded in virtue ethics as an individual and collective commitment to the character's training. Moreover, discussing how things we do not see impacts the body and how things that impact the mind also impact the body rely on special care for the ideas and products.

The 21st Century is an age where human enhancement is a discussion fostered by biotechnological developments. Through drugs, artificial intelligence, artificial consciousness, robotics, and nanorobotics, humankind wishes to overcome illness, aging, and death. That is the noblest argument for those scientific developments: to make life better for all.

The question is if “make life better for all” connects ideas with attitudes. To be proactive towards an ethical enhancement requires meditation (SEVINC; LAZAR, 2019), among other training and nutrition changes.

3.2 *BIOETHICS OF NONPRESENCE*

> But where did that knowledge exist? Only in his own consciousness, which in ay case must soon be annihilated. (ORWELL, 1961, p.42).

The word ‘bioethics’ appeared the first time in 1927, at a German magazine called Kosmos, with the article of theologist Fritz Jahr (RINCIC; MUZUR, 2011), called “Bioethics: A panorama of the Human Being’s Ethical Relations with Animals and Plants (GOLDIM, 2009). Later, in the early ‘70s, the concept was developed by Dr. Van Rensselaer Potter (WHITEHOUSE, 2003) from the University of Wisconsin Medical School.

With the influences from the applied ethics political and cultural movement raised between the '50s and '60s (SCHRAMM, 2009), Bioethics combines different fields of knowledge intending to integrate biology and values (POTTER, 1962). Therefore, the efforts to design a guide for human survival for the 20th Century and the future consider the challenges of social justice and other environmental issues. It advocates for public health's responsibility and awareness of the impacts that general social issues have on life.

Epistemologically, bioethics is calling the body to be at the center of ethical discussions, taking into account non-human and all types of bodies.

From the Historical perspective, Bioethics reinforces the call to consider all the ones excluded from the Enlightenment idea of equality. When marginalized from the equal rights principles, their bodies are more vulnerable, under rigid control by institutions.

It frequently happens that all imposed suffering to the most neglected ends up being a factory of illness. Understanding that society and the environment integrate as a whole, a body establishes communications between its parts and the surroundings. Without such a broader view, medicine practices frequently fail to find a trustworthy explanation for why people get ill. Meanwhile, by just looking at pieces of evidence, extreme poverty as a result of inequality of rights often represents unfortunate circumstances that impact lives.

These concerns are the connections between justice and health. Bioethics is a result of those connections, with the necessary philosophical perspectives for ethical discussions.

In summary, the idea of the concept *Bioethics of Nonpresence* introduced here is to amplify the vision for observing all kinds of matter. The relations proposed to look at are:

1) We must consider not only the impacts on the human body but also how humans impact other bodies, causing a ‘boomerang effect’ on a harmful chain;
2) The discussion of harm is not attached to living organisms' idea; thus, it is not about who will suffer more or less. It is all about virtue. However, to practice virtue, we need to look carefully at the foundation of knowledge that influences us. Firstly understanding the Aristotelian distinction between act and potency. Secondly, leaving aside the behavioral judgment, which is a modern construction.
3) From a physicalist perspective, "biological and the social features of the world are nothing but a pattern in the physical features of the world.” (STOLJAR, 2017) Although there are other ways to explain and perceive physicalism, it is about investigating what appears not to be present.

Bioethics of Nonpresence is a concept whose definition is how ideas and ideals impact lives, how they reach a standardization embedded in statistics and computer systems, therefore influencing interpretations and judgments. As a consequence, how ideas and ideals can block empathy and influence relationships. If we agree that physical properties can represent every event, we could codify thoughts through reading frequency waves. What would be the data capable of identifying (even reproducing) empathy or hostility? Besides, those two in opposition find out more on the empathy branch, physical properties for consideration, sense of justice, and respect. Moreover, even if there are grades of empathy, where people tend to have less of it when dealing with someone far too different in culture and values, there is still a general sense of commitment to promoting goodwill, avoiding maleficence. On the other hand, reflexes of hostility appear on indifference and omission.

To avoid harm, in some instances, represents to keep a neutral feeling instead of reacting with behavioral judgments, as it commonly works as a device to justify hostility. In that sense, avoid moral reactions is a compliment for empathy. To welcome *otherness* with understanding and open listening, never with indifference.

From the indigenous population in Brazil to any other local groups in any part of the world, as different tribes and societies, what gives people strength and satisfaction is a sense of belonging to a cultural community. Impoverished riverside populations do not mind being “poor", as long as they can maintain their modes of living. However, if a big enterprise came to put their houses down, make them move, taking away the survival modes, then the scarcity comes in the same package with "progress" (D’ELIA, 2012).

That is far from the promise of a better future when some cultures are not obsessed with the future. Moreover, even in western society, there are different cultures inside the central culture. A hegemonic culture centered on wealth can see indigenous as miserable. The conflicts they are exposed to are a disadvantaged status with difficulties surviving in a hegemonic model of a political and economic system. That is how an extra layer of vulnerability is added to some types of bodies.

Because they represent a diversity of bodies, the battle against those groups is a cultural war. The simple fact that they still exist and resist is a statement to prove that there is not a unique rule of nature or a will from the heavens to determinate the human's mode of living.

Visions of life and death, projects, and theories in science (e.g. Medicine, Technology, Biotechnology), are spread as fundamental truths. That is supported by Philosophy, Ethics, and History. Also, the idea that we are no longer the human as thought by Renaissance or Modern Age, brings us the idea we must be a ‘posthuman’. Perhaps, a different human, or the future human, a ‘transhuman’. The definition of posthuman and its morphological root have a linear historical approach. Posthuman is the human after what we understand as human. For philosopher Rosi Braidotti the posthuman is a political concept which criticize the humanist perspective of the Enlightenment, because it showed contradictions between theory and practice (BRAIDOTTI, 2013). The general idea of equality of rights was not the truth for women or other populations apart from the "selected group" of white European males, which could dictate who would be the former group eligible to be humans. Therefore, the posthuman is an attribute of all contemporary individuals and groups marginalized from the first plan of humanism. The posthuman is historically a product of significant biotechnological developments, where human life is modified by several relations with technical objects, body

implants, and networks. The posthuman is a hybrid organism, a cyborg, as stated by Donna Haraway, "a creature of social reality as well as a creature of fiction" (HARAWAY, 2006).

Transhumanism is a position intended to be an alternative to the premise that the human condition is unalterable. The root ‘trans’ means ‘beyond’, representing the will to enhance human capacities as a possibility of human nature reconstruction. It means to pursue the idea of the ‘superhuman’, capable of overcoming the barriers of aging or even death and taking advantage of the possibilities of implanting artificial organs, using drugs that make memory more powerful and inhibit detrimental emotions to a desirable performance.

The advancements of new technologies have provoked many conflicts of understanding among science, culture, and society. Questions about what is human, what is natural, and what is the role of ethics. Nevertheless, if those conflicts weaken beliefs and traditions, humanity cannot lose all their symbols and signs at once. Suppose humankind is moving towards an unknown place with no need to hold on to previous beliefs. A transition is still needed. Society has entered turbulence. While it is easier to evoke traditions and claim the past back ("make my life/country/culture great again"), the posthuman advocates find it an excellent opportunity to reshape society by fixing what was already wrong. For instance, racism, the damages of patriarchy, speciesism, and anthropocentrism.

To better work on that, the *Bioethics of Nonpresence* supports the idea of adding aesthetics in the loop of bioethical relations, facilitating intersubjectivity communication. How to do that? Well, Jean Jacques-Rousseau, followed by Immanuel Kant, found a way to construct effective modes to convert aesthetic judgment into a moral judgment. (EAGLETON, 1990) In that case, a new culture spread with people policing each other's behavior.

As not everything can be said or simplified, how bioethics could adjust to the complexity of *nonpresence*? As an element to reveal the hiding images, like the chemical processes applied in analogical photography.

Bioethics of Nonpresence is a proposal to look at bioethics as a new approach for the *post* or transhuman. More than that, to promote real, transparent dialogues, science may exercise the recognition of aesthetics on its discourses. Science creates images and perspectives which are pieces of fiction, and it is also driven by passion and desires. It represents motions and emotions. Yet, there is still a need to admit it and evaluate how much it affects research and development.

Thus, the question is not to discuss the possibility or impossibility of bioethics as a theoretical field, neither the commonly cited currents such as principlism or utilitarianism.

Those are too committed to practical values, and pragmatism does not integrate well with complexity. As a reminder, the so-called complexity simply represents the cultural and existential diversity that adds different looks and interpretations of the same problem.

The idea here is not to present bioethics as a tool for making decisions but as a concept that represents a search for a new type of ethics that would collaborate on understanding all the posthuman world transformations.

This essay invites the reader to reframe views, revisit theories and marginalized concepts, to situate the necessary reflections for mind-shift challenges. Originality sometimes represents reframing as combining different ingredients to create new recipes. Moreover, part of what the contemporary world seeks is visions to deal with our futuristic-present challenges, which is also futuristic-past plenty of deja-vu, antiquated ideas, as argued in ethical discussions about AI, social and sex robots (NAS, 2021a).

Additionally, this book has embedded a life-time literature review of visions able enough to break the patterns of injustice. Since Bioethics is a field for philosophers, physicians, psychologists, biologists, nurses, lawyers, and a comprehensive group of the humanities, what brings all those professionals together is the need to rethink ethics, without leaving aside the environment, politics, law, and the necessary criticism and consciousness of public health biopolitics.

Moreover, what would facilitate dialogues between all those professionals? Initially, the Philosophy, but Social Sciences as Anthropology are a reminder of the need to listen to others' perspectives more. However, the constant demand for "practical" and "useful" results in scientific research, which is likely to be suppressed since communication around concepts takes longer than the usual speed of the routine, rather than tasks. However, it is a matter of where we should focus on and change habits before creating a pattern. For example, making a green juice with oilseeds with an adequate nutrient composition, at first sight, may seem laborious, but it becomes more manageable with practice.

The rampant advancement in science in the twentieth and twenty-first centuries has been driving many authors to reconsider ethics discussions on different fields of knowledge and professional practices. Traditional perspectives understand the imaginary as external to reason. In a context marked by contemporary culture impregnated by technology, discussing subjectivity impacts is often the case.

Therefore, the challenge is to propose references capable of broadening the dialogue between the two spheres – ethic and technoscientific, perhaps as a bet for the construction of a fairer society (NASCIMENTO, 2019).

How can Bioethics accomplish such an ambitious project? The answer is: that is a process. From the first step of bringing the ethical discussion to the fields, through applied ethics, to inventing bioethics as a statement to look for values in life sciences, Bioethics has been provoking discussions, reflections, and changes. I argue that the next step is to claim Bioethics as a field of study responsible for systematizing the knowledge of different areas in favor of an ethical understanding that contemplates them equally.

Values take us to think about justice, what is right, and what is wrong. Furthermore, ‘right’ or ‘wrong’ attends culture, ideology, beliefs, and interpretations. Secondly, we go from the desire to do “the right thing” in science and medicine to dialogues with Law, Anthropology, Sociology, Political Science, Psychology. It is a lot to deal with in terms of perspectives when the scientific methodology requires extreme specialization, and each of those fields may see the problem differently.

Thus, using bioethics as a tool to achieve specific solutions is maybe an illusion. It is like to start surgery without being able to reach the region where the problem is. Because opening a discussion where all parts involved will not let the armors and weapons aside are likely to be infertile. The positions of power remain in place and, between the lines, they are supposed to remain untouchable. The ethical discussion in this scenario becomes performative. Furthermore, since there are oppressions related to the authority and its consequent abuses, bioethics, regarding the questioning of biopower, in those scenarios go from useful to useless.

As designed by French philosopher Michel Foucault (1926 – 1984), biopower is a consequence of biopolitics (FOUCAULT, 2008). According to him, biopolitics' phenomena reflect several policies, from surveillance to the definitions expressed in language and regulation, resulting in the control of the bodies, their loss of autonomy and self-governance. As public health policies have a role of control historically, there is a permanent conflict between understanding ‘power relations’ as a mechanism to perpetuate a particular type of ideology and as the only possible way to act for the "benefit of all." The type of reasoning applied in Medicine as in modern science is not less ideological: the world as a machine. If every field of study is a gear part, such structure's consequent alienation creates blockades for possible changes.

Therefore, bioethics as a recent study field challenges medical and scientific research practices to pay attention to injustices and disrespect for lives in academic, professional, and industrial fields. That goes beyond composing ethical committees and conducting discussion for decision making in dilemma scenarios. It is an open gate for the epistemological investigations, acknowledging that theory affects the practices.

If a healthy society's goal is to increase life quality, biotechnological endeavors reside on Western knowledge roots. The technological ambitions expressed on transhumanism depend on raw materials that cause several disgraces for the environment and people's lives.

The question is, can we have the benefits of technological developments without damaging the environment with exhaustive mining and having people working close to slavery conditions to support the lower costs of final products, as the increasing number of smart devices? In short, the chain supply for pieces that compose an industrial or social robot, infrastructure materials for interconnectivity, and specialized knowledge resulting in a full, costly project, are now cheaper than in the past.

To contemplate the open question of how to accomplish the technologic endeavors with environmental and social responsibility, the "Insights" at the end of this book speculates possible solutions for sustainable co-existence between technology and the environment.

3.3 NOTES ON DESIGN

From my previous studies in technology and society within the Design field, I identified a similar internal conflict as in Medicine, which is between developing ways to better serve the industry needs or focus on what is best for life, people, and society. Although Design has a direct relation with consumerism by the constant race to create new (supposed better) products, the focus on sickness in Medicine also creates a constant demand for drugs and tools intended to solve problems for a better health condition. As we can experience if developments in science and technology have presented remarkable solutions and advances, they also go on a non-stop loop race for innovation where the main motivation is not exactly to make everyone's life better. In the case of Design, those questions generated a Philosophy of Design that has an intimate connection with the Philosophy of Science and Philosophy of Technology.

Analyzing these variations of Philosophy, the focus on reasoning having the body as subordinate generates suffering to the mind and body. For instance, creating products in large number, indistinctively. Impacts the way of being in the world, from ‘quality of life’ aspects to the health and environment.

Proliferating images as a fashion standard without analyzing ethically the messages embedded in those is a shortcut that eliminates the imagination process. Thus, communications technology without a careful examination of the concepts embedded in projects can lead humankind unsafely fast to barbarian practices (FLUSSER, 2007).

How the body suffers from the designs and the ideas behind it? This is a question I propose to be examined by the *Bioethics of Nonpresence*.

Design has an essential role in technological developments, projects, and products such as AI and robots, since it requires interfaces and careful studies of human-computer interaction (HCI). The following notes are about the challenges I found in Design: interdisciplinarity, methodology, and what would be a desirable perspective to the comprehension of HCI.

HCI studies have led me to Bioethics. HCI weakens the common focus on materiality since it looks into the relationship between humans and computers. Moreover, it raises questions as "how those relations could be instructive, productive, and ethical"?

From ethical concerns, the value established in the Design of emerging technologies is the focus. Form and content, appearance, and information are all representations of ideas.

Often, old ideas, like believing that the sciences of nature are from a different realm from cultural manifestations, have created many confusions and still do. Yet, the missing link to understanding this integration is connected to aesthetics and its relations with emotions.

Ethical concerns and aesthetically-motivated desires drive environmental projects such as EcoDesign. Experiencing beauty in the world is beyond what has being taught. Beyond the conditioning and it can be expressed as appreciating the colors and shapes of what you eat.

Aesthetic judgment operates in morals. If doctors give themselves for humanitarian causes as *Doctors Without Borders*, it is beautiful. If kids are used and abused in a war or any other situation, it is ugly. Feelings of admiration or aversion connect with aesthetics.

When designers started to present furniture made with cheap materials, they thought of allowing workers to afford it and to think of their living space with creativity. Yet, at the beginning of the 20th Century, those pieces of furniture were ideas the creators could only manage to show in the Theatre and Cinema as a concept of a 'new way of living'. Pieces that today cost a fortune in that time were considered odd or ugly (NAS, 2020) That comment highlights that morally motivated goals have aesthetic values and that new and different visions from the *status quo* demand time to establish and gain society's approval. In the case of science, the blockage for different perspectives tends to nullify other narratives and, as it happened recurrently, there is a large extension of divergent ideas that is part of a tradition, often marginalized by the hegemonic views, like the Vitalism/Homeopathy.

Therefore, to overcome the challenges of promoting interaction with different people, cultures, beliefs, and systems of knowledge, the transdisciplinary vocation of Design demanded the creation of its own philosophy and methods.

Design Thinking is a methodology applied to solve problems with creativity, empathy and welcoming differences in points of view, with open listening. Facilitating dialogues by practicing flexibility in judgments discarding ordinary assumptions. Bringing the feelings of the shared problems into the focus of the discussion. Using methodologies that may look naive as a design approach to create relational bonds and break social, educational, and cultural barriers.

Design Thinking follows innovative processes, commonly of a non-linear characteristic, for creative solutions (NASCIMENTO, 2017). What may be considered 'impossible' is often a limitation on imagination. The promise of Design Thinking is to overcome the challenges of the impossible (BUCHANAN, 1992).

As we discuss how ideas impact bodies, the challenge remain inter-relational. The judgment of behavior intertwines the needs for social acceptance. Being categorized as funny, silly, trustworthy, serious, vain, egocentric, kind, or talkative, contrasts with etiquette codes when paradoxically is part of the common social practices within the microphysics of power. That characteristic is often underestimated because everything that involves emotions occupies a subordinate place in the scale of values in society. The same occurs on the hierarchical relations between ethics and aesthetics.

The idea that there is a universal standard of how to behave stimulates prejudice. The need to deconstruct old paradigms requires dialogue and patience.

Conflicts are often associated as a synonym of violence, while it expresses debate and opposition of ideas (GRIFFTH, 2015). Nevertheless, the need for social validation and to be recognized by many professional and personal virtues inhibits the courage to face conflict.

Bioethics of nonpresence examines the impacts of not facing high-quality debate while silent conflicts spread. The ‘imaginary of society’ standing on the urge to compete using ‘pieces of distinctions’, which goes from relevant to irrelevant, more or less important.

Designs work on the physical and on imagination. Considering the ‘material’ and ‘immaterial’ are not distant from each other as traditionally taught, let us analyze the despised, the neglected, the silenced, and the ignored subjects.

In academic fields, engineering, and all other areas necessary to industry and economy, in general, get more resources. Health sciences also have special consideration in incentive for research, regarding its use for society. At the same time, Arts and Humanities are generally understood as useless in a pragmatic condition that demands rush results. However, when the objective is to debate ideas and promote reflections, Arts and Humanities represent and build culture. Additionally, for the sake of culture and understanding its impacts on relational,

professional, and industrial organizations and infrastructures, bioethics perspectives are required to look at the microstructures of *nonpresence*.

Biotechnologies, from drugs to increase memory to robots and other devices, reflect the culture as much as music, drama, and art contents in general.

Movie Director Federico Fellini makes fun of the competition between professionals in his "Orchestra Rehearsal." (FELLINI, 1978). The beauty of an orchestra is the integrity of all sounds together. Despite that, the musicians defend their instruments as the most essential for the composition. That, as a joke about human behavior and an evident childish conflict, it is valid. However, when we think about putting people together to find solutions for everyday problems, observing the suppressed emotional behavior in different professionals' discussions is a disaster.

In this regard, general attributes organized as a methodology in Design Thinking started as a consequence of the Philosophy of Design (NASCIMENTO, 2017). The objective, ‘in between the lines’, is to change old patterns of behavior (knowledge and ideology) for the common good.

As a reflection of the human cognitive process, Artificial Intelligence also follows patterns based on social representations. Therefore, if those representations are biased with prejudice, problems arise on a social and legal level. Examples are an AI that learned in a few hours by the network, to make racist statements (PRICE, 2016), or how a simple search on Google can present harmful results for the image of women, even more, black women (NOBLE, 2018), and facts like that continue, even with many attempts to fix it for good.

The bet with an approach such as Design Thinking is to widen possibilities of an active affection ontology rather than being replicating a constant routine of war towards otherness.

Uniting Bioethics and Design to strengthen the epistemological discussion on technology and society is, I argue, to ask how technology goes through our bodies, and how it could help us, instead of causing harm.

Ordinarily, the idea is that technology is just a tool, and it can be a threat depending on whose hands it is in. That could be true with ancient techniques as the hammer - a human enhancement creation -as it increases the fist's force. But modern technologies become more complex as the possible harms aren’t easy to identify. Thus, the present technological relations are sufficient to cause ‘malaise in civilization’. “The Malaise in Civilization” (FREUD, 1971) is the work of Sigmund Freud from 1930 and translated to English as “Civilization and its Discontents”. The case of this book is an example of bias in language, translation, and interpretation. “Das Unbehagen in der Kultur” is literally “the discomfort in the culture”, and

while ‘malaise’ and ‘discomfort’ are beyond one's will, to be ‘discontent’ directs the individual's responsibility, as it is, he/she solely responsible for being or not content. That is a semantic discussion, while knowing the book subject can answer if the title fits the translation well. Yet, it may be – still - a matter of interpretation.

When analyzing our relationship with technologies, it seems they simply happen outside the human body. The idea of having technologies as mere tools result in ethical flaws - they are useful when they "function well"; they are useless, obsolete, and even harmful when they fail the planned objective.

The ethical problem is a lack of responsibility for the project as a whole. (NAS, 2020) Malfunctioning sometimes happens randomly. When it involves information processed by computers, it can be how data was collected, how it was applied, or even an epistemological failure that builds assumptions *a priori* leading to mistakes.

Because of that, different interpretations of technology and its relation with HCI appears as, for instance, looking at it from a dialectic perspective (VERBEEK, 2015). That attempts to understand conflict as an inherent part of the process. Yet, this perspective is still flawed because it considers opposites once there is still a need to find more flexibility by analyzing technology as an element that reflects nature and culture equally.

The Marxist critique of mechanization argues that industrialization's alienation creates tensions where workers compensate the lack of integrity in the vision of what they are doing, by putting themselves together - like pieces of a whole - through cooperation. That represents a traditional dialectical view of ‘the big machine.’

This means that dialectic is summarized by the oppositions of different bodies/objects.

Nevertheless, if technology empowers the human by expanding its body strength and endurance in a short period, it also detaches it from itself if the comprehension is that body and technology are totally a different thing. The analysis and awareness of this type of interaction argue that human beings must find ways to free themselves from the alienating side of mechanization. Therefore, this perspective's general idea is that technology is an object in conflict (opposition) to humans.

An updated dialectical perspective detached from Marxist paradigms observes the tensions between humans and technology differently. First, **there's no such division or opposition between humans and machines**, as they are both part of nature and culture reflecting each other. It gives some space to think more productively and positively about this interaction. Therefore, technology is an externalization of some aspects of human beings, and a

synergy of the conflictive process leads to new developments. This refurbished dialectic perspective takes on new forms of hybrid interaction (NASCIMENTO, 2017).

Hybridism, regarding HCI, assumes that all processes present in nature affect each other, with no distinction between humans and non-humans.

Those discussions occur vividly in the Design field driven by the need to make HCI a good 'user' experience, make the devices, systems, and software smarter. It also has ethical concerns: is this experience fruitful, productive, or harmful? Nevertheless, the answer to such questions is not in the realm of Computer Science or Design.

As ethics for life, Bioethics can embrace those topics but not without diving into the challenges of establishing fruitfully interdisciplinary dialogues, facing the blockades with creativity. Adding to that humility, science must face that the seeking of truth is made of assumptions. Therefore, humility means recognizing that ‘objectivity’ has a lot of ‘subjectivity’ inside. Art and Science require critical thinking and often operate with intuition and improvisation equally. Moreover, let us remember that dogma is not knowledge. To build Bioethics for the world of actions and ideas will only be possible if the invisible competition and intellectual vanity in academic fields are not the strongest influence mediating the way of progressing in science.

Nonpresence has many influences. Slavoj Zizek will highlight the ideology element as the invisible object present in each message (TAYLOR, 2005). Other philosophers as Grahan Harman will attribute the *nonpresence* as the indecipherable element of any object (HARMAN, 2016).

What can not be translated without reducing it to something that fails to represent the object's totality. In that case, objects are everything: events, people, relations, objects. Thus, as argued by Harman, the impossibility of translation situates the *nonpresence* as a metaphysical element.

From a different perspective, the *Bioethics of Nonpresence* is a magnifying glass to recognize what is not evident, but present by other means. Although any classification is a reduction, like a language itself, there's no problem to investigate and classify, knowing that knowledge (also in science) is always a partial truth (COSTA, 2003) and the best strategy for trustworthy results is honesty and the consideration of multiple information and understanding of other culture/views affecting the conclusions.

An open question to further investigations of the *nonpresence* is to verify whether it is possible to identify stages of consciousness, moral judgments, and several ways to make

decisions by understanding invisible physical aspects through EEG, for instance, and other types of technologies (yet to be discovered and developed).

The fact is that epistemology directs the focus of attention of how we want to create the world, and technology developments follow a specific agenda, promoting a particular way of understanding life. Because of that, we are frequently reviewing the most influential authors, to understand the vision we are locked in through constant reinforcements.

The *Bioethics of Nonpresence* is a concept designed to reveal the untold, the unseen, the oblivion.

3.4 EPISTEMOLOGY I: DESCARTES AND ITS INFLUENCES

To paraphrase Descartes, I can pretend that I do not have a body, but I cannot pretend that I do not exist. I indeed exist in many places where my body is not present. I have many web profiles on social media, pages, and apps. Extensions of ourselves are not just present in different screens, traveling through data signals and cables; they are also in the memory and thoughts of many others who know us in person or remotely.

From Descartes's perspective, it is not the body that determines existence, but consciousness. Detaching the mind from the body fits well with today's scenario, living in many parallel rooms, interacting with different objects without limitations in space and time.

Consciousness is never attached to one single event at a time. It is a complex structure of many events that occurred at different times of our lives, combined with imagination. In parallel, our projections and interpretations are based on beliefs, previous knowledge, and desires. Consciousness amplifies our existence beyond our bodies. Nowadays, we can reinforce this perception as our data is stored in the cloud, a computer nomenclature related to an undefined space. We are virtually spread all over the clouds on different systems of data information.

If Descartes borrowed some of his rationalist ideas from Plato, with the advent of modernity, a human-centered cosmology provided the cultural and social conditions for this idealism to grow. Descartes' statements at *Discourse on the method of rightly conducting the reason and seeking truth in the sciences* [*1637*] (DESCARTES, 2017) direct to the conclusion that ideas determine existence. No wonder why his presence is still among us vividly.

He claims that the soul is what makes him who he is and that his soul is entirely different from his body. Expressly, the soul determines his identity. How he sees himself, what he experiences in his dreams, and the produced 'abstractions' of the mind does not necessarily

match with the composition of his body. Imagine if we have software supposed to find a possible mental health conflict between the status of the body and the identity of individuals' spirit. It could classify the philosopher as someone with a “disorder” related to gender identity. That would be a possible conclusion when the body does not conform to the person's image about him/herself. Remember that, in many cases, the software makes rough conclusions and becomes convenient to assume that such findings are accurate. That happens through automated decision making operated by sophisticated machines, using predictive models to classify people, for instance, analyzing their risk to commit a crime or demand health insurance more than usual.

I might be wrong, but part of my arguments are aimed to draw attention to causal conclusions when it takes into consideration signs of correspondence within operating systems to computing in the main role. Still, these systems inherit structural modes arising from scientific thinking: epistemology. This epistemology is a search for truth, concerned with logical consistency (MATURANA, 2000). There is always a danger that ‘consistency’ may be too attached to structural determinism. Because if its influences do not analyze the coherence of phenomena, information is missing and leading to conclusions that confirm the way we see the world, how things work, and, ultimately, how things should be.

One more example which precedes computer programs: if you do a genetic test to investigate your ancestry, it may rush to conclusions based on available data. If they do not have enough data on indigenous tribes and specific groups in Africa, they will close the 100% with what is at hand. For example, suppose you have a chance to be x% of a particular tribe. In that case, you will end up with a significant amount of European ancestry on your chart because that represents the most quantity of data stored to compare with your DNA.

There's a need to analyze carefully and sometimes admit conclusions are there to satisfy the set of ideas where the observer has a role. The easiest way is to confirm or deny it according to the explanations related to cultural influences. The same happens with computer systems designed to evaluate and produce decisions which impact people's life. As long as it gives an answer which fits well the ordinary expectations, complaints will be treated with disregard.

Furthermore, confirming or denying what contradicts the culture requires an exhaustive debate filled with explanations. The "smartest" researchers will try to avoid applying the law of least effort and better results. But this unwise attitude in the Bioethics field is not possible unless one's is up to cheating.

We do need extensive discussions because traditional ethical schools cannot answer contemporary events efficiently as in the past. Bioethics is bringing Social Sciences closer to Sciences. Biotechnoscience is calling philosophers back and other humanities representatives to review established concepts in scientific methods and epistemology, like nature, human nature, relations, affections, mind, body, and consciousness.

Here, I discuss theoretical questions and technological applications in parallel because emerging technology advances represent solidified old Western thoughts. It is not about denying former paradigms because they are dated, as if we only value new paradigms. In some cases, it is necessary to analyze old concepts because their substantial contents are getting lost, even if they are present in Western society's imaginary through technology, for instance. Sometimes, it is useful to question those theories, showing them in their context. In other cases, there are traditional concepts that got marginalized from the leading scientific field as monism, empiricism, Lamarckism, and quantum physics. It often helps understanding why those concepts were refuted, put aside, or opposed with skepticism, and if there are relevant points on them.

Would the resistance to such concepts be because they are more complicated? Or because the logic of mind-body division does not leave room for any other explanation? Would the logic of all marginalized theories diverge from a reason existing in a different realm, the one of a metaphysical mind? Indeed, the dualist perspective mind-body caused confusion and made it challenging to understand living organisms as unified, integrated, and interconnected.

It makes confusion because if the mind and its product, the consciousness, is so metaphysical, how can the reason be reasonable? How could ever logic and science be free of bias in the undecipherable realm of consciousness?

A theory that explores interpretations based on phenomena research might go better rather than comparing data with *a priori* standards. However, affections, body-experience, phenomenology, and epigenetics follow a different sense based on reason abstractions. What those abstractions have behind is the will of the observer.

Observing something as it is, looking for answers hardly fits simplification. Nevertheless, adequating facts to explanations that would apply to some pattern causes disruptions in the medium-long term. I suppose that is where we are now. Because the reasons and the individuals to whom simplification works (and work not) are never in the equation.

Examining this hypothetical case:

Cause: Gender identity disorder (GID)
Sentence (S1): "This soul that makes me what I am is entirely distinct from the body." (DESCARTES, 2017)
Correlation: S1 = pattern *x*. For example, a computer system known as *AI* has a significant number of similar statements to S1, and all of them are correlated with GID.

If what identifies as the ‘cause’ is correct, the 17th Century philosopher had what we know these days as GID. (EHRBAR, 2010) In that case, he did a great job in highlighting his case by providing a theory and method for scientific advancements which, 300-400 years later, inspired body changes in many aspects, including helping people who do not identify with the bodies, they are born with. Moreover, understanding the body as a machine that can have a replacement of pieces and isolated adjustment is the inspiration for technological developments in health care such as devices implanted to help a compromised health condition to the replacement of limbs, transplant of organs, and constant research for the possibility of artificial organs. The Frankenstein chronic is about to complete 200 years and it remains a wish to resuscitate bodies through science, as people who can pay between $28.000 to $200.000 dollars choose to freeze their corpses with the hope that medicine and nanorobotics can revive them in the future (MOEN, 2015).

Regardless of the presented metaphorical case, the idea of a body that can be assembled and designed as a machine has its roots in Descartes' scientific rationality. There are all sorts of psychological and philosophical speculations to understand why a person would not be satisfied with their own body. Some may blame culture, assuming the concepts of "beautiful" and "desired" shapes should follow some patterns. Others would say that it is beyond external influences, and, if not biological, it is a vital process of being ‘to be or not to be’ identified with the body and its way of ‘functioning’.

The fictional model created to classify Descartes with GID is an analogy for discussing cause and correlation. In Descartes's time, science needed to break the body integrity's religious idea for investigations. Therefore, separating the body from the soul was useful for breaking moral barriers imposed by the church, open carcasses, and dissecting them.
Another option for the fictional model comprehension: the correlation cannot be confused as a cause. Descartes' questions about the body, and its non-identification with the soul, relates to the incredible power of imagination, which can create a different sense of reality.

> We need only observe that in sleep we may imagine that we have a different body and see different stars and different earth, without any of these things being real. This is a reason for having some uncertainty about the existence of our body, the stars, and so on, because: how do we know that the mental states that come to us in dreams are any more false than the others, seeing that they are often just as lively and sharp? (DESCARTES, 2017, online).

Yet, he says that if we can imagine a lion's head in the body of a goat, we can conclude that a chimera exists. That also breaks the concept that reality needs materiality easily recognizable by our body senses. From my studies and life experience with Cartesian defenders, it is controversial that they would admit that real is anything produced by imagination. Indeed, if dualism was borrowed from the theology (Good and Evil or God and Devil) and reframed as the Mind-Body problem, with Descartes, it seems that there is an attempt to look into Physics through the Metaphysics lens. Nevertheless, it is more likely that, for him, Metaphysics is predominant. Nothing wrong with that if he could embrace and stand for the uncertainty. Even better would be to dare to challenge a development in maths, which includes uncertainty in logic. But that only happened 400 years later. The theme of fitting uncertainty in logic is only relevant in this essay for reminding us that most science developments left a significant part of knowledge aside when unknown, possibly unpredictable, aspects challenged the desirable results. Therefore, following a classical logic that does not admit contradictions, Descartes found a way to objectify the need to have a result by creating statements of necessary conclusions even when there are no conclusions yet. Uncertainty and -even better - multiple possibilities came into the equation with quantum physics in the 20th Century, sometimes causing polemics and often facing skepticism.
Observe the *undoubted faith* as a religious dogma:

> God has established in nature; he has implanted notions of these laws in our minds, in such a way that after adequate reflection we can't doubt that the laws are exactly observed in everything that exists or occurs in the world. Moreover, by considering what follows from these laws I have discovered (it seems to me) many truths that are more useful and important than anything I had previously learned or even hoped to learn. (DESCARTES, 2017, online).

So, when the method states that the truth will be found when there's no doubt, that is an assumption not really possible to follow literally, as science also has intuition and risk involved. In many cases, scientists are drawn to theoretical conclusions not possible to prove the known measures' limitations. For instance, the last unconfirmed prediction from relativity theory, of Physicist Albert Einstein, had been confirmed only recently (JACOB, 2016).

The suspicions on Einstein's prognosis are enough to discard them as false? Following Cartesian rules, what cannot be proven gets discredit in science. Einstein's active participation in the historical moment where electricity revealed an invisible physical world's potency represents investigations motivated by many questions with answers that remain open till today. While not proven assumptions in Einstein's case were not totally discredited, it suffers resistance, which, most of the time, makes it difficult to investigate further, with people and institutions interested to support. Would this resistance be obsessed with a perception of materiality limited to what the human senses can perceive, as the 'immaterial' realm could only be 'spiritual'?

As sympathizer of the physicalist approach, I argue that what is considered spiritual can remain spiritual and, yet, it can have a physical explanation. What is essential to consider is that a mental phenomenon overflows materialization in multiple ways. It affects life in various aspects; thus, there is no way for Bioethics to ignore that, what is not visibly present, is still a matter of analysis.

For instance, how does implicit bullying, falsehood, omissions of facts, and information impact individuals' work and study environment, in everyday social relations in general? While it may have just an appearance of individual emotional status and behavior as, - for instance, not liking someone enough to care about any possible harm it could suffer from unthoughtful actions - the potency of neglecting importance follows the seek of the evidence capable of justifying the lack of consideration. Moral judgments about who deserves empathy or not often have a consequence of assuming that it is not a moral problem to cause damage to them. It has a snowball effect starting with omission, lack of basic respect, or conscious prejudice.

While "the massacre of humans by humans increases endlessly" (NICOLESCU, 2002), it is more a structural problem rather than unfortunate isolated cases. It results from an old and dominant viewpoint, grounded on a war against otherness, locking the bodies in specific given forms of classification (NICOLESCU, 2002).

Taking those reflections into account, if the scientific method aims to encounter the truth, Descartes' method of doubt yielded his considerable success, though the notion of certainty gets slightly confused when he states that even the uncertainty must have an absolute answer:

> When trying to expose the falsity or uncertainty of any proposition, what I brought against, it was arguments that were open and certain, not feeble conjectures. I never encountered any proposition so doubtful that I couldn't get from it some fairly certain conclusion, even if it was only the conclusion that it contained nothing certain! (DESCARTES, 2017, online).

That is a pretty straightforward, and understandable explanation. It is like to add the statement: "this is not a possible operation" on calculation software to inform the user about a mistake in the equation and the impossibility of processing it. A possible ontological way to discover knowledge seems to be blocked with the assumptions: either it is evident or impossible to be identified. The logic inside the ubiquitous computer systems makes the flaws evident when applied to social life aspects.

Training of machine learning to build 'clever' AI uses out to date data. For example, an algorithm trained by old movies to identify humans shows women taking care of babies and the house on one side, and, on the other, men fighting (YOU…, 2018). Attaching people with contexts is common and undoubtedly biased. The Rio de Janeiro state Governor in 2010 called a shantytown boy a "sucker" when the kid asked if he could build a tennis court for the community. The governor complimented: "play tennis is not for you," that is, it is a sport for the bourgeoisie (AZEVEDO, 2010). This is an easy case to illustrate how ideology gets up on ideas formed by statistics and probability. Even if there were reactions about how wrong is the governor to say this, the swearing and unkindness, he did not regret or apologize. There is a system of beliefs that makes him confident, despite his speech's impoliteness, that he is not so wrong on his thoughts based on classifications.

That said, “evident” and “uncertain” are also related to values. Culture and beliefs influence what we regard as false or true. If mathematics managed to suppress human idiosyncrasies, as "those who believed only in mathematics objects did so because they saw the difficulties about the ideas," (ARISTOTLE, 1958) it is a language embedded in systems where axioms are imperative. That is, a truth became true when someone coined it as so.

Even so, going back to western epistemology land, one may infer that modern scientism assigned more direct interpretations, clinging to the idea of objectivity. This claims "the only knowledge worthy of its name must therefore be scientific, objective; the only reality worthy of this name must be, of course, objective reality, ruled by objective laws." (NICOLESCU, 2002). Not without reason, the intellectual and scientific society expresses, since at least five decades ago, resentments about the academic difficulties absorbing quantum mechanics questions, which lead to a new understanding of the bodies.

Knowledge and languages can also function as devices to perpetuate and justify wars. To analyze distinctions between conflict and cooperation involving initiative, I suppose a language starts with creativity, involvement, and collaboration. Imagine if the first person pointed to a river and vocalized the sounds that form ‘river’. Suppose the interlocutor presented another model he/she believed was better to describe what we know as a river. In

that case, a quarrel might have taken place, or maybe a dispute to see which word the community had more affinity with. Without proper reasoning, people became mere devices to increase conflicts and wars, often when they grasped power games. There is no possible ethics to break such patterns. And the bioethical discussion I am presenting here argues that the autonomous body needs a breakthrough from the idea of objectivity because its inevitable consequence is the transformation of the subject into an object (NICOLESCU, 2002).

The process of reasoning has an inevitable influence from the Greeks and the Enlightenment. Consequently, returning to scrutinize those concepts is unavoidable, and the originality comes from the interpretation according to the historical time. Still, at this point in history, we have more elements to review, analyze, and compare.

Taking Descartes' linguistic style into account, the whole narrative is not less a product of truth; it is partly a creative construction of the knowledge acquired at his time.

Everything read and researched for this book can be accessed and reviewed. Yet, I cannot access how this significant amount of information traveled on my conscious and unconscious mind, occupying my dreams, leading me to insights and conclusions. Questions about justice became a passion for some of us. Rebellion comes through knowledge in the hands of oppressed beings. Women are equally oppressed by patriarchy when it comes to respecting their voices, realizations, and choices. But the women born under significant family protection may not deal equally with the same issues.

Similarly, men from marginalized groups enjoy oppressing women when culture incentivizes such behavior. Considering those groups are a target by ethnic and socio-economical issues, the strength needed to fight for justice is compromised when they adopt prejudice against otherness. Exceptions of males capable of the radicalism demanded to understand oppression fully may be the representatives of some indigenous population, which are more likely to be detached from gender and social position privilege. Those influences have been revolving around our beings to what would be acceptable truths or unacceptable acts. Accepted truths are commonly related to an individual's beliefs and ideas, the culture of a group and society. For example, the idea that "democracy is not good because people often choose bad politicians" excludes the other side, like: "in totalitarian regimes, people cannot choose, discuss, have a chance to improve and make better choices." Unacceptable acts usually originate from the "the ends justify the means" quote. They are Machiavellian strategies designed to obtain results, and they do not compromise with ethics. Unfortunately, without the Machiavellian label, such a system can be a practice in academic research: psychological

manipulation to convince someone to be guilty of something which he/she has not practiced (SHAW; PORTER, 2015).

If the basis of western knowledge is contemplated, all that is imagined and claimed as truth may have the status of truth. The experience makes it possible to support predictions and conclusions; however, this experience goes beyond the explainable by our senses and consciousness. There's an expanded awareness of which we are not trained to be aware. A combination of influences, internal and environmental experiences opens possibilities for new propositions and paradigms in science.

The case of Isaac Newtons' (1642-1727) falling apple is an example of an insight in which the imagination is motivated by internalized knowledge. In that case, the ‘aha’ moment is the start of an original investigation. Originality comes with intuitions and individual search for knowledge. It differs from the standard repetitions that follow the demands of specific fields of study. The answers society is seeking in science and ethics will not be inside a box. ‘Useful’ research and all that is already validated by the academic community may help. Still, if some of this validation is usually based on repetition, the answers are perhaps on the suppressed and invisible knowledge: what should be reported there, but it is not. In other words, scientific research has a *nonpresence* of hidden facts which, if exposed, could help for a better understanding, even leading to different solutions.

Thus, if “canonical” represents the officially accepted, it means a piece of knowledge that went through a funnel of institutionalized systems of power. On the one hand, those measures must be valued, given the pandemics of misinformation globally spread in the second decade of the 21st Century. Nevertheless, it is utterly essential to be alert to the risks of blocking knowledge investigation from those genuinely involved in the research.

The emphasis here is that scientific methods and beliefs became a custom applied to any case and is detached from its historical context. In other words, someone claiming the earth is flat just to cause controversy and attract attention is not the same as a scholar defending a point of view with research-based assumptions. If it seems obvious, the claims for methods based on scientific laws can often be used as a tool for practices of power. It controversially prevents the possibilities to increase the debate on investigation and improvement of knowledge and creates an intimidating environment for those who do not conform to traditional standards.

Furthermore, we are facing a time with a high demand for debate. Concepts and arguments do not need to follow our line of thought. They need to continue, flow, and find ways to establish connections. When ideas are interrupted by demands claiming to be in

defense of truth, often, it is not the case. It is more likely to be a show of intellectual vanity or merely a proof of power. That said, transdisciplinary fields as Bioethics are challenged to deal with vast information from different areas of study and traditions. The commitment with accuracy should always be a goal in science; equally important is not to block the necessary openness, which "involves an acceptance of the unknown, the unexpected and the unforeseeable." (NICOLESCU; MORIN; FREITAS, 1994).

That is a case in which the Cartesian way of reaching the truth does not contribute to this occurrence. According to Descartes, the search for truth, as we have seen, turns out to be pretentious and confusing. I argue that honesty should be the highest value of a scientist. If what is understood as truth depends on particular knowledge, the search for truth must consider more variables.

Therefore, scientific research is part of a continuous process resulting from interactions where each individual's action determines what will happen in the pulsating collective epistemology.

3.5 BODY AND KNOWLEDGE

Today, one must admit there is plenty of evidence that everything created by imagination is real. It takes back Aristotle when he discusses the ontology created by the ‘potentiality’ and its distinction from the ‘act’: "a thought that, actuality, thinks its own potentiality to think" (AGAMBEN, 1998).

Aristotle argues that there is no distinction between potentiality and actuality, as they are complementary and create unity:

> The reason is that people look for a unifying formula, and a difference, between potentiality and actuality. But, as has been said, the proximate matter and the form are one and the same thing, the one potentially, the other actually. Therefore to ask the cause of their being one is like asking the cause of unity in general; for each thing is a unity, and the potential and the actual are somehow one. Therefore there is no other cause here unless there is something which caused the movement from potentiality into actuality. And all things which have no matter are without qualification essentially unities. (ARISTOTLE, 1991, online).

Suppose ‘potentiality’ plays the role of a device used to reinforce the sovereign's supreme will. In that case, granting machines citizenship could turn hierarchy upside down when their identities overflow the status of 'tools' to the *nonpresence* of its representations,

social roles, and significance. The machine functioning is beyond technical attributes, it is ontological. Its process of becoming is alienated to its ordinary utility, machines have their own narrative, the untold stories.

The Aristotelian hylomorphic principle is a fundamental concept where the understanding of the relations between form and matter reveals a society of owners and slaves. (SIMONDON, 1995) 'Things' and owners. Mind and body. Idea and means. Therefore, epistemology is a reflex and a means to sustain a system and its political power.

That perspective may lead us to the feeling of being trapped forever. Technologies represent art and science; the theory and ideology behind them are Western, the same as its modes of life regarding economics, politics, and culture.

Current technologies reinforce systems of power that are marginal to ethics -they are biopolitics operating biopower, as its forms serve a purpose. Consequently, they are too compromised with authority establishment above other bodies, and the results are implicit in the formula. Because of that, it should not be a surprise when digital marketing strategy, directed to politics and assorted products, achieve the expected results.

Technologies and humans are imbricated. The codification of human behavior relies on basic instincts and emotions. Epistemology overflows the terrain of experts and influences general reasoning in a culture. As dualism influences the principles of knowledge and culture, everyone gets used to reductions and simplifications.

People are affected by decision-making software. The need for adaptation restrains the autonomy when it is necessary to accomplish goals mediated by specific logic embedded in the computer systems. With emerging technologies, individuals are ‘clay,’ the content fulfilling final purposes dictated by the form.

Science, says Aristotle, "is a potentiality that depends on the possession of a rational formula," (ARISTOTLE, 1958) that formula is the demand of the creator, or the repetition of ideas representing particular goals. Moreover, there is a distinction between free cooperation or being deceived by supporting a project that does not consider the needs of all parties involved. For instance, that is to think if the development of Artificial Intelligence will have people’s participation and agreement of people during the process or if it will be only manipulation of data to follow a particular agenda.

In that context, the first problem is that the ‘human beings’ category does not always include all 'humans' and 'beings.' Often women are not included, either black and indigenous people, as some ethnic and religious groups. Therefore, spreading the citizenship rights to

non-humans, animals, objects, and the environment help us amplify the visions of justice and Bioethics. Our relations with ‘things’ reflect the systems of power and affections.

Let us so discuss the body, the human and non-human body, the environmental, and the social body.

Generally, the common thought is ‘things’ are all that is outside 'me'. 'I perceive them as external to me.' 'They are what I can see, what I create, what I own.' In practice, for a single subject, everything is an object. Things must serve a purpose, must have a utility.

In Bioethics discussions, the defense of the most vulnerable is that they are not ‘things’. On the other hand, as ‘non-things’, individuals and groups need to be, as a part of society, committed to the social contract's general values; ultimately, they must be as ‘useful’ as ‘things’.

The elder with a whole life behind may have a limited possibility of action in old age. Therefore their dependency on care and the good deeds of those around them makes them more vulnerable. People who do not have the primary conditions of shelter, nutrition, and regular income are less able to commit to environmental, vegan, and nonviolent actions.

Once the fundamental rights are being respected, one should ask what he/she and/or his/her community is contributing to the environment, better social relations with equal and reciprocal respect of culture and identities. That is, how social bodies integrate a broad community with diverse cultural groups. how do they negotiate with ethical constraints which conflict with particular traditions? For instance, would a group rethink parts of their culture to respect women's lives, stop animal cruelty practices, and show the compromise with the protection of citizens and foreigners', their physical integrity, the right for education, to avoid more environmental damages and social prejudice?

In a globalized society, to redesign ethics combining the most relevant and non-conflicting topics by comparing distinct cultures will certainly be necessary to give up several traditions. What we may ask now is what the importance of traditions in people's everyday life is? If on one side, there are radical religious traditions (or the misinterpretation of it) destroying pieces of archeology and history, the idea of a sacred river as in India is not stopping people, factories, and governments from polluting what is for them a holy entity. When the strong connection with nature makes people overcome any power as the aboriginal community who led the first environmental revolution (ROTHEROE, 2001) it shows a commitment to their integrity as the bonds with nature is what gives sense to life. The pure moral aspect of what is right and wrong is evident in that situation. It is pure because the distance colonizers created with the aboriginal population by not treating them as equal

humans ended up being of good help. In this case, regarding a small community, there was no possibility of negotiation or attempts to corrupt some members by presenting them choices conflicting personal interests with collective interests. Apart from what is clearly right or wrong, human beings can re-adequate traditions to be able to share and fight for values of a wider -global- community.

Killing animals is part of many rituals and traditions, while food consuming habits have developed extensive exploitation of animals -humans, not humans. Diets are hard to change because of affective memory. However, the world has changed a lot, showing a need to invest efforts to modify the ways of living, from personal to structural and institutional levels.

Religions are also part of a culture, and they carry ancient dogmas not updated to modern times. Those dogmas do not consider the difficulties of being single mothers with no resources or the complexities of an overpopulated world. The most influential religions in the world do not care about women's well-being; consequently, the children's well-being and the fight against acts of violence as rape and pedophilia.

Religious dogmas will not change. People can change and make their religions change with them. By exercising individual virtues, people can care more about others, even if they are different from themselves. A brave new world needs brave new people capable to change a tradition. That is the only way to be empowered with the changes. Rather than adapting to systems, people can make the system adapt to them by changing attitudes. Claim an idyllic lost past is a trap that leads people to fight otherness to defend their own idiosyncrasies, often disguised as 'culture' and 'tradition'.

There is a choice to improve and protect the environment, including humans and non-humans, or not taking action, leaving the disaster to happen. The call for choices is present in our everyday lives. Most of the problems happening in the 21st Century are impacting everyone in the world, even if on different scales. If the community is economically global, it also should be global on social, environmental, and cultural solutions. Cooperation is a result of acknowledging codependence. Coherence is to seek unity within a community.

Western culture is an open project filled with tensions since democracy is supposed to be for all, but that was not an entire truth among the Greeks and, about a thousand years later, with the Enlightenment. However, the best side of this Western culture with concepts such as democracy is the open space to discuss things and potentially change them. That may appear an advantage for systems with social inequality and totalitarian regimes. For instance, if people have to work many hours with no space to practice a diversity of activities and do not have the

right to idleness, they are enslaved, even if they get paid for their work. The signs of unequal systems are when low income represents fewer rights.

Those are some of the consequences of how ideas impact lives and bodies. While it is tempting to situate the *Bioethics of Nonpresence* in the metaphysical realm, there are social, political, environmental, educational impacts, health, science, art and culture. Consequences are embodied in technoscientific projects and actions. Although they are invisible and unpredictable, they represent ideas, politics, and epistemology.

Democracy is supposed to be a fair game where one may win or lose.

Nevertheless, this face of Western culture is not an advantage for a culture where there is no such thing as taking advantage of vulnerabilities. In Brazilian indigenous and other similar cultures, concepts of 'wealth', 'make money', 'work hard', and 'sovereign' does not make sense. People do not need to fight to have a better life if nature welcomes all. In those communities, there is no need to have more (e.g., food, shelter, tools) than others if people share most things, even sexual partners. There is no need for a sovereign if the society controls the decisions and chooses the leaders chosen every day by their virtues and capacities. It is painful for those communities to deal with such a different life that becomes forcefully hegemonic worldwide.

Since the world is a global community, financially and culturally integrated into many aspects, considering interconnectivity, we suppose some general ethics apply to all territories. 'The Universal Declaration of Human Rights' (UNITED NATIONS GENERAL ASSEMBLY, 1948), is not an imposition, but an indication of the best mutual respect between humans and the environment.

Those are general questions, not distant from the discussion proposed on the B*ioethics of Nonpresence*. The debate of how the body affects and is affected by circumstances, including the environment, social rules, legislation, and intercultural relations has 'invisible' aspects capable of changing the course of facts. Those aspects are not any metaphysical part of consciousness, either a (metaphysical) evidence that some Gods are more powerful than others or some groups are chosen to have a better life. There are relations of power, coercion, and abuse dissolved as a *nonpresence* everywhere.

The questions about inconsistencies, taboos, and dogmas in science are mentioned as we need science in Bioethics, and we need Bioethics in science. That is if an industrial mode of living hijacks society and all its components are part of a big factory, the same idea is replicated and reinforced even if apparently spread with different types of discourses: technological industry, media industry, clothes industry, academic industry, religious industry,

cultural industry. They all have the “best sells,” the “hits,” the profitable investments, the “useful” and the “useless”.

We live in a moment of intracultural and intercultural conflicts. They have technologies as a facilitator and are also encouraged by political marketing strategies. If cultural traditions are non-negotiable *a priori*, the scenario of communication is a factory of aversions.

It is understandable that if the Western tendency has been an imposition by force or manipulation, there are critics and resistance to it by defenders of equal rights and diversity. However, as many westerns are not satisfied with certain aspects of their culture and embrace some features of Eastern culture, negotiation and dialogue should not be obstructed in any case.

In fact, without wholeheartedly agreeing, other cultures are adopting Western cultural traditions. So if the objective is to have a peaceful world with less concentration of wealth and power, we would better discuss the tendency of monoculture expressed in the colonization of the world by the ‘modes of being’ embedded in the machines.

For instance, the body is restrained by (any) culture. However, if the culture has a peaceful relation with the environment and towards otherness, the restraints represent ‘rites of passage’. That is, the first hunt, menstruation, and sexual intercourse are the ‘rites of passage’ that involve pleasure, pain, and spirituality.

Because not all cultures share the same epistemology, the body under Western influence faces the mind-body distinctions, which leads to a conflictive understanding of materiality versus a non-corporeality.

Since the contradictions of western systems of knowledge are involved, we may look for possible ways to reshape the ‘form’, reassemble, and reframe it for ethical purposes. That is an account taking community needs as a priority.

Reshape the form means to reshape the ideas that are the molds of manufacturing social relationships.

If we consider a global community, a plan to promote intersubjective dialogues between all modes of culture is necessary.

Besides, bioethical reflections intend to dig deeply into the unsolved problems we have until now. The issues that keep looping, making humanity loose itself, are mostly related to the war, either head-to-head competition or other kinds of subtle tense hostility, expressed in the ‘microphysics of power’.

The troubles dealt with right now are not unjustified but a consequence of construction based on influencing acts and training cognitive systems, through many devices, from

concepts to formulas, projects, software, gadgets, and ultimately, ubiquitous computing systems.

As our constructed knowledge influences back to more than two thousand years ago, another exciting aspect of ‘potentiality’ and ‘act’ distinctions are relating potentiality to ‘virtuality’. Articulating ‘virtual’ and ‘actual’ suggests a dialectic movement, going one step further from the oppositions and conflicts to a process of ‘being with’ (LEVY, 1998).

Giving due attention to the quote, "I think. Therefore I am", it is possible to see the influence of Aristotle's concept about ‘act’ and ‘potency’ drew on the *Metaphysics*. That is, ‘to think’ is a step to create reality by your perceptions.

The case of consciousness and its connections with virtuality includes the notion of potency, while the possible Bioethics problems are related to the *nonpresence* concept. It raises the question of when the potentiality of harm is harmful. That is, how harmful is it to think about causing harm? How this thought is embedded in actions, projects, and politics?

Regarding the body and its connection with the mind, virtuality often suppresses the body's identity, needs, and expression. As the body learns by observing movements, there is a potentiality that this body does not need to be suppressed. That is a matter of how technologies are (or can be) designed. Although an increasing discussion, interest, and research along the last years, Design and Computer Programming alone have not covered all ethics discussions about the values embedded in all sorts of products and projects involving technologies and HCI.

When a bioethical approach aligns with those discussions, there is an amplification of those needs, understanding, and possibly guide new scientific researches.

Leaving the complex mind systems aside to the soul's spiritual realm was quite convenient, especially in Descartes' time. The premise that the body is a combination of pieces functioning as machines, with different functionalities for each part, is also a product of imagination, a free construction of the mind.

The problem with this notion is to assume that the conscious and unconscious do not participate in the body's biological processes when considering essential functions like digestion, body posture, and limb movement.

It is understandable the mystery of consciousness, and all mental processes were indescribable as now in the 17th Century. In the 21st Century, a doubt whether it is possible to understand consciousness by scientific parameters remains.

Neuroscientist Antonio Damasio has his reasons to go against the concept that detaches the mind from the body. He testifies on ‘Descartes Error’ (DAMASIO, 2006) that, in the 90s' it

was still challenging to reunify mind and body, reason and emotion, for a better understanding of the brain processes. We are talking about the end of the 20th Century. He argues that the marginalization of emotions does not serve science well. The idea that feelings are wrong and should be blocked cause more problems if we understand that emotions participate in cognition. The concept of reasoning an emotion-resistant process may create divisions responsible for pathologies as bipolarity. It encourages the lack of empathy for emotions and the body itself. This is not a totally different subject as discussing the social, political, and environmental challenges of our age if we understand that the epistemology which sustains our life and consciousness is fractionated and stimulates alienation from our bodies and needs. The lack of care for all that surrounds us is just a reflection of that.

Physicians may experience a lack of empathy when examining the body parts as pieces of machines. (DAMÁSIO, 2003) While showing emotions is often seeing as feminine, not showing emotions is related to masculine, reliable, stiff, capable of leading, and accomplishing difficult tasks. In the end, this idea of a man, humankind, in this case, may encourage the rise and progress of psychopaths and sociopaths because suppressing emotions has consequences.

In general terms, 'being rational' is often performative, represents a theatre of not showing your emotions, and that is equal to Turing's argument that AI is a simulacrum of human intelligence as it responds to a sequence of socially programmed 'right' answers, just like humans do (TURING, 1950).

The platonic reason is the concept, while modern rationality is the building sustaining the knowledge spread in different educational-cognitive training devices. As computers, individuals are informed by letters, words, meanings, and contexts.

3.6 EMBODIED AI, EMBEDDED ROBOT

> A merge of nature and culture is increasingly operating. From time to time, humans are becoming things, more and more. There’s no way back.
> God is a machine. Society is a machine. Health is a machine. Education is a machine. Art is a machine. (NAS, 2021b, online).

We all learn how to behave when talking to people in various circumstances like dinner, visiting friends, family, work, or school. What is learned by patterns, AI can learn too. The same with body patterns: a robot can learn how to be welcoming, fun, helpful, attentive, and even empathetic.

What is an empathetic body? It is smiley, showing purity even if it looks serious, anxious, tired, or sad. It is mainly a pair of big eyes, observing other gestures when talking and learning from them whether they are simple enough. They look attentive while the other is talking, and it subtly moves the head, signaling "yes" to confirm the listening.

Among humans, empathy is not always understanding what the other is saying or how the other is feeling, but giving signs of "Yes, I hear you."

Going to an opera, many people may find it easy to be on the same ‘wavelength’ as the singers because of the voices and expressions. Even if one is not an opera fan, one still can feel amused and ready to watch every gesture of the lyrics sung with attention.

The attention creates connections like empathy, making it possible to experience the dramatic aspects written by the composers, similarly to the theatre.

In *Poetics*, Aristotle argues that the pleasure offered by the arts also has a moral and didactic force, because "our earliest learning is by imitation" (ARISTOTLE, 1999, p.6). Over a thousand years later, his claims are similar to the mirror neurons attribute (WIEDERMANN, 2012). Mirror neurons relate our watching others performing their tasks with our brain activity. More than learning from observation, we sense them equally by moving the same brain parts as the person executing the action.

The connection between Aristotle's statement at the *Poetics* to the mirror neurons attribute has a lot to be explored in defense of arts and its relevance for science and education. Furthermore, thinking science and education are not separate fields, like cognition and culture, it is clear that aesthetics has a role in moral values.

Watching virtuosi artists on the stage is good training for the audience's brain. Going to ballet to see the Swan Lake works as if each individual is doing steps performed, even if they do not have the body and the training to do it ‘technically correct’ as the professional dancers.

As Aristotle states, watching performances means to live experiences despite not doing them. It stimulates the imagination and unconscious memory. The 21st Century started to give (important) space to swearing politicians capable of practicing public abuses without being blamed. Once they got into a power position they show no regret to mistreat journalists and any other person who asks questions about their service to the public, possible cases of corruption, and other sensitive issues. Is the ascent of low marketing strategies and if law and society do not take those politicians down, as representative of people they represent a ‘model of success’ that encourages others to act the same way. Politics, marketing, and all art fields

require better regulation. Freedom of speech and diversity in culture is not the same as encourage abuse and prejudice.

Notwithstanding, even if Aristotle was suggesting it c. 335 BC, *Poetics* have been banned and forbidden as a means of knowledge, research, individual and social human growth. Aesthetics diminished and separated from ethics is reflected in a bipolar society where absurd things - instead of being an exception - are part of the ordinary life.

Aesthetics is sensuality and creates compelling connections between mind and body as this sensuality spread into contemporary performance art and activism. The body is the canvas, combined with space and time.

The question is that domesticated bodies are more frequently mirrored in expressions of rage or depression than in joy and ludic activities presented by the performance arts. The cultural industry also incentivize in larger numbers, stereotyped models that do not help social imagination and education through the symbolic. The market of "social media influencers" is an example of people seeking to do the most stupid, silly, and unpredictable things to have more visualizations and get paid from that. A free market based on stupidity and disrespect is not a novelty of social media. It is a pandemic in most areas of industry.

Nevertheless, the passionate body expressed by political activism practices has motivated all sorts of creative acts. From painting bodies to creating posters, playing songs, or doing stunts with unique costumes: artistic manifestations in public locations form an outdoor party. That is the human-site, where the expected order of things overflows, and what is harder to decode, predict, and translate to machines.

On that basis, if Descartes's premises work well on AI and robotics projects, Spinoza may help us understand how possible it is for a human being to be affected by 'things'.

3.7 EPISTEMOLOGY II: SPINOZA INPUTS

> The human body is composed of very many individuals of a diverse nature, each of which is highly composite […]. The human body is capable of perceiving very many things, and the more so, the more its body can be disposed in several ways. (SPINOZA, 2000, p. 130).

Baruch Spinoza describes the body as a compound of microorganisms and cells. It is materialistic as a result of actual observation. Spinoza became an optical lens grinder and got involved in designing lenses for microscopes and telescopes. By observing the human body on

a microscale, he sees it inserted in nature as part of a whole and not very different from other elements.

Thus, he does not make a distinction between mind and body, God, and nature.

Spinozist monism is a statement to include everything that exists. The body and all living organisms affect and are affected by all elements in the environment.

Spinoza describes bodies from a physical perspective, where each one's reflects in one another. That is a holistic integration challenging the ethical perspective beyond ‘virtues’. It challenges because ‘virtue ethics’ is moved by the strength of character; therefore, it works on the individual level. A ‘holistic integration’ is ideally an extended consciousness, and the best scenario to the ethics manifestation is to have it happening within the environment: by the exchange of affections, as a result of a mirrored empathy.

However, individual virtues either strengthen or weaken intersubjective dialogues. As they manifest on personal character, they are susceptible to the corruptions of prejudice. Enclosed in the first-person perspective, the virtues are diluted in the complex shared cultural net. Consonance or dissonance among things and beings involved in a union or dispute, create agglomerations or separations as ‘shields’ or ‘fields’ of affinity. In consonance, disputes are solved, and that is the desirable ethical proposition of a given society. In dissonance, virtues as courage may create disruptions using violence and that is precisely the problem when values are corrupted with prejudice. Yet, ideas of prejudice are embedded in traditions. Commonly related to gender in monotheist religions, and ethnicity in old ‘mind set’ of state-nations.

Some societies may not have a name for such thing as 'ethics,' but have rules, beliefs, and comprehension built by the imaginary, which seeks harmony, well being, and respect.

Dissonances often represent conflicts: in machines, it can create noise and be advice for malfunction; in organisms, it can grow to an illness; and in music, it is harmless and trains people to perceive beauty differently.

The *nonpresence*, compared to the Spinozist reflections, evaluates how representations, axioms, postulations, definitions, classifications, propositions, speculations would define attractions bonded by affinities of emotions.

Spinoza states that bodies are affected by other bodies in the same way their nature drives them to affect. For instance, if the nature of the COVID-19 virus is to kill cells, it presents a conflict for the living being affected by it.

Thereby, bodies potentially affect each other in different ways, and its impacts depend on each body's characteristics. In medicine, the lack of knowledge about how some bodies can

be more or less affected by certain microorganisms sometimes results in a flawed strategy of killing all of them, even if some of those microorganisms eventually are essential to the body's functioning. Each being has a population of specific microorganisms. It is impossible to know all of them because they mutate and new ones appear with distinct characteristics. Target, attack, and provide defense, comes from the idea of dispute and war. Until now that fits well with the societal functioning and the perception about nature. Healthcare associated with gardening is not profitable.

One of the questions raised in this essay is about how to rethink strategies and obtain the conceived results. When specific strategies are the only possible target, many others are potentially ready to flourish, but they will never happen if a vicious repetition does not leave room for other views. It is like having more options in one's wardrobe, but the pieces picked are always the same ones. Also, the obsession with robots, artificial intelligence, or looking for life on Mars represent a set of ideas that became dominant over others and require a large number of resources to develop, while, on the other hand, alternative projects designed to solve social and environmental problems that impact most of the people on earth, are frequently put aside with a lack of resources for their development.

As in health, technological projects keep self-replicating with the same (and sometimes out-to-date) ideas expressed in designs, devices, and plans. The question is how long it will take for bioethical perspectives and ethical debate to go through the complexity of *nonpresence* to discuss the ideas hidden in objects, projects, and products, ultimately, how all kinds of relationships are influenced by the cultural industry, including marketing and communication. How influential is the scientific discourse, and if there are suppressed voices, how could a debate possibly reintegrate them? There are many unsolved challenges in science, and it seems there is never enough time to dive into the deviant questions before rushing to conclusions. Everything must be objective; clearly reduced to have a formal consideration. Yet, we live phenomena that are changing the meaning of life while we have not enough time to figure it out.

The B*ioethics of Nonpresence* perspective argues that technological projects represent discourses; they are ways to understand, shape, and reshape the world. Because of that, technological innovations, design of products, violent games, contents circulating in all types of media, or the transhumanist “superhuman” plans have bioethical attention where we should discuss not only the speculations of future but how this technological-mediated present is shaping our future, providing quality of life or a threat to wellbeing.

Moreover, if those changes transform the meaning of life, the challenges must be faced from the roots of epistemology. There's nothing to be afraid of.

Creative and processual knowledge embedded in culture require projects that do not need to be useful, as long as they create aesthetical breakthroughs. Indirectly, they collaborate with cognitive developments and education. For instance, industrial robots are a breakthrough because they change the means of production, but that does not represent a better quality of life, as it causes replacement of jobs and, consequently, lower salaries.

Ultimately the increase in productivity those robots can create are meaningless if unemployment generates fewer customers and a change in consuming habits. So, robots are cutting edge technology working for the future in a past mindset. At the same time, if society decides to adapt to new circumstances by consuming less and living with fewer resources, the only possible scenario where robots could give people more time for many different activities, including idleness, would be in a utopic-industrial society of shared wealth. However, that seems incompatible with the industry model and with the financial system itself.

From a *nonpresence* perspective, the way of life proposed by the industry itself is collapsing, as we face questions of global sustainability and the need to respect to all lives and the environment.

When we question how much investment, resources, research, development, and training a robotic arm for surgery require, and how many hospitals and countries can invest in those equipment types, and who can pay for it, we wonder if the 'business plan' is truly realistic. Countries like Brazil may be able to pay for it, to the cost of other societal needs. Besides, with a high probability of corruption of using the public budget to buy expensive equipment for private hospitals designed to serve upper-class patients. This is recurrent in countries like Brazil and although the industry may say that they only produce and sell the equipment and have nothing to do with politics, the way the whole system operates reinforces exclusion because the concept of the products is not taking the majority into account.

Another side of the coin is to know who will trust robots to proceed a surgery, take care of an elder or a kid, having -or not - conditions to pay for those services. Such a scenario is part of an odd narrative, yet creative imagination of a highly technological future.

In many indigenous communities, the kids are from the tribe and therefore taken care of by everyone. This to briefly mention that there are other possibilities to allow children and elder to be in touch with their own kind and enjoy the contact. It also makes difference to have the education coming from the group and not only from separated members as mother, father, teacher, and so on.

Therefore, if the motivation is a utopia, there are other narratives to consider.

Spinoza's view was an integrated one as the world of possibilities cannot be split into parts. The comprehension of the body cannot be accomplished by disintegrating it. The emotions play an important role in the orchestra of living.

An integrated vision for technological development in science is missing. Should we approve projects which require fossil fuels, metals from enormous environmental damage as mining, or should science be challenged to find different resources to achieve its goals?

That is the path to leave the anthropocentric view behind. Thereby, technology – and even a virus – does not need to be the villain. The way we deal with it, how we project and find solutions is the key. The ideas behind everything are the key to understand the concepts and their goals.

The idea of the human at the centre suppose everything can be a threat to its life. Instead of understanding the body as a perfect match with nature, it is a concept of a life that is missing a reason to feel part of the whole. A life that seeks a reason for its existence.

It shows a type of idea that does not see the body as composed of many individuals but believes that a body that does not have such integrity in its constitution.

The fear and denial of the environment, of everything ‘outside’ the body, enlarge the nonpresence. For instance, when the fulfillment came from art, poetry, songs, and story-telling, Wester thought often overestimate the human qualities in creating such things and underestimate the power of nature embedded in it. The inspiration and the interrelations that make those works of art possible.

As reason made it a case to be the “most important” and above anything else, everything is turned into weapons. That is the case of creativity and emotions. In this ‘mindset’ they occupy a subordinate position to serve specific purposes. Tools or weapons, capable of separating people from one another, as the concept seeks separation and not integration.

Creativity is also in many organisms. If a body is a condominium of diverse habitats, from DNA shareholders to alien inhabitants who come and go, and fixed 'tenants' by occupation rights, what regulates the full complex community within that body are the ideas, that is, the *nonpresence*. It guides how a body will be observed, treated, nourished, blocked or moved. Bioethical discussions, philosophical reflections, and considerations are the movement to activate ideas observed on each of the individuals involved in the 'macro' or 'micro' system.

Turn over discussions as the difficulty medicine has in dealing with challenges not fitting into its rationality is an epistemological problem. In such modern thinking, Spinoza did not play a prominent role. The separation of mind and body was and remains ubiquitous. It leaves ethics in an ideal realm where body sensations are an obstacle.

The virtuality of technologies, Artificial Intelligence simulations, and robots are results of projections for the possible ‘pure reason’ the disembodied mind can reach.

As an independent organ or an alien, AI is not seen as part of the whole, as it is supposed to be a complement of the human detached from nature. Technology is a way to overcome the challenges of nature, to overcome feeling frightened and vulnerable. Besides, engineers often see technology as a war machine (NASCIMENTO, 2017).

Human beings deviate from the responsibilities with the environment, denying the active part they have on the consequences as their perceptions come from an old pattern of seeing themselves as a victim of nature’s inconstancies.

Free of danger on Earth, this human dreams to reach many other paths in the Universe. Stars and galaxies, places of the dream. Nevertheless, as in old times, nature's inconstancies can present challenges. The development of technologies to solve problems has helped humanity to make living easier. Yet, the "narcissistic projection of the improved man" (TEIXEIRA, 2016) driven by the need to control, dominate and surpass nature, often deviates the sense of responsibility with wholeness.

For the B*ioethics of Nonpresence* inquiry, the question is what technological projects represent. For technology and design, such projects aim to improve life, offer equal well-being for the community habitants, and prepare for the challenges nature presents, with protective and predictive measures. Ideally, everybody is willing to believe and support such goals. However, if reality presents itself differently most of the time, there are politics-driven technologies: to advance and surpass 'bad politics,' we need a thorough look into the patterns, recognize where they are rooted, and consider changing them.

3.8 INSIGHTS

1) Technologies and their design reflect our systems of knowledge, i.e., our modes to see and imagine the world, each other, and the environment.

As the Earth resources are limited, unless high-tech industries admit to losing their empire, they should invest in waste recycling. At the same time, scientific research is responsible for finding more sustainable alternatives to develop emerging technologies.

Indeed, all industries ought to reevaluate and even change the focus. If people start to produce their basics in their neighborhood gardens and, get what they cannot produce from small farms nearby, they would not require goods on a large scale. That can be an alternative to nourish the environment, improve the air quality, and respect indigenous populations.

Art is essential to present the beauty of those new possible scenarios and create affective memory of new experiences. Some incredible technological views and developments are possible if we have the knowledge shared within the community.

Aesthetic experiences generate new cognitive perceptions and memory. If we mean to change, aesthetics need a place inside the science field to allow expansive visions of the future, to present what is possible and should be developed, that is, to open the gates of imagination. Moreover, the seek for truth is distinct from finding the truth. Consciousness and imagination play a role in science, too, with perceptions and intuitions based on previous knowledge and experiences. Therefore, it is tme to acknowledge the character of the invention in reason to unify it with emotions for better reasoning in new scientific developments.

2) The body as a machine is a hegemonic concept derived from Cartesian dualism, which guides science to the present day.

The Spinozist-monistic concept aligns with Bioethics concerns because it sees the body as a compound of individuals that includes all kinds of elements about its surroundings.

Considering computer systems and all contemporary technologies which transverse the bodies, the Spinozist perception of the body as a mass of microelements and microorganisms supports the idea of B*ioethics of Nonpresence* where the *nonpresence* is an abstraction for all that is present and cannot be immediately perceived.

The invisible world can be present physically, and so are the affections through all types of chemistry (CONSTANTINI, 2014). Therefore, the *Bioethics of Nonpresence* alerts about the need for health care from an integrated body-mind-relationships-space perspective.

The body is the visible and the invisible. It is present in potentiality even if not always present in the act. Robots with an AI brain represent a multiplicity of presences within ideas, algorithms, materials, manual and intellectual labor, symbolism in designs, looks, and ideals. They might result in impressive or oppressive.

The thoughts we internalize, how we perceive other bodies, and the environment are the targets of the B*ioethics of Nonpresence.* It raises questions on whether potency attributes, projections, and axioms are integrative, diplomatic, collaborative, or mere power representations. Moreover, if new technologies cause such disturbance, Bioethics' role is to ponder on the ethical aspects of this new reality with its impacts on health, well-being, and

scientific research. If there is a pattern on the problems identified and if this nature can be transformed. Nevertheless, suppose the patterns reinforce authoritarian hierarchies. In that case, the findings show that political aspects impact health, well being, and the ways of being in the world healthily: autonomously and respected.

How could thoughts be transformed? We can change our perspectives when we observe different cultures and realities and keep open to distinct views presented in arts and communication. Anthropological studies of the 20th Century describe indigenous tribes in South America with a different social organization structure. In different tribes, the chiefs work for the community, giving away their goods and doing the best as a powerful orator and protector. For this activity, where the leader needs to reach specific standards, in some tribes, there is a daily competition to be in this position. That gives the opportunity for all the ones adequated to be chiefs contribute to the group, and also, they are not there enough time to get attached. The society is in control through a formal regulation inherent in the culture (CLASTRES, 1979).

The *Bioethics of Nonpresence* is a concept in development by the author, inspired from the studies on consciousness, robotics, and AI. If society wants to know how robots and AI could help us to understand and reshape the world, we are then facing the world of invisible bodies where communication flows: electromagnetic waves, energy, frequency, and inaudible sounds. Computer systems communicating with each other are absolutely present and not-present at the same time.

Invisible bodies, in a political sense, are bodies neglected from the equanimity of rights. In a physical sense, invisible bodies can be very influential. We know them as Wi-Fi, 4G, 5G, or viruses. Indeed computer viruses have the potential to be very influential, as biological ones like the COVID-19.

We could also speculate that people made politically invisible, the neglected bodies of the system, suffer the consequences of this forced invisibility in the microphysics sphere. But what we know for sure is that most people today have their representation in data, which is connected to many classifications. From humans to fewer humans. From fewer humans to domestic non-human animals. From pets to pack animals. From pack animals to slaughter animals. All beings are classified as 'more' or 'less' beings than other beings.

From 'less humans' to wild animals, the list of beings continues from wild animals to convenient things to own (as suitable to show off). From things to show off to merely useful things.

‘Bios’ and ‘zoe’ are never equal in a life treated as a commodity. Inequality and marketing relations are mediating the quality of life. As the concepts from the Greeks (AGAMBEN, 1998), bios and zoe makes a distinction of the experience in living. Philosopher Giorgio Agamben reminds that in classical Greece, there is not such a thing as 'sacred life' - a concept we consider ubiquitous in many cultures as also in Western Christian tradition. Instead, life is separated into two concepts, ‘zoe’ and ‘bios’. ‘Zoe’ is a general life -the bare life -while ‘bios’ is a qualified life -a life worth living, which is the life appropriated for men. In that case, men are not human in general, but some men are. Therefore, ‘bios’ is for those who have a political life and a place on it. On the other hand, ‘zoe’ is the bare life, which is the general life of all beings, vulnerable from the political aspect, vulnerable in terms of having access to rights.

It is precisely the political aspect that mediates the quality of relations and experiences. Politics as a compost of ideas multiply itself in several elements of *nonpresence* affecting life. Therefore, it would be easy to separate the major points of those politics in concepts such as 'ideology.' Indeed, ideology is highly relevant. Still, as it spreads into the *nonpresence* of things and attaches to our consciousness, in most cases, there's a hybridization of ideologic influences, which makes the concept fails frequently.

While the philosophy of technology points that "technology is both autonomous, evolving, and deterministic in its effects.," there is a fear that "society's tools had turned against their creators." (HALE, 2007). Nevertheless, the ‘social constructivist’ approach is for technologies a very optimistic perspective to work on that hybridization. The expectation that it is possible to make ideas created originally on the extreme concentration of power, to work for the good of society is a challenge and a dream based on the trust in regeneration. That sort of trust, instead of being a piece of delusion, is totally feasible.

Brazilian photographer Sebastiao Salgado shows how he, with his partner and a team, could regenerate a large space of land that was dry, from the soil to the rivers (SALGADO; WENDERS, 2014) The alarming problem in a global society now is that restoring, taking care, and investing in what does not show a profitable action for the short or medium-term is hardly considered. Therefore, people who could be working for the good of all, redirect their efforts to the ‘survival mode’ of doing whatever the market dictates, even in research and development.

Apart from all the evident moral problems of those facts, public funds that could be invested on the most interest of societal values -and not marketing values- often go to research types that interest the industries most. It happens when a culture, even in science and

academic research, has a type of 'mainstream,' making it difficult to work with the hybrid complexity of the present time we face in the world now.

In this sense, B*ioethics of Nonpresence* raises questions if we want to build a monoculture or be brave to face the multi-cultural challenges. In any case, if there is a monoculture, let's question which one is, where it comes from, what is its characteristics, and why it is supplanting other cultures.

What would be a bioethical project of a social robot? It certainly shall not harm, neither will be a solution for anything. Instead, its better aim is to be a 'poetic tool' to understand better what this hegemonic culture that breeds robots has been pursuing: getting to learn more about the world and themselves.

It is still possible to develop robots as a companion capable of showing respect, empathy, or care. Many of us could still question what to expect of human attributes in robots. Nevertheless, expecting the best human attributes in humans leads to dystopia and delusions. Therefore, robots could be designed to teach humans the best-desired values, which have always been difficult to take into practice. Thus, the best -and only- possibility of 'pure reason' can flourish in computer systems, through AI, with or without the body of a robot. To accomplish that kind of computer programming within an AI, a revolution is required to change the way of collecting and analyzing data. Moreover, it is an interdisciplinary work that requires open views and reviews of rooted beliefs.

Technological revolutions, globalization, and industry's great development have been changing the world faster than our abilities to promote the necessary changes to avoid disasters. Therefore, the cumulative non-analyzed *nonpresence* creates tensions and disruptions. At this point, a radical change in society would be demanded, especially for the human way of life. It is time to take important decisions, and Bioethics have been providing elements to improve discussions in difficult decisions. Indeed, every decision impacts not only the individual life but the others, too. That is the *nonpresence* element embedded in the decisions.

For example, deciding to be a vegan weakens a chain supply in which non-human animals are forced to keep their energy condensed by movement limitation and biotechnological interventions. Even if some people find the health benefits of avoiding animal products because of the nutrition implications, the *nonpresence* of such a decision is larger in terms of ethics and environmental impacts. Otherwise, a decision based only on nutrition is merely technical as it reduces all beings to an ideal formula to fit in a plate.

Deciding to buy food from small producers values the care and respect for this type of work and what you eat. Therefore, respect for your body is also a respect for the environment and all beings involved in nutrition. Instead of providing your body with industrial food, factored by biotechnology, you offer what is cared for and prepared with respect and attention by local farmers. Yet, if there's no place anymore for food produced on larger scales, it may be unreal to prioritize animal products in regular conditions -with no interventions- they produce less. Human bodies are smart enough to adequate and readapt. Moreover, one of many benefits of technological advancements is to have the availability of all sorts of supplements from clean sources.

Sharing the responsibility of taking care of a garden in a neighborhood can supply small communities' nutrition needs and create integration, solidarity, and a sense of co-responsibility.

Those actions do not exclude technology, as research and development has create new valuable knowledge to deal with green ceilings or 'dry toilet.' From solar panels to water reuse systems, all that is possible because of technological advancement. And that is a result of high and low tech together.

We can only wish that -in the near future- those practices and technologies will become as popular as smartphones are now, as they are ‘pure potentiality’ to be incredible solutions to houses, buildings, and shantytowns. There are already good examples supporting those promises, and if personal computers in the 80s' were a promise of popularity and not everyone could afford them, Ecodesign can also accomplish it. Today not everyone can invest time to cultivate and prepare their own food; therefore, only a few people can give away time to share neighborhood gardening experiences.

Let us hope the call to change habits touches people, and everyone will find the time, on its own time. Finding space for the body -the social and individual body- will slowly manage to balance and understand the useless nutrients and give room to the essential. Nutrients for the body and soul are also how we use our time.

Back to the 'robotic dream,' let's speculate that, if we manage to make a robot that shows us affection by gestures and touching, it can also teach us things, showing care for our improvement as humans beings. If AI skips the language trap -of many 'bad' classifications -to learn the signs of human body affections, it could learn to be poetic and create disruptive perspectives. Like any vision, it has potential. Furthermore, it can become a fact.

4 THE BRAIN AND THE ROBOT: BIOETHICAL IMPLICATIONS IN TRANSHUMANISM

Abstract: This paper is a critical review of the book “O cérebro e o robô: inteligência artificial, biotecnologia e a nova ética” (“The brain and the robot: artificial intelligence, biotechnology and the new ethics”), by João de Fernandes Teixeira. Publisher: Editora Paulus, 2016.
Keywords: brain; artificial intelligence; bioethics.

Think about a new ethic for the rampant advancement of knowledge has been the task of many authors in the twentieth and twenty-first centuries, in a context in which there is a marked “impregnation” of contemporary culture by technology. The challenge is to propose references which are capable of expand the dialogue between the two spheres – ethic and technoscientific, perhaps as a bet for the construction of a fairer society.

In this scenario the book, “The brain and the robot: artificial intelligence, biotechnology and the new ethics” by João de Fernandes Teixeira, announces a motivation to deal with the theme in the first pages: “The optimistic and comforting certainty that the expansion of technology will always bring benefits to humanity no longer exists” (TEIXEIRA, 2016, p. 13). The book is organized in an Introduction, a Conclusion and six chapters – 'The Window of Descartes',' Technology and Abyss', 'The Phantom of Singularity', 'The Enigma of Meaning', 'Human, Too Transhuman' and 'Brains in the test tube’ –, which address, in different tones, the interrelationships between ethics, biotechnology, neurosciences and artificial intelligence (AI). Thus, to think about technology as a creative becoming, a reflection of the human needs to overcome obstacles, is be thought, as Fernandes says, that “a life story can be reconstructed in several ways; and often reinventing it is a good strategy against anguish” (p. 125).

In the first chapter, *Descartes's window*, Fernandes articulates aspects between technological revolutions and the need to think ethics in this context. Fears and expectations regarding technology and its development are approached from a reflection on Descartes' view, in which a parallel is drawn between the philosopher's statement – that a machine, an automaton, will never have a soul, or it will not be able to acquire consciousness – and the Turing Test, in which a machine, through AI, is expected to create the illusion that there is consciousness. With regard to the use AI to develop consciousness of a fact, there is a vacuum, since everything that is understood by subjectivity would have to be quantified and computed.

Neurosciences have contributed to this research field by studying the brain through different methods, such as EEG (electroencephalogram) and FMRI (functional magnetic resonance imaging). In this context, this field has been investigating the impact that emotional response has on the learning quality, through observation, in descriptions such as those related to mirror neurons[7]. Thus, the search for answers to improve language and decision-making in an AI has been pushing the studies on the brain, dismantling old notions of the mind with its functions organized in separate parts – a localizationist perspective – in favor of a system of emotions, which has important effects on health. In fact, the body is not exactly a machine in which each of its senses, functions, and qualities come with a necessary stored "chip" of knowledge for its functioning. The study of vision, for example, presented a few decades ago, that our ability to see is not only physiological qualities, but also we need the experience of seeing through the semantic values we give to what we see (KANDEL; SCHWARTZ; JESSEL, 1995). The image is formed through a set of perceptions where experience, observation, language, territory, and culture are determining.

In *Technology and Abyss*, Chapter 2, the author suggests there is a tendency of "neoludism" in those who see the need to eradicate technology. However, it is precisely the creative emergence of technology, the anguish transformed into objects, projects and solutions, that make it not an entity external to the human, but a reflection of its own condition[8]. They are creations which gain identity, own citizenship. They are not simply "things" that can be replaced. They are knowledge and experiences, and their formation process – gestation – condenses energies and information flows. This is a view advocated by the philosopher Gilbert Simondon, quoted by Fernandes, to discuss the relevance of "improvisation" in science to the expected results of an evolution. The improvisation, the improbable, the unknown elements upon which there is no control. Non-linear history is reflected in ancient artifacts that continue to be useful side by side with other high-tech artifacts. This is the case of the hammer, the watch and the bicycle. Fernandes also states in Heidegger's essay, "The Question of Technique", predicted an apocalyptic future for human technology (p. 54)[9]. According to the author, for Heidegger, mathematics is "not only a calculation but a way of interrogating nature, interpreting it" (p. 55). What Heidegger seeks to show is that the technique is not really

[7] For a brief understanding of "mirror neurons", please check Wiedermann, J. (2012). Mirror neurons, embodied cognitive agents and imitation learning. *Computing and Informatics*, *22*(6), 545–559.
[8] This concept is well developed by Verbeek, P.-P. (2015). "Cover story Beyond interaction: a short introduction to mediation theory." *Interactions 22.3*, 26–31.
[9] In fact, Heidegger, in the aforementioned essay, states that "Technique is not dangerous. There is no demonic technique; on the contrary, there is the mystery of its essence. The essence of technique, as a destiny of desolation, is the danger". Heidegger, M. (2007). The question of technics. *Scientiae Studia*, *5*(3), 375–398.

neutral. Thus, from Heidegger to the present, we can conclude that the world impregnated with binary mathematics is the "one that increasingly rehearses its self-destruction" (p. 56).

In Chapter 3, *The Phantom of Singularity*, he walks on slippery ground: "To what extent these new beings do not threaten the identity of the human species?" (p. 73). To understand such a questioning, should we not ask ourselves what identity we are talking about, how, and on what precepts does it define itself? When Fernandes presents a new era of "disenchantment of self" (p. 75), would not this be a new age of disenchantment about morality proposed by the Enlightenment? That is, a "checkmate" on the foundations of humanism, in a game of growing reason's crises, that was fomented by internal conflicts, not yet unresolved, in the sphere of scientific knowledge? In this chapter, the author gives voice to transhumanist conjectures. Transhumanism is a position that, in theory, intends to be an alternative to the premise the human condition is unalterable. However, transhumanism develops future projections that are, many of them, questionable. Such projections involve perspectives of superintelligent machines, human enhancement through biotechnology features and colonization of space, among a list that involves development in nanotechnology, interconnectivity, and AI.

In the late 1980's, the scenario of computational ubiquity was already projected. In the late 1990's, large companies such as HP and IBM sought to foresee a future of the "internet of things," in which it would be possible, for example, to provide relief for an elderly person who was living alone five minutes after fainting[10]. When such predictions were made, there was still a long way for network expansion and nanochips development. Today we have this technology, but if two decades ago such a possibility could seem spectacular and welcome, the facts demonstrate there are security issues that jeopardize the effectiveness of such applications, insofar as permitting vital data of a patient available on the web can leave him, or her, vulnerable to interference and invasion, other than those related to the assistance. Technology, therefore, reflects human relationships and their conflicts. Close security doors, architect layers of firewalls and other measures have not solved the problem of how to advance in idealized progress without considering the need for collaboration between all parts of this "body", this structure we call progress.

In Chapter 4, *The Enigma of Meaning*, the author discusses the problem of language in the development of an AI: "Language is a symbolic representation of what mental states represent, it is a representation of a representation, which, in no way resembles the binary code

[10] HP. (2000). Cool Town. YouTube. Retrieved from https://youtu.be/U2AkkuIVV-I

of 0's and 1's of digital computers" (p. 96). Thus, Fernandes rethinks the Turing Test from the "Imitation Game"[11], as, like the "Chinese Room" argument of John Searle, are experiments that demonstrate that the computational models are learned from patterns of information and repetitions by codes. The argument of the Chinese Room, in turn, constitutes a criticism of what is to be called AI, whereas for Searle an intelligence without consciousness is not possible. In this sense, Fernandes concludes: "The basis of intentionality and consciousness is life. Without a living brain, they would not be possible" (p. 97). Authors like Paula Sibilia will amplify this perception with the statement: "The brain exists in the body, and the body exists in the world" (SIBILIA, 2014). There are conclusions that are based on the foundation that the processes of mind, such as rationalization, for example, are totally dependent on corporeal sensory experience, as demonstrated by Damásio (DAMÁSIO, 2003). With the science of such facts, to believe that the human mind can be replicated in machines to be able to respond to unpredictable situations by making use of the symbolic and creative exercise of language, becomes a challenge with small chances of obtaining satisfactory results. Making life a computable phenomenon does not mean being able to reliably imitate it. The point at the end of this chapter is if humans sought to adapt more and more to a mechanical worldview, which is based on the assumptions of modern scientific rationality, the copy of the human is a copy of what would be the idealization of the human, as a machine.

Thus, if the model that generates binary computation advances in the artificial replication of vital processes, resulting in new discoveries that inspire transhumanist ambitions, in Chapter 5 – "Human, Too Transhuman" – we are talking about the development of minds without a biological brain, rather, without a body. One can even assign an "advantage" of these machines within human coexistence, as "ethical agents" capable of discerning better, that is, without the intervention of emotions and any possible malaise coming from them. The concept is presented by Fernandes quoting the philosopher Nick Bostrom, according to him, one of the greatest contemporary transhumanists who "supports that superintelligent machines can be ethical agents superior to human beings" (p. 112). If we consider what Antonio Damasio (DAMÁSIO, 2003) tries to show – those brain phenomena, itself, do not explain the mind, taking into consideration the physical and social environment – we are facing a conflict that is prior to technological developments, its benefits, dangers and ambitions (ESPERIDIÃO-ANTÔNIO *et al*., 2017). It is a mechanistic view we use as method,

[11]"The imitation game" is a model created by Alan Turing and became the title of the film by Morten Tyldum about the mathematician, released in 2015.

to explain existence, which isolates parts and functions, separates nature and culture, treats the body as an integrated organism, but independent of its environment.

Such a view – which for Damásio (DAMÁSIO, 2003) is a Cartesian view of the human condition, it's focused on the physiology and the pathology –, and that tends to break empathy, generating less respect for life. According to him, the mechanistic, Cartesian view, in which the vital processes are regarded as the mechanics of a clock, separates the thinking thing, the *res cogitans*, from a non-thinking body, the *res extensa*, which is nothing more than a geometric extension, subtended as a minor. This set, within the imagery of caring for the other, assists, according to him, a break of empathy and generates distance. This argument is the result of research that reveals the inability of certain attributes of the mind, or the body's, to have an independent constitution of the senses.

Within this understanding, the discussions proposed by Fernandes in this chapter are about to think devices, in the programming of AIs, that could protect humans from the possible damages the machines could cause them. The question is how to design ethics by thinking about our relations with these machines, and even, if emotions are simulated in machines, as well as making them similar to humans, that may include them in the sphere of moral responsibility. However, such questions tend to be empty, since there are previous problems of epistemological order. If the transhumanists quoted by Fernandes announce the "reformation in human nature" in a "World Declaration" (p. 120), they are possibly referring to a "human nature" that still needs to best suit a mode of being machine, a plan of Modern Science that was inconclusive. On that sense, can we interpret that genetic interventions and manipulations (p. 122), drugs to enhance cognition and memory (p. 125-126) are only new devices to make bodies docile, according to Foucault's concept of biopower?

In *Brains in the Test Tube*, Chapter 6, the author introduces the concept of "zombie robots", which would be humans that replace neurons with electronic chips, and that would tend to gradually reduce consciousness. Fernandes wonders if replacing elements in a person's brain would not make them stop being who they are. On the other hand, if people often have their behaviors adjusted and transformed by culture and social demands, what would be the difference in case of a targeted intervention? A differential presented would be the concept of qualia, which constitutes the human sensory experience which intervenes in its general biological constitution[12]. This is a process that has not yet been unveiled, just as the ethical

[12] Fernandes quotes, on page 142, the neuroscientist Ramachandram, who elucidates issues related to the *qualia* concept at: RAMACHANDRAN, V. S.; HIRSTEIN, W. Three laws of qualia: What neurology tells us about the biological functions of consciousness. **Journal of Consciousness Studies**, v. 4, n. 5-6, 429-457, 1997.

dimension about what technologies are indeed acceptable and desirable, constitute an open debate. When one tries to think about such phenomena using the (bio)ethics references, it is also considered that a new ethic should shift the Anthropos from the center to a wider scenario where the human is part of a whole, and where it is necessary to attribute moral value to other beings, and not only to humans.

The chapter *Conclusion* presents the questioning of whether technology is not only self-replicating and generating a loss of the meaning of life, without actually bringing benefits to human life. Would that also be an anthropocentric view? Our argument suggests that to elect technology – or virus or disease – as villains, keeps the human at the Centre, as an independent organ of the whole, frightened and vulnerable. What are its responsibilities? Is not the human, part of an integrated system of life that goes beyond the limits of its own body? Fernandes suggests that the "narcissistic projection of the improved man" is presented as a "solution to the dead-end we think we are in" (p. 150).

So, when speaking of AI as a "superior" intelligence, it seems that we still need to confront the origins of our beliefs and how much humanism it is necessary to preserve, and how much it is necessary to leave in the past, as a social and cultural phenomenon of a historical period. Thus, it is possible that if the transhumanist project has many misconceptions, they may be on the same foundations of those who attack them, with bioconservative arguments.

The philosopher Rose Braidotti presents a third way to think of a *posthumanism*, which would be a process of becoming, a constant search of a critical thinking, after the shock and recognition of the uncertainty that technological revolutions have been emphasizing (BRAIDOTTI, 2013). According to her, embedding the ethical precepts that are important to the community concerning to technology, may be the opportunity to rebuild a collective sense that is defined by affinities and can be accountable, based on a new social contract. However, what is still not decided among us, will not make computers decide better. If an autonomous vehicle needs to choose, in case of an inevitable accident, between killing ten people or one, it seems that it would be better if people were simply using bicycles to get around. A drone flying over a war territory will be able to know more accurately where there are more civilians, women, children, and the elderly, and thus not decide to launch a bomb. But this does not eliminate the obvious paradox of wanting to embed ethics in a drone scheduled to launch bombs.

As long as the transhumanist project continues to be governed by the desire to "control destiny, to restrict the enormous range of possibilities contained in the data game of the future,

by directing the options, especially in the sense of prolonging life and annulling finitude" (SIBILIA, 2014), we are still trapped in anthropocentrism and its mistakes. In that sense, it would not be exactly the sphere of technology which is capable of extinguishing humans, but their own desires, beliefs and inconsistencies.

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5 ARTIFICIAL INTELLIGENCE: A BIOETHICAL DISCUSSION OF INFORMATION SYSTEMS

Abstract

This text is a shortened version of the published chapter (NAS, 2021a) with the same title, in Portuguese. It offers a discussion that AI (Artificial Intelligence) imports human problems to systems, tending to reinforce prejudice. Because machine learning (ML) and Deep Learning need a large amount of data, the systems are fed with antiquated ideas embedded in old data, making AI a promise of a future that leads to the past. Therefore, the plans for AI developments open the debate about the type of society we would like AI to represent. If the flaws happen recurrently we may need to give attention to the science and the epistemology behind it. Moreover, understanding the motivations for designing "intelligent systems" leads us to understand systems of power and the politics embedded in algorithms that common sense sees as "neutral", that is "free of subjectivity". However, the methodology itself, systems of classification, and the way to organize knowledge often privilege specific views which are not free of bias. The questions of AI are also related to reinforcing a monoculture, a type of 'high-tech colonization' and the challenge to possibly change this tendency is now in the hands of scientific research.

Introduction

> *human and machine errors are not without consequence, and there are several cases that demonstrate how racism and sexism are part of the architecture and language of technology, an issue that needs attention and remediation.* (NOBLE, 2018, p. 9).

Artificial Intelligence (AI) invites us to think about what intelligence is and question the general ideas, practices, and beliefs embedded in it. Leading the AI race (CASTRO; MCLAUGHLIN; CHIVOT, 2019), US President signed Executive Order (UNITES STATES OF AMERICA, 2019) on the American AI Initiative (COGNITIVE WORLD; WALCH, 2020). It makes one wonder: is AI a dream, a tool, a product, a solution, or a weapon? It happens to be all of those options and even more, although some are not entirely available just yet.

For Bioethics concerns, the discussion about Big Data and how it automates inequality are part of these analyses. Considering intelligence needs education, which educational model

prevails on the development of an AI? Behaviorism and social constructivism are distinct models borrowed from theory and application in education to the training and comprehension of machine learning.

A bioethical aspect can evaluate both and suggest which one would fit the best.

The discussion must consider if it is acceptable to have just one type of idea shaping lives when different cultures have different views and solutions on diverse aspects. This study also presents examples given by ordinary Google search to understand how cultural conflicts show details hidden inside the system and igniters the debate.

For instance, how ideas become pervasive on those models, and how people in different locations perceive them from various identities and cultures? Moreover, what are the impacts of erasing other cultural perceptions, and what would be the bioethical argument to regulate AI?

The answer relies on how flexible an AI can be to adjust its system to different ideas and have a transparent architecture that collects the data from the people without jeopardizing their (individual and collective) privacy. That is, to protect individuals and the communities when is a case of public health. If the scientific community aims to find solutions for ethical AI, the answer is in reshaping knowledge. It is time to rethink the foundations of the algorithms.

All the world is talking about AI. On September 27, 2020, Google search present about four billion results on the topic[13].

Therefore, it is better to get used to the fact that AI issues will be the umbrella to discuss many different issues, from gender to social equality, justice, or health, and even labor conditions and the environment (CRAWFORD, 2021).

AI is everywhere. Computer systems using Big Data, operating with Machine Learning (ML), and Deep Learning, are developments seeking the so-called artificial intelligence.

AI is composed of diverse elements and aims to understand people through language, culture, and behavior.

However, if the first step of Artificial Intelligence is to copy human intelligence, the task isn't easy as the definition of "intelligence" may vary from culture to culture. Moreover, AI is an invention that triggers a passion to surpass challenges and get rewards. The things we create are our likeness in ideals of living. That may explain why people end up loving more things than each other. Challenging goals reflects a model of success most people want to

[13] See Figure 1 at the end of this Chapter.

achieve. The creations are desires tested to be good enough to become true. People engage with 'products' as a way to get literacy about what is to come: more futuristic ideas translated to "things". To talk about the future is always a bet, and it triggers the human need to be prepared and to adapt.

But what are the main motivations behind AI? While most scientists and entrepreneurs share their statements publically with altruistic arguments such as “to make life better for all”, the most plausible explanation is that there is a business demand from market and industry to solve problems by using embedded knowledge rather than casual human knowledge.

In this text, I will explore what would be a bioethical reflection of the possible impacts of 'products' such as AI.

Bioethics has an interdisciplinary approach which is both, advantage and a disadvantage. As while it opens up for broader views, it is difficult to fit it on disciplinary systems of knowledge with a methodological orientation of fragmenting the issue as much as possible for a better focus.

Discussing Methodology

The idea that focus is achieved by cutting out the subject, as using a magnifying glass for better and deeper observation, may work well in many cases, but it also increases alienation. What happens when scholars, researchers, and scientists miss the vision of the integrity of the subject? From fragmentation to disintegration, this is the moment we are experiencing now, going to the third decade of the 21st Century.

The industrial factory concept is ubiquitous. If science is a factory of knowledge, it cannot find solutions for problems that require understanding from different fields of knowledge. Although many important discoveries and developments have been achieved with this methodology, the AI challenges involve linguistic, psychology, social science, neuroscience, cognitive science, computer science, engineering, design, and philosophy.

“Innovative products” are pursued all along with the history of Design. Philosopher Vilem Flusser argues that, when concepts are left aside and things get replicated mechanically, without reflection, the destiny of civilization is to be defeated by barbarianism (FLUSSER, 2007).

Flusser was talking about the increasing influence of images in manipulations in the '70s and' 80s advertise and marketing strategies and their subjective impacts.

With AI, automation can replace human actions on typical repetitions and the system learn more about consumer preferences and make personalized suggestions. Yet, the algorithm suggestions are a representation of general (and ordinary) models of consumerism, success, beauty, and, of course, morals.

Therefore, discussing methodology is also about discussing the impacts of applying methods that will replicate the expected results judge by quantity, without critical thinking.

From Flusserian phenomenological perspective, before a method there's a concept, before a concept there's a goal, and before a goal there's imagination. If humankind does not wish to encourage barbarianism, it cannot make a shortcut of automated results without going through the process which goes from imagination to concept.

While in Bioethics we have scientists from different areas, as a Social Scientist I am interested to know how we can escape from a monoculture forced upon society through computer systems.

Culture and Knowledge

That said, if AI is built by quantity of data, what kind of intelligence can possibly came out of it? The aboriginal ideas of happiness? Probably not. If it takes a lot of (deep) learning to recognize an image, when that process is complete, the computer system will be able to understand details differently than humans do. Thus, AI, rather than a copy of human intelligence, it’s a different way of knowing. Every pixel has a signature and the semantic meaning of the object matter less than reaching the goal of identifying it. That is compared to a child memorizing equations and its answers without fully understanding it.

But on phenomenological aspects, when a child learn the name of the apple, that name will also have color, smell, texture, form, taste and coupled experiences with it.

The definition of intelligence is attached to its representation: what does it mean to have intelligence and why we need that classification? Computer systems works with language. Language needs determinations. For example, how could the word “darkness” have a universal representation? Even if the experiences with “darkness” are not the same for all, the sensorial perceptions of it will be very similar with humans.

Therefore, as science needs to find an universal definition for words such as “artificial” and “intelligence”, it is also important to acknowledge that every culture has its cosmogony. Intelligence as the ability to apply skills and knowledge, does not define much.

If the concept of intelligence can be universalized, as a quality present in all beings, it can include computers and bees. There's no doubt that bees are living beings, but to consider computers or viruses as 'living things' is a conceptual discussion.

Nevertheless, the proofs we require for the understanding of 'beings' as 'beings' are measured by our perception. And if the knowledge and skills are outside their physical structure?

Suppose the intelligence of a virus happens around the connections stablished by it. Wouldn't that be similar to an AI, which require to access different sources outside the device in order to operate the questions and give solutions?

Interconnection can also be interpreted as an attribute of the expanded human consciousness (DAMÁSIO, 2015), a neuronal machinery (GRAZIANO; KASTNER, 2011) that explains conciousness happens whithin social connections, rather than inside a single brain.

If it is possible to find a consensus about what intelligence means, in general, we can outline a main root that could be embedded in any system, all over the world. In fact, the concept of intelligence is important not by itself, but on the way it guides the structural organization of a system. Computer systems are just a replication of society.

What we aim to discuss is, the AI replicates a particular type of society and, in some cases, a particular type of views and perceptions.

One example is, while the European concepts embedded in the AI can be represented by the quote by French philosopher Rene Descartes (1596-1650) "I think, therefore I am", for the African 'ubuntu' the definition of being is always a correlation with others: " I am because you are." (COSSA, 2020, Online).

In the same sense, other ethnic groups have different ways of seeing the world and the beings, therefore, concepts such as "artificial" and "intelligence" may not make sense to them. And what, if those concepts are embedded in a system used by everyone in earth? What are the cultural consequences and impacts for those being framed by a culture that does not represent their relation to the world, neither the way they see themselves and others?

While Western-European-Modern-Thought seeks to build an Artificial Intelligence good enough to talk to us, better than us on storing memory and processing information, it seems like the big wish is if the machine could take care of us.

Is God a machine? If we interpret all that exists, functions as a machinery system, yes, it is very likely that God is a machine, and, like any machine, it has a specific function.

And, if the goal is to have an AI enable to transcend human intelligence, would the objective of a ‘superintelligence’ reach eternity with the imperative wisdom of the gods? That is a promise of an irresistible 'product’. Who would not buy it? Count me in. But, if the goal is to make it work in bioethical terms, respecting lives and its diversity of expression, it is possible that the architecture needs to change.

Primarily, language is not simply a translation of thoughts. In order to adjust the available vocabulary to narratives, we create paths that reveal where cultural values reside. For instance, an Australian Aboriginal incorporates a compass in the language. Therefore, since childhood, the person learns that the body and the events are connected with the land and its directions. In comparison, a Western, well-informed, adult has difficulty figuring out where are the cardinal points (BORODITSKY, 2017).

Humans, in general, create myths and symbols to express narratives elected as important for their culture. AI is a legend that adds up to the desire to surpass the limitations of life and death. To have the power of creation in our hands is a big wish and AI feeds this narrative, with the forecast visions of a possible consciousness being uploaded to synthetic bodies. If that capacity of human creation sounds epic, AI is an eternal dream.

Western-European-Cosmology is anthropocentric. It is a culture where the human feels more special than other species. Indeed, by creating things from imagination, constructing languages and finding its uniqueness, the human demarcate their identity and generates diversity, as there are many languages, cultures, and subcultures. But the ability to access all capacities of other species is still low because we can only interpret them with our senses and knowledge.

We assume that what is real is what we can see, but from a cartesian point of view, real are also the creations of our imagination, as well as the unconscious experiences. In that sense, other beings may be creating things we cannot see or sense. They may be communicating in ways we cannot identify. Those speculations are mentioned to make the point that humans cannot assume to be more special than anything on Earth just because we can communicate with each other or because we can build incredible things such as an aircraft.

If we assume that each species design their survival strategies, that means they take part actively in the survival strategies, then there’s an intelligence operating.

Although we have been discovering that some other species also create things, the touch of our hands leads us to a wholly digitalized world, full of imaginary constructions. Yet,

the most impressive fact is to realize how the imagination transforms into pervasive computing, which has many ideas embedded in the codes and its architecture.

The study of Artificial Intelligence reveals a complex interconnection of knowledge. For a start, all possible definitions have a bias. Moreover, definitions are pieces of knowledge which represent a culture. Once we recognize we can't standardize many definitions without incurring the error of inaccuracy and even prejudice, the seek for knowledge opens an interdisciplinary gate challenging to navigate.

Science is a quest for patterns and patterns are a reduction.

Classifications & Pattern Recognition

Classifications filled with prejudice are weapons. They have intentions to weaken the rejected 'other' to justify abuse, domination, subjugation, criminalization. Long before the development of such things as AI, the Oxford English Dictionary explains that "gypped" is "probably an abbreviation of a gypsy", which is described by the dictionary as "a sly unscrupulous fellow" (CHALLA, 2013; BRADFORD, 2018).

When blacks and indigenous people were not even considered human enough to fully enjoy the "universal" rights evoked by the Enlightenment, there were other ethnic groups to persecute and stigmatize, as Jews and Roma (known as 'gypsies'). If those stigmas and false assumptions were responsible for the killing of millions of people at the Second World War (the Holocaust and other ethnic persecutions), considering someone "inferior" by any reason is not just unreasonable, but a threat to life. Moreover, it is an excuse to block the instinctive empathy humans have by mirroring (DEBES, 2010). Once empathy is blocked by separating 'one' from 'the other', there are more excuses to disrespect, abuse, explore, kill.

Devoid of all constitutional rights for many centuries, western women, still experiment less respect in society and, therefore, it is one of the vulnerable groups who will suffer from a lack of empathy in difficult situations. The vulnerability will vary according to the social status. But with disparities in salaries and underrepresentation in different work positions, sexual and moral harassment are reflections of the type of violence propagated by this culture. As, every time one part feels legitimated to intimidate the other, by an attributed authority *a priori*, a large number of sexual harassment (REICHEL, 2017), is just one, of many, consequences.

There’s still a lack of evidence to correlate increasing violence in many different levels, as the high rates of femicide and other hate crimes, with the ubiquitous computing. The fact is that a life mediated by algorithms is influencing the modes of living, behavior, health, and future perspectives of society.

That said, if the human model of intelligence is not good enough to be replicated what should we expect from AI?

With society's participation, the biased results in platforms like Google have been changing time by time. Even so, “new instances of racism and sexism keep appearing in the news and social media” (NOBLE, 2018).

One example of many: in September 2020, a Brazilian influencer posted on social media that the Google definition for ‘single woman’ was “prostitute”, “whore”.[14]

After a week or so, they did a correction. I did search how to get the “right to explanation” from Google and could not get an answer, but they release an explanation to the media saying that they use licensed content of dictionary partners, and they do not edit or remove definitions. (PAN, 2020). However, it is not yet clear why the highlighted option for the result was the pejorative meaning. Although we still can question why a 'pejorative meaning' for 'single woman' exist when there's not an equal comparison for a “single man”[15], it should not be the result showing at the top, instead of the grammarly formal ones.

In the case of “single man,” the result shows the meaning as an adjective and the second option is the 'figurative' meaning.[16]

Those results happened in Portuguese. In English, it presented different results, with the formal meanings at the top, followed by 'colloquial', urban dictionary, and so on.

Those are examples of how computer systems reflect the culture and can educate or uneducated people seeking to understand definitions using Google. While the young ones can be influenced easily, it also reinforces old patterns. For instance, mature people who re-educate themselves to don't show prejudice, with this type of ubiquitous classification tend to reattach to the old-fashion perceptions again, as it sounds like "it's ok to show prejudice, Google is doing it." That is effectively influencing relations. People are fighting and disappointing each other more often when conflicts between what was supposed to be already well discussed and left to the past become lively present.

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[14] See Figure 2 at the end of the Chapter.
[15] Id.
[16] Id.

Portuguese speakers would also expect, as the first example given by Google (in English) with the “urban dictionary”, that a single woman could be defined as “someone who prides herself in independence and freedom”. Because, with some differences, those languages share the same Western culture. Predictably, a Google search opening in a country where women don’t even have the right of citizenship would present different results. Yet, what would be the source? The same Oxford English Dictionary?

And, another question is, Google is defining the profile of the search by the type of government of a territory? That would be dangerous because even an elected government not always represents the majority of the population. Moreover, the general ethics embedded in the Western culture, the same one that generates the “Declaration of Universal Human Rights” (UNITED NATIONS GENERAL ASSEMBLY, [s.d.]) is losing territory for obscure rules, not discussed, not voted, not agreed.

Safiya Noble (NOBLE, 2018) states that Google is a platform created to sell things and it is often mistaken by a reliable source to get information and knowledge.

In general, it is comprehensible that people credit that all that is available for the public goes through some sort of regulation. Thinking that governmental agencies should take good care of what is offered to the public, after all, is a duty. That is what taxes are for. The interpretation that, to expect a lot from the government comes from a paternalistic view compete with the social contract itself and the concept of citizenship.

In general, people believe that there is a commitment to make sure the companies all will work for the good of society. If from time to time there are complaints about biased classifications in search platforms, social media, and many automated services as in public health (BENJAMIN, 2019) there’s a sense that, once is discussed and fixed, it would not repeat. But because bias keeps coming back on automated systems, we must look to the “right to explanation” and analyze the basis of the system, the sources of information, and the ways it gets the results.

Since GDPR (EUROPEAN COMISSION, 2018) was approved, computer scientists have been working on the challenge to attend to this demand. Softwares as Lime demonstrate how ‘neural networks’ get their results. In that sense, it would not be difficult to apply those methods and show where the source of information comes from.

The point made here is still about the impossibility of trusting systems, built by tools that hide in the shield of science. In the back of people's minds, computer systems are technologies based on maths and it is much easier to assume these are reliable tools made of sophisticated knowledge.

Nevertheless, we need far more sophisticated knowledge that can work without simple reductions. A different logic that can process with alternate possibilities.

Conclusion

In this chapter, we discuss what kind of "intelligence" is embedded in AI.

When ethical concerns result in legislation such as GDPR (EUROPEAN COMISSION, 2018) there is a call to make systems more transparent to avoid manipulation, misinformation, and prejudice. Therefore, the automated decisions generated by AI need to be prepared to give explanations, and this is a topic that remains a challenge.

Despite some initial (and recent) efforts to make it possible for the systems to explain (RIBEIRO; SINGH; GUESTRIN, 2016) the first hindrance is an old mindset that sees technology as a mere tool, not capable of changing life circumstances.

However, our body is not an insurmountable fortress not affected by the surroundings. Our bodies are open, constantly moving agencies of negotiation within different organisms.

We may ask how the flaws of AI sharing prejudice affect the way people see themselves and the way we relate to each other, moreover how it actually impacts professional life and the sense of living.

Cathy O'Neil reported how a system to evaluate, classify and determine which teacher should be dismissed by the employer impacted many lives without giving any explanation. (O'NEIL, 2017). It all works by a hierarchical system where there are the ones who can decide "who lives" and "who dies" when the computational system just need to present a decision, no matter if it reinforce old bias and has not fairness. Although computers are syntactic machines incapable of making a judgment of value for what is "good," "evil," "adequate," or "inadequate," the problems often start with how data is collected and interpreted.

If the person impacted complains and he/she is part of stigmatized and subordinate groups their claims may be seen as inappropriate. Often the people who are not aligned with the ordinary 'standards of success' are the target, even if they have enough proof of being good professionals. Although underestimated, they often are valuable in their diversity to share with students different perspectives from those who did succeed in education even not being the 'best fit' on many occasions.

If the best general use of technology is locked on a language mode and all its reductions and possible misinterpretations, society is in trouble. Facebook, Instagram, Twitter, WhatsApp, and all apps available capturing people's information, are constant repetitions of

the “practical” ways to communicate, the performative image narratives following the standards: the affirmative identities, the family types, the sensationalistic approach, and the absurd. At first, the internet presented great contributions for society, but the way it is manipulated now with social media facilitates the ascent of the trickster.

Nowadays we know that many devices with advanced technologies mediating our relationships, while at the same time they are useful data for AI developments. The question remains: how would be the ethical perspectives for AI? The theme has been around a while and if there are still many open questions it is because “there’s a problem with the matrix”. The results presented by the AI are overestimated, while the flaws are underestimated.

Companies sometimes create illusions that an AI is interacting with the customers when there are people behind the scenes checking and correcting every message (HUET, 2016)

When the AI beats the best GO player in the world the general sense is that the machine overcomes the human capacity (KOHS, 2018). This is what everyone wanted to believe upfront. But the truth is the best GO player in the world was not playing with a machine, but with dozens of people behind the machine who was upgrading the Deep Mind's AI after each game to make it smarter.

It was an intense and probably exhausting work of many computer engineers to make the dream of the 'super AI' closer to happening.

While people in society criticize fake news they still buy the narratives which fit best with their beliefs.

The "problem in the matrix" is not a type of human nature that makes people pursue illusions and being enchanted when some of those illusions materialize. They can materialize through art and science, but the separation between those is a topic to be reviewed by scientists, philosophers, and artists.

The "problem in the matrix" which confuses truth with beliefs reflects the epistemology behind the AI.

Epistemology as discussed in Chapter 2, reflects a way to see the world and make sense of the experiences.

AI has many invisible agents. They are a nonpresence composed of many distinct layers.

With the *Bioethics of Nonpresence* (NAS, 2021c), I propose to examine those layers, especially in this chapter and its Portuguese version (NAS, 2021a), present examples, and seek

explanations that could answer why we need classification systems. Those systems, when embedded in technological means amplifies their range, causing greater impacts.

Therefore, we are allowed to rethink what we want from an AI and how we will be able to experiment with alternative ways to organize information if we want to see different results, with fairness and accuracy.

Figures

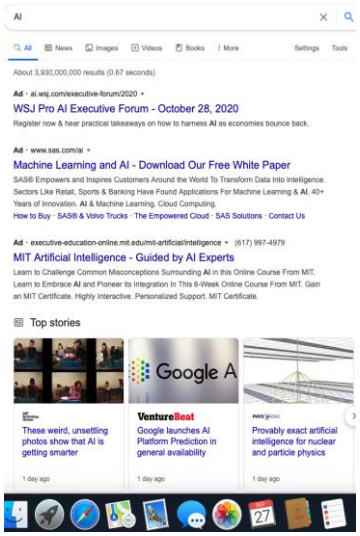

Figure 1: Search about "AI" September 27 2020

Figure 2: Search September 13 2020

Figure 3: Search September 13 2020

6 ROBOTS

6.1 THE USE OF SEX ROBOTS: A BIOETHICAL ISSUE

Abstract

The manufacture of humanoid robots with embedded artificial intelligence and for sexual purposes has generated some debates within bioethics, in which diverse com- peting views have been presented. Themes such as sexuality and its deviations, the objectification of women, the relational problems of contemporary life, loneliness, and even the reproductive future of the species constitute the arguments which have emerged in relation to this subject. Based on these themes, this article presents the current state of the use of female sex robots, the bioethical problems that arise, and how bioethics could serve as a medium for both thinking about and resolving some of these challenges.

Keywords: Robots. Artificialintelligence. Objectification. Gender. Sexuality. Sexrobots

Introduction

Robotics is defined as the application of computerized electronic control systems to mechanical devices and is designed to replace the human being in the execution of certain tasks (SIQUEIRA-BATISTA *et al*., 2016). In combination with artificial intelligence (AI), its development has made these control systems intelligent enough to learn through experience and exchange information with other systems. While the intentions of developers, at first glance, appear to be good, the challenges that AI- enhanced robots potentially pose are ethically questionable. They also point to the urgent need to discuss the ethical values that should guide human-machine interaction.

The growing utility of robots has been a well-defined theme in the media and entertainment industry for some decades. In 1988, Norman White, a biologist from Harvard University, and Laura Kikauka, a Canadian artist, presented the Electronic Artwork called BThem Fucking Robots. While this was not exactly a parody of the humanization of machines, it recognized the possibility of a robotic future, where “artifacts” could breed, that is, reproduce by themselves (DIXON, 2007). In the same period, Cherry 2000 (JARNATT, 1988), an American production, introduced a post- apocalyptic scenario set in 2017. It involved a society dominated by hyper sexuality and an excessively bureaucratic government.

Now that we have passed 2017—the time of the future imagined by the film—the dream of the robot as an autonomous entity endowed with movement and communication capacities identical to humans (similar to the one proposed in the film Eva), and as a companion and sexual partner, is only partially realized (KIKE, 2011).

While conceptions of futuristic humanoid robots are on a long list of science fiction works, whether in literature or in the cinema, advertisements for female sex robots have began to appear in this decade. They capitalize on the novelty of an erotic product: “She is the automaton of your dreams” (HORNYAK, 2010). So far, public interest has been minimal since the silicone doll only competes with the inflatable doll and with other erotic toys which are inevitably stored in the dark closet of fetishes and sexual fantasies. However, the pretense of a “true companion”, as the manufacturer suggests, is becom- ing more plausible. For instance, the “sex toy” industry has taken advantage of advances in the material sciences to produce tissue resembling the texture of human skin. In addition, the use of AI brings new contours to the problem, especially when considering the recent “celebrity” status attained by robots that have gained citizenship, like Sophia (STONE, 2017). Robots with AI, in general, have become incredibly life-like. Still, they may supplant humans in terms of memory capacity and processing speed. However, technology has not come from outside of society but is a product of human decisions and actions (THACKARA, 2005). Like all other ‘human products’, there may be failures, and when they occur, we need to know what kind of harms they may cause.

The emergence of female sex robots makes us think about the future of humankind, our body, sexuality, reproduction, and ultimately, about our relation- ships with each other, and what makes us human. Thinking about the purpose of these technological developments may help us better understand the ethical implications of their use. And to think about ethical implications is also to think how those technological developments are changing our lives and the values that are embedded. In 2015, Kathleen Richardson, a professor and researcher in ethics and robotics at De Montfort University in Leicester, started a campaign (CAMPAIGN, [s.d.]) with the purpose of setting limits to the development of this technology. For her, the debate needs to move beyond the field of engineering and computing, where ethical issues are addressed in an incipient way. Richardson claims that sex robots are toxic to human relationships and warns that we should be aware that even well-meaning technologies may ultimately cause harm to others.

We have searched through numerous databases for academic articles on this topic, but the results were few in number. Only in the second half of 2017 have new publications

appeared, resuming debates that were beginning to fall by the wayside. The aim of this paper is, accordingly, to revive this discussion and to identify some of the key ethical conflicts relating to the development and use of AI-enhanced female robots for sexual gratification.

Sex Robots: *State of Art*

A problem with the public perception of sex robots is that the public is currently not well informed about the actuality of robots in general. Sex robots are new and only a few people have encountered them directly (SHARKEY *et al*., 2017).

Machines as an extrapolation of the sexual objectification of women has been a running theme in the media. From Metropolis (LANG, 1927) to Her (JONZE, 2013), women and robots are blended together as an ethereal entity, manifested through voice and language. Sex robots—whether they are in the movies or those that are being manufactured—cater mainly to male fantasies. They surprise within a controlled sphere: they are sensual (as in Metropolis); exotic and vulnerable (as in Blade Runner); perfect, dependent, and submissive (as in Cherry). These female sex machines are objects of desire, since they are developed to mirror the needs of modern men. Submissiveness is also revealed in current sex robots, which may be insulted or attacked without the possibility of having committed a crime. It is just a product; an object packed in the fetish of consumption, as much as it can be the latest model of an automobile or smartphone. A pragmatic response to the question regarding its pursuit may just be: "why not?"

Such compositions become clearer when articulated in Design Studies, a field which seeks to investigate the emotional relationships people establish with brands and products. From the 1990s, the concept of *Emotional Design* emerged, presented by authors such as Donald Norman, Professor of Cognitive Science at the University of California and Computer Science at Northwestern University. Norman argues that human relations with objects go through three levels of emotional processing in the brain: the visceral, the behavioral, and the reflexive (NORMAN, 2008). Thus, while the theoretical framework for understanding such phenomena has, for many years, been restricted to the complex understanding of culture, language, representation, and biopolitics, scientific research in neurosci- ence has been attempting to identify patterns surrounding the relationships we establish with objects and its manifestations arising from the development of new technologies.

Complex perceptions such as metaphors (MAIOCCH; PILLAN, 2013) are the basis of a user's relationship to their product, and what a product does is communicate visions,

intentions, proposals, and ideals. Another tool for under- standing the lasting effect of products is the experience the product brings about (DAMAZIO, 2013), the nostalgia it evokes, and the aggregation of the experience in retrospect. It is understood, therefore, "that objects represent something that goes far beyond their functions" (OH, 2013) and that the fetishistic character, adds a series of values that are attributed to the objects. Different perspectives are also involved: those of the creators, the users, and the community.

The expression "To love a product" is an acceptable expression of affection in a society in which individual affirmation and social status are recognized through consumption (RUSSO, 2008). However, new demands and realities are also changing the desires and perceptions about consumption, so that conscious consumption movements inspire people to "love" products as an expression of their ethical values. Therefore, an innovative technology on the market is usually imbued with a series of futuristic passions, fantasies, desires, and associations. Having access to innovative technology is a form of privilege. If a product solves or alleviates the problem of solitude, it breaks down the boundaries between dream and reality through the sense of community that is embedded in it, whether imagined or real. Such elements as AI add an additional layer of fascination to the sex robot. One can be a friend of an application such as Replika (PARDES, 2017; O`CONNOR, 2017), simply because it can start a conversa- tion and may say things that a person wishes to hear. Some go further and begin relationships with virtual characters, like Love Plus from the Nintendo game (DICKSON, 2014).

Like the researcher in psychoanalysis and human-computer interaction, Sherry Turkle says that we are lonely but fearful of intimacy (TURKLE, 2011). An AI-enhanced robot presents such a compromise of having a friend and a girlfriend in a single entity and embodied in a sex doll. Sex robots have the added advantage of presenting a customized look (of a favorite model or actress, for example), the desired breasts size and body type. And finally, they are a "sex toy," in which its intimate parts not only look identical to those of a woman, but also seek to imitate their movements, positions, and practices that are typical of sexual acts.

So, while some research in Design Studies seeks to assess what the subjective elements, as well as aesthetic and sensory attributes, are capable of in making a product memorable, we can bet that such robots are already 'born' with every possibility of becoming a sales success. The reason is that the subjective elements between us and our artifacts are about the memories they access, the senses they stimulate, and how the values that are embedded in them relate to us. In that sense, we could guess that such a product can become

popular and may eventually be present in homes around the world, just like the television and computer, if they get more affordable. Fear, loneliness, impatience, anger, delusion, and deception, among other human feelings, are readily exploitable for profit.

On this point, Turkle (TURKLE, 2011) observes that, "as sociable robots propose themselves as substitutes for people, new networked devices offer us machine-mediated relationships with each other, another kind of substitution. We romance the robot and become inseparable from our smartphones." In this sense, "we remake ourselves and our relationships with each other through our new intimacy with machines." (TURKLE, 2011)

But what, technically speaking, is a sexual robot and what values are already being incorporated into its manufacture? They are composite parts of a mechanical body that seek to reproduce the human body, such as mechanical vaginas that perform contractions and delicate hands made of silicone that are complete with nails.

They may be supported by AI to create certain profiles of women. For instance, “frigid” and “wild” are binary options marketed by manufacturers. It should be noted that the sexual use of robots is a recent phenomenon, resulting from the union of the erotic toy industry with the developments of robotics and AI. These last two fields have been investing in research to better understand human physiology, with the aim of creating replicas that can be well understood in narratives like Robocop 2 (KERSHNER, 1990) or I, Robot (PROYAS, 2004). In both cases, it is assumed that the technology for androids (or robots developed to look and act like humans) and hybrid cyborgs (which are characterized as organisms endowed with organic parts and biomechanical parts) will facilitate new scientific discoveries.

However, sex robots exploit the female figure—eventually male, and perhaps even children—for unilateral physical pleasure. The buyer of the object, a “humanized” sex toy, possesses these bodies to do what they want, with no need of consent (GUTIU, 2012). After all, robots are intended to be analogous to humans through this mechanization. The word was formed from the success of Karel Capek’s Rossum Universal Robots in 1921 (CAPEK, 1920); the word robot in its original Czech means “forced labor” or “servitude.” Thus, robots and sex robots are drawn from human fantasy, fictions with visionary elements that come to life. On the other hand, the ethical debate on robots, and more recently sex robots, is still incipient.

The author of the book Love and Sex with Robots (LEVY, 2009) argues that sex robots are a safe and harmless substitute for a man who would otherwise seek a prostitute. So when Levy states: “What’s the problem? It’s just a machine!”, Kathleen Richardson recalls that the narrative constituting robots as Bthings^ is similar to that used in the production of virtual reality videos, where sexual abuse and racial violence may be promoted.

These concerns have provoked discussion in the community, with some focus on robotics (RICHARDSON, 2015), that is, even if those videos are meant to be just entertainment, we should be concerned about their influence on human values, behavior, and health. Some psychological and behavioral studies show that violent games lead to an increase in violent behavior (JOSELLI, 2014). On the other hand, there are proponents who argue that these video games, even if inclusive of simulations of violence, can contribute to cognitive development, such as improving one's responses to harm, attacks, or threats. However, the extent to which the portrayal of violence is acceptable will vary among different societies and could undermine the capacity for empathy in children and adolescents (WONDERLY, 2008).

Thus, from the first doll presented to the market with the purpose of being used as a sex robot in 2010 (HORNYAK, 2010) to the most recent models with embedded AI, such as Harmony, for instance, it is unclear as to the number of types of robot there are, given the number of manufacturers involved (WINDLEN, 2017). In 2016, sex dolls mimicking five-year-olds have been produced and marketed for at least a decade by a Japanese company (OSBORNE, 2016), while more recently an Englishman was arrested for ordering a child sex doll from Hong Kong (DEARDEN, 2017). The company Real Doll has reportedly sold 400 to 500 sex robots per year (GRAHAM, 2017). Considering that companies located in Europe, the USA, China, and Japan operate in this market, it is estimated that such robots have been sold in the thousands, and they are present in brothels for public use (DEVLIN; LAKE, 2018).

Ethical Considerations

> Whether we like it or not, we humans are destined to become obsolete. (NEILSON, 2011, Online).

The first question we could raise concerns gender and the objectification of the other. Kate Devlin, a researcher of AI and HCI from the University of London, says that the robot, being a machine, has no gender; thus, the suggestion that a unisex robot with the possibility of genitalia exchange could be a possible way forward (SHARKEY *et al*., 2017). Robert Sparrow also suggests that if the robot does not represent the female figure, the objectification of the woman's body is annulled (SPARROW, 2017). However, one can still question the fact

that since the genitals and body structures have human form, the ethical and social issues entailed by the intersection of the human body and sexuality cannot be entirely avoided.

While sex robots may appear to be choice promoting, it is not purposive in that it does not enable the building of meaningful relationships. Physically, robots are still some distance away from being humanlike, even if enhanced with advanced AI (DANAHER, 2017). Thus, human-like robots in science fiction films like Her are still fantasy, since it has not been possible to make robots emotionally responsive. Under the title of "innovation driven by male masturbatory fantasy is not a revolution" (MOORE, 2017), the journalist Suzanne Moore, like Donna Haraway (1991), reminds us that the goal is not to be anti-technology, since the creation of hybrids and cyborgs allows us to rethink the identities and moral values assigned to them. In this sense, the author Vilém Flusser invites us to reflect on the production of objects, as a way of subjectively communicating the concepts that are embedded in them (FLUSSER, 2002). To him, these objects can be obstructive or non-obstructive; the obstructive object represents a belief system that imposes itself, thus becoming Bobstructive^ to realities that do not conform to these beliefs. In contrast, non-obstructive objects promote open communication through inter- subjective dialogs. Obviously, the perception of obstruction and non-obstruction will change according to the observer's point of view. What is important to understand in the concept is that often innovative technologies or designs take different paths from what were originally designed for. This could be because they were not thought to be possible, or because they were foreseeable.

This happened with the Barbie doll, which for the creator Ruth Handler was a way for girls to express themselves as a woman (THE TOYS…, 2017). However, the doll reinforced body ideals and inspired girls and women to fit into an Bideal^ by removing a part of the rib to have a thinner waist, for instance. Among many Barbie accessories in the 60s, there was a small book that provided advice on not eating for the sake of being thin. Lord (LORD, 2004) observes that this could have encouraged anorexia. Also, a value implicit in this toy is that in order to be deemed successful, a woman should be sexually liberated, educated, and attractive to men. A Barbie doctor was produced in the 60s when there were very few women in the medical profession. This was also the case for other professions, such as for astronaut. The doll has since been presented in 180 different professions (THE TOYS…, 2017). Ethical concerns about the objectification of women could similarly apply to sex robots.

Regarding the possible "therapeutic uses" of sex robots, Kate Darling, an MIT researcher, says: "We have no idea what direction this goes in and we can't research it" (RUTKIN, 2016). She points out that to use funding for this kind of research is too risky

because it is unclear how many subjects can be recruited and who will be willing to collaborate. In addition, there are also ethical issues with limiting a possible investigation into whether a child sex robot can be an effective treatment for pedophilia. But what is at the center of this discussion is not the therapeutic use of such robots, but whether they should exist. For instance, we need to ask ourselves how a child will feel knowing that there are sex robots in the form of a child for abuse.

Can sex robots impact people's health? Yes, if they can influence the relation- ship between them and their human users. If objectification of women is nothing new, "robot dolls" could worsen misogyny. Violence against women remains "a global health problem of epidemic proportion" and said to be thriving in the petri dish of social media (BUNI; CHEMALY, 2014). Paradoxically, those sex robots also expose the fact that many women—cisgenic or transgender—seek to adapt to "reality" by accepting their objectification as an instrument of pleasure and as a natural condition. Perhaps like aesthetic treatment, sex robots could make women feel inadequate and feed, in both women and men, a constant sense of existential dissatisfaction.

What, then, would be the "moral status" of robots? This is perhaps the central issue and has been little discussed. When Gilbert Simondon (SIMONDON, 1964;, 2008) proposed for citizenship to be conferred on technical objects, he could not have possibly imagined that Saudi Arabia would be the first to do so. This development is not free of ethical issue. A Saudi woman questions why Robot Sophia has citizenship, whereas her daughter, who has a foreign father, cannot be a citizen of her country (KANSO, 2017). Simondon's proposal is based on distinc- tions and discriminations attributable to technical objects, in the same way that morality sustains distinctions between humans. Thus, from this perspective, we may have another kind of understanding of technology, and its effects, if we consider that the result of its creation is also constituted by the memory of its genesis.

The problem becomes even more complex if we are to understand human-machine interaction in terms of a hybrid dialectic (VERBEEK, 2015). Verbeek argues—like many researchers interested in the human-computer inter- action—that technology affects and is affected by the relationships that are established with it. In this way, the paradigm that questions the strict separation between culture and nature calls for a deeper evaluation. The recent news (NICHOLS, 2017) that a robot had been "raped" at an Electronic Art Show in Austria requires us to think hard about the moral and legal status that should be given to the robots. Such deliberations could open up novel ways of understanding how relationship between humans and robots could be framed.

Conclusions

> We allow ourselves to be comforted by unrequited love, for there is no robot that can ever love us back. (TURKLE, 2011, online).

The ethical debate about the uses and impacts of new technologies has become urgent and necessary in different contexts of contemporary life, including the sexual uses of robots. However, the task appears to be complex because technology exposes—in moral terms—beliefs that are naturalized, as well as unresolved conflicts over these beliefs. The modern subject is trained to analyze the phenomena separately, what is also an anthropocentric symptom. He has only himself—his desires and beliefs—as the center of judgments and decisions. However flexible and critical a view of psychology can be, about these phenomena, there is always a risk of looking at the case of sex robots through the distorted lenses of anthropocentrism. Would thinking about solving human afflictions and needs, through technology, justify the possible harm to the robots and the humans themselves?

It is possible to argue that the subject, in cases of extreme solitude—whether by feelings of inadequacy, physical and/or psychic problems—could see in sexual robots a palliative solution, a companion, even a relationship that brings him satisfactory experiences and emotional comfort. It should be noted that in this, as in most cases, the access to such 'artifacts' are restricted to those who can afford them. Paradoxically, one of the 'harms' pointed out about the manufacture of sex robots is the accentuation of isolation and loneliness, and since the growing connectivity of digital culture is already a phenomenon identified with those characteristics, we ask ourselves if the conviviality with robots would not further reinforce such tendencies of isolation that has been growing with technological revolutions. As Borenstein and Arkin (2016, p. 303-304) observe:

> The loss of contact with fellow humans and perhaps the withdrawal from normal everyday relationships is also a possibility. For example, a user who has a companion robot may be reluctant to go to events (e.g., a wedding) where the typical social convention is to attend as a couple.

On the other hand, it cannot be denied that the way these robots are produced, marketed, and presented to the public, ultimately depreciates the image of women. Such considerations do not concern manifestations of a blind moralism or a radical and partial feminism; it must be recognized, in fact, that those sex robots have become another tool for objectifying women. One may ask if there are plenty of tools of this kind reinforcing such objectification. Does it then make any difference to build another one? We must ask,

therefore, if we have met the goals of our project. In ethical terms, what would best guide our study of sex robots? Religious piety? A Machiavellian morality? The Ethics of Kantian Humanism? And, when one opts for the principles exposed in the latter, how does it sustain itself by disregarding the social context and the plots of power? Most importantly, how do we go about considering a phenomenon with such great nuances and innumerable contradictions? Perhaps, ethical reflections on technology may be understood in light of relations of power (FOUCAULT, 1978). But even so, it is possible that a creative-intelligent machine, made in the image and likeness of women and men, will bring about a series of responsibilities that, for the moment, are not extendible, even in the sphere of culture, to humans of flesh and blood. Utopia or not, time will tell.

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6.2 IN LOVE WITH MACHINES: THE BIOETHICAL DEBATE ABOUT SEXUAL AUTOMATION

Enamorados de las máquinas: el debate bioético sobre la automatización sexual

Abstract

A number of companies around the world are now developing and selling sex robots. Questions such as “how will relationships with robots’ impact human relations in the future” emerge when technologies are used to meet the social and emotional needs of individuals. Considering that technology and design have embedded values and biases, this article surveys the use of sex robots from a bioethical perspective. Relationships with robots and computational systems, like Artificial Intelligence, are a possibility for many people around the world. We present questions raised by the voices in favor of robot sex, and against it. Beyond a binary polarization, the bioethical perspective recalls the Foucaultian concepts of biopolitics and biopower to situate the problems with the mechanization of intimate relationships. We argue that sex robots offer the opportunity to review old patterns regarding gender, inequality, and health.

Resumen

Empresas de todo el mundo están desarrollando y vendiendo robots sexuales. Preguntas sobre

"¿Cómo afectarán las relaciones con los robots a las relaciones humanas en el futuro?" surgen cuando las tecnologías se utilizan para satisfacer las necesidades sociales y emocionales de las personas. Este artículo analiza el uso de robots sexuales desde una perspectiva bioética, considerando que las tecnologías y los diseños tienen valores intrínsecos que hay que tener en cuenta. Las relaciones con robots y sistemas informáticos, como la inteligencia artificial, son una posibilidad para muchas personas en todo el mundo. Presentamos preguntas planteadas por voces a favor y en contra del sexo con robots. Además de la polarización binaria, la perspectiva bioética recuerda los conceptos de biopolítica y biopoder de Foucault para situar problemas como la mecanización de las relaciones íntimas. Sostenemos que el debate sobre los robots sexuales ofrece la oportunidad de revisar viejos patrones en relación con el género, desigualdad y la salud.

1.Introduction

> *The robot will provide companionship and mask our fears of too-risky intimacies.* (Turkle, 2017, online).

Robot sex is a product designed for the experience of intimacy with a user. Robots are technologies endowed with automation, built to accomplish specific tasks. “Sex robots are realistic mannequins with variable appearances and textures, with oral, vaginal and anal openings which can be customisable. The medical profession needs to be prepared for inevitable questions about the impact of sex robots on health.” (Cox-George & Bewley, 2018, p.161)

In 2010, the first doll with robotic features for the ‘adult market’ appeared. Since then, models with embedded Artificial Intelligence (AI), have been developed such as *Harmony*. Yet, the number of robots sold and manufactured is still unclear. (Nascimento, 2018)

Sex dolls are looking more realistic by the day, benefiting from research of materials that imitates human skin and other human features. The additions of (bio)technology innovations, robotics, and AI, opens a call to a bioethical debate (Nascimento, Siqueira-Batista, 2018). We argue that sex robots are new devices that demand an understanding of the possible impacts in terms of culture and health.

Taking minority needs into account, we ask who wants sex robots and why? Also, why do engineers wish to build sex robots? Therefore, we are present the discussion on the theoretical level. For that, we can argue that their positive aspects are to give a chance to understand why they are an attractive device, which problems they are supposed to solve, and what are the

problems they may create.

Michel Foucault (1926–1984) is a French historian and philosopher, with also academic formation in psychology, who argues the control of the bodies makes them disciplined, docile and productive (Foucault, 1998; 1995). In analogy, robots are anthropomorphized entities that represent biopolitics, which is politics over the body. What Foucault denominates the political anatomy of the body, we understand as different forms of control through projects that do not consider individual and collective well-being. Robots are a previously programmed set-up controls, now represented by Artificial Intelligence (AI). Several classifications rule AI and sex dolls. Although the models can be designed with different characteristics chosen by the user, those bodies tend to suffer a lack of creativity when their most available choices are the standards of beauty. Therefore, they stimulate particular desires related to scenarios that do not fit healthy human relationships, giving a false impression of freedom and autonomy. When considering that relationships always have a different 'other' with needs and desires out of one's control, those solutions may be reinforcing less friendly and empathetic human behavior. That is, instead of providing solutions for loneliness, as one of the claims of projects such as sex robots, the question is if they are exacerbating the problem with their intent to fulfill an individual need where negotiation with another human being is not necessary.

Ethically speaking, a significant concern presented by critics of sex robots is that the relationship with such entities, using technological developments to represent the human body robotically, tends to reinforce and sharpen several contemporary problems, especially those related with different manifestations of violence – racism, sexism, and speciesism, among others (Nascimento, 2018).

Many companies are now selling sex-robots. Several authors have recently argued that such robots might play a useful – and ethical – role in solving problems of loneliness, feelings of inadequacy, and relationship difficulties present in those suffering from pathological shyness (Noel Sharkey, Aimee van Wynsberghe, Scott Robins, 2017) by replacing a real person with a robot.

Sexual Robots have the potential to change our relations to, and perceptions about, the body and sexuality. According to some critics like Kathleen Richardson, the founder of *Campaign Against Sex Robots*, they intensify existing cultural dynamics.

Theorists dedicated to the discussion of Philosophy and History of Technology, such as Melvin Kranzberg (1986), Martin Heidegger (2007), and Peter Paul Verbeek (2015), suggest that technology is not neutral. Programs and devices have ideas and desires embedded in them. In order to understand the bioethical implications of new technologies, it is necessary to

think about how those technological developments are changing our lives and the way we relate to each other.

Differently than an inflatable doll, a sex robot has science embedded with its robotic features and AI. Even if those features are not as advanced as expected for a “perfect companion”, the project represents the fascination of making a vision from science fiction become a reality. Besides that, these robotic and AI features are not value-free; they represent a particular vision of ‘perfection’.

Questions as if it is ethical to use a robot for sexual purposes, or if it is ethical to produce those robots, have been inspiring discussions in the academic field and society in recent years; key issues will be outlined below. Some authors ask if there would be any restrictions for the use and manufacture of sex robots or if they should be available in the market for anyone that wants and can buy one. Moreover, we ask which ethical perspective would be accepting the use of sex robots and which one would disapprove them?

From the principlism of ethical and bioethical approach, if it causes no harm to others, there would be no reason to police sexual fantasies. However, even if we are not discussing 'robot rights' in this paper, it is crucial that thinking of robots as an entity that should have rights, and not merely as a product available on the market, changes this ethical perception completely. But, by now, instead of discussing if those "relationships" could cause harm to the sex robots, we may divert attention to the person who wants to use them: is there a choice or manipulation? Are the ways those robots are available symbolically toxic, or they just represent users' desires?

Part of the discussion in recent years is whether there should be some restrictions on sex robot production, and if so, what they should be, and why.

However, as we argue in this text, the debate about human-robot sex turns out to be about human relationships. While it appears to address the role of emerging technologies in human lives, the debate turns out to be about the belief systems embedded in these technologies. As those beliefs systems are not “innovation” - as robot sex is supposed to be - we must go back to analyzing the old patterns of the beliefs expressed in the technologies and designs.

Arguments in favor of and against robot sex consider their possible beneficence or maleficence. Yet, from this polarized discussion, we argue that the concept of biopolitics by Michel Foucault stretches both sides. Although it is more likely to oppose robot sex projects as presented in the market, it also opens the door to think if it would be possible to reassemble it with a different approach.

We compare biopower and biopolitics perspectives with the arguments claimed for and against robot sex. Of particular interest to the politics of the body, Foucault presents how those concepts are related to a control system that undermines the spontaneity and autonomy of the body.

2. Arguments in favor

> *Without intimate sexual companionship, people with disabilities could suffer loneliness and unhappiness. These are a target group that proponents of sex robots say would benefit from them.* (Noel Sharkey, Aimee van Wynsberghe, Scott Robins, 2017, p. 24).

Arguments in favor of sex robots imply utilitarian claims as sex robots can be used for therapeutic purposes to achieve specific results.

Kate Devlin, Archaeologist, Computer Scientist, and Senior Lecturer at Department of Computing at Goldsmiths, asks: people are "making love to simulacra because they want the living person, or because they are attracted to the sex dolls in their own right?" (Devlin, 2018, online), suggesting the robot overflows to other meanings besides being merely a tool.

She emphasises the rights of those who enjoy having mechanized sex with robot dolls. (Devlin, 2015; NDC Conferences, 2017) and defends a right of “sexual diversity” more generally.

Defenses of the 'use' of sexual robots are often founded in the benefits that sex robots could bring, in terms of pleasure to the users by allowing the fulfillment of sexual fantasies, and in a reluctance to criticize the fantasies of others (Arkin, 2016).

Sex robots enthusiasts claim that they "help people reach fun and satisfaction through stimulation or penetration. Some have natural language skills and arousing voices, and one should not forget that verbal eroticism is very popular in chats, and phone sex was in high demand for a long time and still is in existence." (Bendel, 2016, p.18)

The fact is sex robots are a good option when it is necessary to avoid human contact for various reasons, such as to prevent disease transmission. Also, their sex availability around the clock and the lack of psychological impact on the sex partner are a clear advantage for its defense. (Scheutz & Arnold, 2016)

Factories and creators of sex robots argue that they are ‘just’ robots and have no feelings, thus offering their users the opportunity to fulfil their sexual desires, however outre, without the risk of harming other people. David Levy, the author of *Love and Sex with robots* (2009), argues that a relationship with robot dolls could facilitate the realization of many sexual

fantasies without the need to share it with another human being.

He explains that the robot dolls "do not complain" (Levy, 2017, online). With a similar position, the engineer Sergi Santos, creator of a sex doll model called “Samantha” jokes: "she talks too much, doesn’t she? So I will turn it off. That is the beauty of it" (Maloney, 2017, online). With the robot doll, they can be in control.

Shin Takagi – a pedophile who markets child dolls for use by those who are sexually attracted to children – claims that it is not possible to change someone's fetish. “I am helping people to express their desires legally and ethically" (Morin, 2016, online).

Some advocates point to the therapeutic benefits, saying that sex robots might even help people who feel the need to direct violence and abuse against others. They argue that offenders could satisfy their needs with a robot and not with a human being. Ron Arkin, a professor of robotics at the Georgia Institute of Technology, believes that physicians could prescribe such devices as a therapeutic strategy for those who have sexual abuse impulses towards women and children (Rutkin, 2016). Others have suggested that robots could be used for the treatment of other modalities of sexual disorders, such as problems of erection, premature ejaculation, and anxiety symptoms related to the first intimate encounters (Noel Sharkey, Aimee van Wynsberghe, Scott Robins, 2017). Researcher Kate Devlin suggests that it might be worth developing this technology for the elderly, in order to facilitate the satisfaction of their sexual needs like any other adult person (Noel Sharkey, Aimee van Wynsberghe, Scott Robins, 2017).

The *Real Dolls* company claims to have been on the market for nearly 20 years, helping many people – who cannot establish traditional relationships with other people – to deal with social and emotional blockades (Noel Sharkey, Aimee van Wynsberghe, Scott Robins, 2017).

Apparently, it "only takes a silicone love doll with modest mechatronics to enamor some users." (Sullins, 2012, p. 398). And that shouldn't be a surprise given the notorious success of kid’s toys, which are companions through adulthood, decorating their shelves and bedrooms. From this perspective, those objects (toys, machines, devices) don't need to show reciprocal affection, as long as we own them.

3. Arguments against

> *women and robots are blended together as an ethereal entity, manifested through voice and language. Sex robots—whether they are in the movies or those that are being manufactured—cater mainly to male fantasies.* (Nascimento *et al*., 2018, p. 233).

In this section, we will discuss why, as Kate Devlin puts it, “Not everyone is happy about a future of mechanized pleasure.” (Devlin, 2017, online)

Comparing the arguments against or in favor of robot sex, the "against" analysis is more complex, and it is the one calling for regulation regarding ethical concerns. The complexity resides in a combination of factors related to the impact of new technologies on human perceptions, which is not easy to measure. A call for ethical reflections, suggesting the need for regulation, is a call for moral education. Law and education commonly need to balance individual freedom through restrictions, in consideration of a better environment for the societal majority.

Kathleen Richardson, the spokesperson for the *Campaign Against Sexual Robots*, draws attention to factors such as the objectification of women and the standardization of beauty. These elements are already present in the consumer society,and are embedded in these types of robot 'products’. These products amplify and tend to affect intimate and social relationships, undermining human relations that ‘should be’ based on principles of equanimity and respect.

She suggests that sex dolls are 'another option on the menu' that cater to a belief that a woman is a property in a unilateral relationship to serve male purposes. Sex dolls and sex robots reinforce the idea of woman as an object of possession or consumption, as these robot dolls symbolize the relations between the genders in patriarchy. (Richardson, 2015). In her book "An Anthropology of Robots and AI: Annihilation Anxiety and Machines," she goes back to Karl Marx’s "Capital" to highlight how the capitalist industrial system materializes human relations and creates social relations between things. If capitalist society believes that everything is a commodity, she concludes: “A human-robot attachment is only possible because of this mechanistic sociality that underscores contemporary sociality. Mechanical sociality is an outcome of an attachment crisis in how humans’ bond with others.” (Richardson, 2015, 131).

The *Campaign Against Sex Robots* claims that sex robots are artifacts that evoke grounded dreams and perceptions of patriarchy domination over feelings, sensitivity, and respect to lives. They argue that the focus on the female robot sex developments - and on the way those dolls look - represents relations established with distorted images of relationships, imposed by male desires.

Sex dolls are a representation of the understanding that intimate relationships function with one part using the other part. That is to say, sex robots, embedded with the most recent technological developments available, tend to naturalize (and emphasize) what was already

objectionable. The naturalization came first from the idea of neutrality in technology and science, confusing the perception about the values embedded in such technological devices like robot sex as they would be representing how relationships are supposed to be.

In most societies today, feelings are understood as weakness and a female attribute. However, war, a mainly male territory, is made of feelings of rage, resentment, and frustration. Richardson asks which beliefs come embedded with the robots, and what these practices can tell us about gender, power, inequality, ethnicity, and class. She then proposes that "extending relations of prostitution into machines is neither ethical nor is it safe" (Richardson, 2015, p. 292). It is not ethical when the use of such artifacts may stimulate more violence, social isolation, and loss of empathy. In her presentations Richardson mentions cases of ex-prostitutes' narratives against the sexual market, as many of them were raped from a young age, obliged, and trained to work as prostitutes. They run campaigns to change the demand for paid sex, believing that would decrease the risk of violence and exploitation of young girls, and boys, who already suffer from prejudice because of ethnicity and precarious economic conditions.

From the arguments presented in this session, it is essential to note that using robots as substitutes in those circumstances will not decrease the demand and is more likely to stimulate this type of market where humans are cheaper than robots.

When advocating the use of child sex robots to treat pedophiles, Shin Takagi claims to be helping people like him, enabling them to perform their fantasies without causing harm to children (Tran, 2016). The critics of the perspective that dolls can serve as therapy points that the existence of such toys legitimates the sexual fetish, and, if socially accepted, how would, for instance, children feel about knowing that children dolls exist to satisfy adults sexually?

The idea that robots imitating children could aid in the treatment of pedophilia is refuted by researchers in Bioethics and Applied Ethics (Nascimento, 2018). Patrick Lin – Professor of Philosophy and Ethicist at California Polytechnic – suggests that treating pedophiles with child robots for sexual use is as dubious as it is repulsive: imagine giving racists brown puppets to be insulted or beaten! He further states that if the act of expressing racist sentiments contributed to the healing of the offenders, there would be no more racism in the world. Rather than preventing abusers from materializing their fantasies with humans, the creation of robot dolls to be raped is like an advertising campaign in favor of such behavior (Sparrow, 2017).

This debate would, therefore, extend to the fact that other categories of robots designed for work – from receptionists to soldiers – are at the service of their owners. From the first robots

emerged as characters (Richardson, 2015), at the play R.U.R. (Rossum Universal Robots), (Capek, 1920), which inaugurated the science fiction style, to the actual productions as *Westworld* series, robots play the role of disposable beings.

To have machines as slaves is being a very seductive 'trap' where exploitation becomes acceptable and natural. In the same way, sexism can be seductive to poor workers: despite the condition that makes their life miserable, they can still exercise some power over women, treating them as property, requiring from them the submission they also have to accept from the hierarchical system.

The analogy is also explanatorily productive if we compare how people express their frustrations with objects that are at their service, from cars to employees. As a chain of relations, where one controls many things and, at the same time, feels controlled by a system: it works as if they are pieces of the same machine.

Interestingly enough, the word robot in its original Czech means forced labor or servitude (Nascimento, 2018). Therefore, it is not surprising that the notion that a slave will have their own slave – their own machine that can be used against the master- works to secretly comfort the slave (Chude-Sokei, 2015). That is, the way hierarchic systems operate in a "consumer society" creates possibilities of escape for all oppressed beings. In this sense, everyone can have something below themselves upon which to express power. This is the case whether it pertains to people because of their gender or race, or to objects such as robots.

In addition to the concern that sex robots only exacerbate disrespectful behaviors in terms of sexual relations, there are a few other ethical considerations. For instance, the use of sex robots also intersects with cultural and religious issues. A group of Islamic researchers signed an article claiming that "having intercourse with a robot is an unethical, immoral, uncultured, slap to the marriage institution and disrespect for the human being" (Tijanil, 2012, p. 21). The authors of this article suggest that according to Islamic law, sex with the robot would be considered adultery for married people, or unacceptable promiscuity for singles, with possible punishments ranging from a hundred lashes to stoning to death. In the same way, marriage with a robot would be forbidden, just as it is not possible to marry a person of the same sex or an animal (Tijanil, 2012).

Privacy is another important ethical topic that is raised by the discussion of sex robots, as the smarter the devices, the more risk their users will be of having their privacy violated. With sex robots built to function with AI, they may record sounds and images of the human-robot interaction.

The lack of privacy posed by the use of companion robots presents similar problems to use of

robots designed for health care, such as automated nurses, as well as many other devices in *Internet Of Things.* In order to get the benefits such devices offer, users need to give up their privacy and accept the risks that come with doing so. Because the aim of the machine's constant learning is to improve the AI, it needs access to sensitive data. Also, using devices to trigger emergency assistance in Health Care would need communication with the external world, through the internet, continuous data exchange through cameras, biosensors, lights, and sounds. However, the flow of communication with the external world remains a problem, as, despite the best efforts of cyber-security researchers, smart devices still pose significant risks to privacy. One example is what happened to a vibrator that communicates with a mobile app. The product, with more than two million sales, was hacked, and its private information collected. This data including information about the frequency of use and body temperature was accessed by third parties, who could also activate the device by themselves (Hem, 2016) (Ghosal, 2016).

Finally, for the arguments against sex robots, those artifacts make evident societal problems related to gender, labor, privacy, among other characteristics of an industrial way of living. The possible consequences raise questions to secular ethics, religious morals, and many different claims, from safety to the potential impacts on the reduction of human reproduction.

4. Discussion

> *Sex robots are likely to play an important role in shaping public understandings of sex and of relations between the sexes in the future.* (Sparrow, 2017, p. 1).

Despite the potential symbolic force present in the establishment of intimate relationships with robots, sex with these beings will hardly represent something close to what could happen between people. Robots as 'beings' recall their process of individuation as technical objects (Simondon, 1958). Still, if the goal of AI is to replace humans because of existing difficulties and frustrations in the art of relating to one another, its effects will not be as expected, as its development – able to meet the wishes and whims of the 'user' – still has a long way to go. "Robots with humanlike motor skills are under development, but we are still some distance away from a robot that integrates these movement features with a humanlike appearance and touch" (Danaher, 2017, online).

Thus, interaction and response in situations created by science fiction – for example, in old or recent films like "Her" – is still illusiory, since it has not been possible to make robots respond with emotions related to their context.

We propose to give special attention to author Michel Foucault on this discussion, because of

his concepts of biopolitics and biopower.

The publishing of *Les mots and les choses* (translated to English as *The Order of Things*, 1966/1970) made Foucault well known for questioning representations from classical philosophy to the use of language itself. (Gutting et al., 2019)

According to Foucault, "systems of thought and knowledge are governed by rules, beyond those of grammar and logic, that operate beneath the consciousness of individual subjects and define a system of conceptual possibilities." (Gutting et al., 2019, online)

In *Discipline and Punishment* (1975), Foucault pointed out the surveillance technique used to produce "docile bodies" to control them easily, resulting in a mechanized system. A docile body is, therefore, a mechanized body that meets given positions according to power relations.

Biopolitics is a term where Foucault denominates the politics of the modern state. A combination of constraints represents it as a force upon imagination, capable of changing the senses, views, and perspectives of the body. Foucault argues that biopower is a result of the biopolitics run by institutions, top to bottom. Eventually, it starts to work from the bottom-up when people begin to police each other's behavior.

From the biopolitical perspective, we could speculate that people have the right to express themselves in many different ways,and having a robot with AI for sex and companionship is a possible relationship in our times.

Marrying a robot is performative: it conveys a message that those who are against sex robots criticize. However, before going on to evaluate the arguments against sex robots and its affinities with Foucault’s views, let us remember that developers and researchers have also been using technology for sexual education purposes, as demonstrated by the App Lickster (Leelo, 2017) or the 3D printed clitoris by Odile Fillod (Theobald, 2016). In that sense, could sex robots be a tool for sexual understanding and training purposes? From the perspective of the “campaign against sex robots,” those devices are anti-education.

Assigning to sex robots the responsibility of helping cases of hate, pedophilia, misogyny, or pathologic shyness overrates its capacities. It may look good, but it is still a product poorly designed to address these issues; there is not much research, quantitative or either qualitative, to prove that this is the case.

In *History of Madness in the Classical Age* (1961), Foucault points out that the "discovery" of madness as mental illness was combined with questionable social and ethical commitments by modern clinical medicine. He goes on to further analyze these issues in *The Birth of the Clinic* (1963). For him, deviant behaviors that potentially cause harm to others are not there to be

analyzed separately—saying that, presenting solutions where the individual will have the freedom to cause harm to others (through a symbolic medium such as sex robot dolls) shows itself to be problematic as will be further discussed. Because the sex robot dolls follow cannot give consent, they offer a different context from engaging in sadomasochism as, in that case, individuals give consent and there is complicity in the eccentric attitude towards sex acts. Moreover, the sex robots are designed as 'normal girls' and normalize the roles of the individuals involved (including the robots). Therefore, as the prefabricated relation involves the logic of domestication of the bodies, in a Foucaultian sense, the use of sex robots is not to be praised.

If deviants find acceptance with the help of robots, would that be a way of surrendering to normativity? In that case, the biopower is manifested through a way to fit society. On the other hand, when fucking a robot become a public statement, what is happening between the lines?

Defense of sex robots is troubled with conservative arguments. The full project and its design appear to ratify male dominance, where women's thoughts, feelings, and perceptions are anti-erotic, that is, something to be fixed by technology.

To be an owner of its own body is a cultural capital that not everyone possesses (does a robot?). Foucault shows how sexuality becomes an essential construct in determining not only moral worth, but also health, desire, and identity (Gutting et al., 2019).

A robot is not an owner of its own body; therefore, its identity is compromised. In order to have a culture, the robot would need to use its robotic language to exchange perceptions and information with other robots. It would need to know how to ask for help in the case of abusive behavior from his/her partner. The list of needs to make a human-robot sexual interaction a safe act goes on.

Thus, to discuss devices designed for sexual purposes is not to discuss the freedom of using them or not, but how they are related to our identity, how they represent our desires and interact with them. The question remains if sex robots can potentially help us to free our bodies from suppressed desires, or if they are devices that are more likely to numb our actions and perceptions.

How do we understand the impacts and harm caused by new technologies on the quality of life in terms of mental health, relationships, and sociability? Physical and mental disorders, if evaluated separately, may lead to uncertain or mistaken conclusions. Often the problem cannot be attributed entirely to new technologies, but more to the way they are designed and used.

Artifacts have politics embedded in them. Gender and objectification of the other represent ‘games of power’ grounded in prejudice.

Researcher Kate Devlin suggests that the gender problem can be solved if we understand that the robot, as a machine, has no gender.

For the FRR report, manufacturing a unisex robot with the possibility to change the genitalia could be a possible solution to concerns about robots constituting sexist representations (Sharkey et al., 2017).

The idea of an open design where sex robots could be assembled like a puzzle would give more freedom for the imagination.

Nevertheless, the body separated in pieces is a confusing image, similar to the discussion of (Cartesian) mind and body separation. However, if we can pretend that seeing the body disassembled in separate pieces is not a problem, yes, sex robots as a puzzle could be fun.

The purposes of having a design distinctive from the simple copy of humans intend to be a solution for objectification. But if they still have genitals and body structures as the human, they are sex robots designed to function humanlike. The question remains if it would be morally acceptable to use and abuse a robot sexually.

The rise of real sex robots, analyzed by the concepts of biopolitics and biopower, suggests a reinforcement of a distorted idea of sex and sexuality. By reducing such idea to a mechanized perception, sex robots are a piece of culture and science. They could be just one more device to serve domestication, or express freedom from the boundaries of civilization’s repressive forces. On the other hand, relationships in the age of AI and digital revolutions are already troubled enough without people feeding their fantasies with sex robots.

In summary, if a sex robot is a seductive strange 'other’, which we should embrace, it does not mean that having sex with robots would represent freedom of pleasure and expression. As suggested by the critics, it can enact problematic practices of rape and pedophilia, or it could just be a conformity to the whole ideal produced by consumers society. In that sense, the bodies who are copulating with sex robots may be under domestication and control, as the robots are also. Moreover, if those artifacts are just another option in the menu of the porn industry, as Kathleen Richardson argues, they also can coexist with human couples inside their houses or in a brothel. In that sense, they also represent the anxiety produced by the biopower of a technologically ubiquitous society, where individuals are continuously manipulated by the stimuli presented to them.

5. Conclusions

> *The realm of intimate robotics, as mentioned previously, is not just about sexual devices; it is about a broad category of technology with which human users might form strong emotional attachments.* (Borenstein, Arkin, 2019, p. 299).

A life mediated by emerging technologies compose a scenario of a vast number of stimuli. They are changing our sense of being human. Robots and AI designed to play the role of flesh and blood companions are an attractive option for the busy and confused human in contemporary solitude.

According to Sherry Turkle (2017), rather than reducing loneliness, such devices are increasing it by further estranging people from each other. Turkle argues that robots cannot feel empathy and that lack of human connection in an anthropomorphized machine is likely to increase loneliness.

Indeed, it is hard not to wonder whether the desire for a robot companion is itself a symptom of alienation as the result of many hours spent online; this tendency has the potential to damage people's capacity to deal with real and daily relationships.

Sex robots and all virtual realities in the realm of AI play an ambiguous role in resolving the problem of solitude by reinforcing one's indifference to human relations. If the impacts and possible harm of explicit contents on human-computer interaction depend, mainly, on age (Wonderly, 2008), sex robots may give different perceptions of relationships to those without experience in human-to-human contact. In that case, they may be incentivizing insularity when a robot's role is to please the owner and attend to its fantasies.

As sex toys are products with little or no regulation (McMullen, 2014), the advancement of robot sex from regular sex dolls shows that we need to discuss the ethical issues they raise. Because robot sex is a technological innovation, and sex dolls are considered a sex toy, the call to discuss their possible impacts can appear an antiquated idea of ethical control.

However, sex robots become an issue for bioethical analysis when objectifying female bodies. It encourages disrespectful relations, reinforcing different types of prejudice and violence.

Instead of thinking that culture is a closed package that does not change and does not move, the criticism of the sexual robot design appears to believe that culture and human behavior arechangeable and those sex robots are related to old-fashion beliefs, despite the fact they are a piece of innovation.

We still do not have enough empirical evidence, in significant numbers, to say that they are bringing benefits to their users or if they are causing men to treat women worse. As their manufacturing companies are not supposed to expose buyers' privacy, it is hard for a

researcher to find them and investigate their real motivations, needs, and experiences. Until now, only a few buyers are opening their experiences to journalists, and the reports are on a superficial, and possibly sensationalistic, level.

The question of robot sex is problematic only when they are anthropomorphized to look like a woman, man, child, or animal remains inconclusive in the discussions from the sources presented. Moreover, if artificial life is a simulacrum of human behavior, it is a step further from other sex toys.

Although the research on the impact of technological developments has been increasing in the last decades - from historical, sociological, public health, and many different perspectives - we still cannot find a significant number of studies regarding the impact of technology on the bodies and ethical concerns about it. That indicates a long way ahead for a better understanding of those impacts.

It took a while for researchers in psychology to focus on the radical transformations operated by digital revolutions to understand better how the human body and relationships are changing. Nevertheless, if the research has been increasing in the last years, it is still more to find out. If scholars do not give attention to those transformations, the academy may lose the ability to interpret, understand, and prepare professionals to help individuals to understand their anxiety and sufferings. Moreover, the winds of technological change generate intense nostalgic resistance and much fear of the unknown (Nicolaci-da-Costa, 2002), which tends to motivate people to seek peace and comfort on conservative beliefs and measures. That would explain that the speed of technological revolutions goes faster than research and development about its impacts.

We have been in a cyborg life for a while. Perhaps an optimistic view of those technologies would be the hybridization concept of human-robot interaction as a reassemblage composed of humans, cyborgs, and machines. That would mean, whether sex robots create tensions, those potentially hides new answers. Hybrids are cyborgs: a post-human subject (Braidotti, 2013) (Donna J. Haraway, 1991). The empowerment through these technologies requires taking action to reshape them. The tensions resulting from such entities as robot sex represent intersubjective communication: a technological design (product or project) hard to ignore. It is an answer or a question calling for other questions and answers through diverse designs (Flusser, 2007).

In conclusion, a bioethical call for regulation is always about presenting questions about how technologies should be applied and considered among their development.

Social technology creates new forms of loneliness, and if sex robots are a way to respond to it,

it appears to be like the vicious circle of 'sickness' treated by medicine that gives an isolated solution, creating new problems to be sorted by adding many other pills.

6 DISCUSSION

> The whites were among us a long time ago. They lived with us, then they forgot who they were and went to live another way. They clung to their inventions, tools, science, and technology, went astray, and went out preying the planet. So, when we meet again, there is a kind of anger that we have remained faithful to a path here on Earth that they were unable to maintain. (KRENAK, 2020, online).

What values are embedded in AI and robotics? Values are invisible things and the nonpresence has many layers of information. For instance, when looking at a robot, a tablet, or mobile phone, we see the final product and we often don't see the workers behind the assembling of the robot, the workers responsible to manufacture the pieces, and the ones who put their lives in risk to extract the raw materials. Besides them, the impacts in the environment, because of mining and also the generation of electricity through power plants, harm the lives of many populations. Those are also invisible elements when we look at robots and AI.

The *Bioethics of Nonpresence* proposes to acknowledge that everything has a nonpresence to take into consideration for the bioethical analyses. Although ethics is a combination of ideas spread into society, in different ways, the concept of *Bioethics of Nonpresence* is an invitation to always think of Bioethics through the *nonpresence*. Therefore, if we pick a topic such as the robots to proceed a surgery, from the *Bioethics of Nonpresence* perspective, the project should be analyzed by its sustainability and impacts, and not only by comparing its efficiency, benefits with the risks and possible specific problems.

The whole cost of a project has many layers made invisible. What seems to be nonpresent, if taking into account, may change the perspectives of understanding certain projects as a solution, when the problems they cause are likely to make them not worth it. Nevertheless, it does not erase the need for solutions in specific areas. Once the 'invisible' became evident, science can seek innovation through different means and materials.

That said, an important question to think about is: how many lives are in the shadows of a robot? From the first perspective which is environmental and human, the second is related to ethics in research: how many surgeries a doctor needs to practice in those machines to be prepared, and what are the investments in Education comparing to the outcomes? (CUNHA, 2019). Most likely, the first patients will be part of the practicing and at risk of unfortunate events (DICK, 2018).

Some may argue that we are investing in the future when it will be a good number of professionals with expertise in proceeding surgeries with robots, the cost may get affordable at some point, and it will benefit the public in general, and not only those who can pay more for a hospital with sophisticated machines. However, if we compare this argument with the fact that machines get obsolete, with all invisible costs embedded in them, it may be a good thing to rethink the project and redirect the attention to find more sustainable projects. Moreover, a robot with an AI has more layers of invisibility: knowledge, language, logic, statistics, representations.

Knowledge, as discussed in Chapter 2, is supposed to represent the seeking of truth. However, to achieve truth, methods are designed. Methods operate with logic. Logic is not a 'magic' expression of the 'sacred' reason, like a diamond placed inside the human brain. Logic represents a set of principles to be applied in reasoning. The idea that it is possible to have a universal, supposed neutral in terms of intentions is likely to be an illusion. It can represent a desire to have things stable and in control as a vision of a specific group of humans would like things to be. Therefore, as every human mind may have different projects and perceptions, logic can only offer a partial truth (COSTA, 2003). Once we understand and acknowledge that logic may contain bias, we open space to search rich data that may divert the rush for conclusive results to an open field of parallel realities that leads to other narratives and possible conclusions. Otherwise, what we have is AI colonizing the world when giving the status of truth to 'partial truths.' That has political and social implications. Presence is equal to truth; that is, the understanding of full-presence is proven by different means as what should be the truth. However, the nonpresence is equal to partial; that is, all truth is partial, but that is a statement made invisible (nonpresent). Therefore, 'partial truth' is ubiquitous, while what is perceived in 'presence' and 'image' is only "truth."

As we have a problem of 'partial truths' constantly representing 'universal truths,' it is also necessary to train consciousness about seeing beyond what is presented as information. That is, to avoid the impacts of misinterpretations, cognitive perceptions need to be amplified to a broader understanding of the sensory cognition hidden – or in parallel – of narratives and information in representation systems. A concept facilitates the process of identifying and perform analyses, moreover, it helps to memorize (GOTTFREDSON, 2012). For instance, the "American Dream" is a concept that represents a historical time, a way of life, and, a way of seeing the economy. When I arrived in Melbourne in an elegant suburb I look at the houses placed harmonically, one next to the other, with gardens, without bars, locks, and high walls, it made me feel that maybe I did time-travel and that was a picture of the "American Dream".

Therefore, the knowledge of the “American Dream” opened my vision to an interesting interpretation which could be an object of investigation with questions such: how old are those constructions? Is this society in Australia influenced by the “American Dream”? A single concept holds layers and layers of information, yet, it proposes a way to unfold those layers, or to actually recognize the layers are there. *Bioethics of Nonpresence*, therefore, is a way to open for the narratives of the invisible. For instance, if I am holding an orange and say it is an apple, someone will either correct me or get confused, as, in the English language, orange is always orange. Yet, if I say the orange is a mandarin, almost everyone will agree as they look very similar. But, if I say mandarin is uniquely and exclusively always a mandarin, it is not true. It can be mandarin, or tangerine, or clementines, i.e., different names describe the fruit with the same or similar characteristics. This is a basic example to think about the first step of recognizing something for what is, what appears to be, and what is not.

Let's go now to an example of human classification. A friend, who is an actress and producer, looked at me once and said: "about Elen, we don't know if she is blond or brunette, brown, white or black". Because theatre, cinema, propaganda work with stereotypes. If they can't fit you on one of those, it is more likely that you will not get the job. Of course, as racial bias in those fields has been discussed more in the last years, it did change a bit, but there's still a long way to go.

The main question with the *Bioethics of Nonpresence* is, once a distinction for "what is" and "what is not," occurs, other possibilities of explanation and comprehension are automatically sent to invisibility. For instance, "Elen is blond" does not represent Elen's experience in the world, and the case repeats when fitting Elen in the other categories.

Important to recall that the idea of separating everything into two categories of "true" or "false," "what is," and "what is not" is proposed by the Greek classical logic. Therefore, the *Bioethics of Nonpresence* discusses the invisibility of the multiple elements and possibilities to understand the objects observed (humans or non-humans) in the realm of science and, most importantly, the ethical-political-relational-environmental implications of suppressing all that is apparently 'not present.' Moreover, the invisibility goes beyond understanding a 'single object' as something closed in itself, to all elements that coexist with each object: ‘inputs’ and ‘outputs,’ which are material and immaterial things. E.g., a black person can receive negative ‘inputs’ of prejudice, neglect, and the ‘output’ can be 'constant irritation,' among other possibilities. A woman can have ‘inputs’ of being dehumanized and infantilized, and, in many cases, the ‘output’ can be 'frustration.'

AI is plenty of invisibility. If it is used as a way to help decision-making in health and other fields, it needs a large amount of data from people of different ages, backgrounds, and socio-economic conditions. How this data is analyzed represents the nonpresence of systems of knowledge, methods, and even beliefs. To be able to unpack those questions, layer by layer, *Bioethics of Nonpresence*, as a concept, helps to create an image for what is not evidently there when, for instance, an AI underestimates a time to be spent with a black patient based on previous records (BENJAMIN, 2019). As a part of systemic racism, black patients get sicker because they have less care. Therefore, systemic racism becomes normalized when not spending enough time with black patients turns to be a rule, a suggestion by an automated system, built with previous records, without any criticism.

The evidence is shocking as it goes back to the racist science of the 19th Century, to cite one example when the statistician Frederick L. Hoffman produced a report in 1986 claiming that black lives were uninsurable. He embedded racial ideologies within its approach to actuarial data, a legacy that remains with the field today (WOLFF, 2006).

Should the dangers of misinterpretations in methodologies and systems of knowledge be already well-known enough to avoid future flaws in science? Yes, it should. However, the mystery to be solved is to identify why it doesn't. Such ideas spread and normalized through statistics remains multiplying injustice now with AI. A person who is not black, either touched by principles of justice and fundamental rights may think those questions don't affect them.

Wrong.

Any system looking for patterns and classification to take important decisions creates a Technopolitical State[17] where everyone is affected at some point.

The use of facial recognition and video analytics of surveillance cameras from multiple locations by the Police presented strong bias on many occasions indicating the whole system is compromised with racial injustice. When a computer program predicts the likelihood of committing a future crime it exaggerates the degree of dangerousness in black people while it underestimate the danger in lighter skins. For example, Brisha Borden, 18-years-old, never

[17] "Technopolitics concerns the dynamic process between technological developments and political purposes. Technopolitics constitutes contested terrains on which political actors appropriate new technologies and used them for what they perceive as politically instrumental." Kurban, Can, Ismael Peña-López, and Maria Haberer. "What is technopolitics? A conceptual schema for understanding politics in the digital age." *IDP. Revista de Internet, Derecho y Política* 24 (2017): 3-20.

committed a crime and while was running to pick up her sister she took a bicycle -left unlocked- for riding. A neighbor called the police and she was arrested. She was rated high risk for future crime, while 41-year-old Vernon Prater had served years in prison and committed a series of armed robbery, was rated risk “3”, against the “8” of Brisha (ANGWIN *et al*., 2016).

It is important to notice that, different from a tangible tool like a hammer that a person who uses can turn into a weapon, which will be his/her responsibility, AI is nontangible. Therefore, the harms' responsibility caused by misinterpretation, bias, or malfunction gets dissolved and harder to fix and take care of, especially if it is related to morals. Therefore, ideas such as "the whole system is compromised with racial injustice" are not exaggerated, and that is proven when racism appears in all levels of AI, from health care to justice or a simple Google search. The same happens with gender and any other typical bias. If AI is just a "tool," who is responsible when things go wrong? The system is compromised because there are layers and layers of invisibility manifested by implicit and explicit bias. For instance, the police are invasive and violent with a type of profile and, therefore, data of "criminals" represent what the policemen consider 'potential criminals'. On the other hand, the police don't check the pockets or knock on the doors of middle to upper class 'whites' and, in consequence, there's no data of crime practiced by this part of the population, comparing to others, even if they could find with the not-checked profiles, different types of illegal drugs, possibly even in large quantity. This is a well-known problem at this point, but even so, it needs to be repeated and discussed exhaustedly because the general sense is that "data is data" as if data represents truth. In fact, data represent reality, but not a reality equals truth, but a forged reality-based in systems of power grounded in inequality and social injustice.

Therefore, it is necessary to recognize the *nonpresence* of human action when we look at AI. From the beginning of the data collection and interpretation that generate the statistics and, why not, to question if the logic could reinforce bias? And, how could that possibly happen as math is just numbers and syntactic operations? This is a question for further studies, a provocation to specialists, and an invitation to open an interdisciplinary discussion. Basically, when the logic requires only one possibility of result/explanation, it automatically erases other possibilities of explanations. Let's think, for instance: you cross with your neighbor in the corridor of the building you live, you greet and notice he/she does not reply in the same way. If you are required to give a single explanation for that, what would be? Probably the 'best match' is that this person is not polite. However, a sensible human can exercise relativity and think that this person may have had a bad day, someone in the family is

sick, someone that she/he loves died, the person was just fired or received any other bad news. Unfortunate events in life can excuse even crimes, although crimes will be judged in any case. This analogy is only to exercise the thought that each phenomenon may have various explanations, and to pick one above any other may result unfair. The unfairness expresses itself as a more negative option will be often associated with one type of profile and a 'positive' option with another type. A person will exercise empathy with a neighbor as long as he/she sees the other as someone 'worth' to have empathy. The internal judgment will be influenced by implicit bias.

In the case of AI and machine learning, 'bias' could merely represent previous information, but in human culture, 'previous information' leads to harmful patterns of prejudice (CALISKAN; BRYSON, 2017). Studies of machine learning based on implicit bias tests demonstrate that "names associated with being European American was found to be significantly more easily associated with pleasant than unpleasant terms, compared with a bundle of African-American names."

The flaws in facial recognition go from the human problems with classifications and prejudice to the inaccuracy that leaves a sequel to life. It happened with Steve Talley, a white man mistaken by pattern-matching methods using surveillance cameras, as the man who committed a bank robbery (KOFMAN, 2016). Under Technocratic and Technopolitical State, machines take control as human operates as machines. Autonomy is compromised when AI is in charge to decide or suggests a person's destiny.

Although “the human in the loop” should represent a sensible and sensitive evaluation, often it is just convenient to take the AI suggestion because making decisions is frequently not easy.

Often, AI decisions are mistaken by the assumption that it reaches determinations by “engaging in some sort of synthetic computer cognition that matches or surpasses human-level thinking.” (CROOTOF, 2019; SURDEN, 2019). Therefore, the human problems embedded in AI decisions remain invisible, while the perception that AI decisions are an expression of scientific values, overestimate such outcomes.

In that sense, we should ask where the autonomy of the individuals making the decisions, when consulting automated systems, relies on upon. Are they respecting their professional ethics, in the case, for instance, of a doctor, nurse, lawyer, or judge? Are they following the right to be assisted without discrimination of race, social status, gender, and so on?

What is autonomy, if not the irrefutable value of being in possession of your own decisions, free from any form of manipulation or external force? We should ask, is the use of AI to assist a decision, a form of manipulation?

As a concept that gains ethical-political contours with the advent of modernity, the absence of autonomy makes the environment conducive to totalitarian practices (CHRISTMAN, 2020).

Autonomy is part of the guiding ideas of the construction of citizenship, in secular, western, and contemporary societies, and, with the advent of Bioethics, the term gains special attention (SIQUEIRA-BATISTA, 2008). It represents the right to decide freely without coercion. In politics and philosophy, the term ‘autonomy’ yields debate surrounded by paradoxes, often when individual freedom confronts a law, collective interests, or any other specific rule. In Bioethics, the protagonism of autonomy offers dilemmas when other values are considered for the community's good and individual well-being when they diverge from the person's will.

These are dilemmas because there is not a single narrative that offers the justest resolution. The Kantian perception that supposes the ability of the will to self-regulate (TRAPP, 2019) is totally dependent on the full knowledge of a set of rules, that is, of the well-informed individual. Not only this fact, but also, in the presence of ‘conflicts of interest’, self-regulation is conditional on the individual’s ability to connect with the ethical principles outlined in view of a better relational life in the community. The cognitive capacity for moral judgment that leads to autonomous action is influenced by affective and emotional factors (REGO, 2005) referenced in ideological or religious patterns of a given culture. The full autonomy of moral action, therefore, requires “working on the affective dimension” in order to “awaken true moral feelings” (REGO; PALACIOS, 2017).

From there we can examine two important things: neither computer systems such as AI are enough informed about all implications of their decisions, neither humans are enough informed if we take the Kantian statements. Secondly, the "affective dimension" important in decision making, it is not available for AI and it is not a 'device' that humans are always willing to access when deciding other's destinies.

Commonly, decision-making procedures seek justifications to relativize collective contractual commitment, as it is easier to analyze events separately and individually. In many cases, the law is ambiguous and can act on behalf of some and at the expense of others, even though the ‘others’ are the victims in a dispute.

On the other hand, when we compare the potentiality of the autonomous decision-making process by a utilitarian morality that does not recognize in humans the ability to sacrifice their well-being for the well-being of others (MILL, 2005), it is still possible that one chooses what can produce the greatest good, evaluating the consequences (consequentialism). Thus, utilitarianism is distinguished from mere selfishness when taking the relevance of the consequences into account (DRIVER, 2014). That said, one can ask how utilitarian/consequentialist morality would be embedded in computer systems. The "trolley problem" [18]became a 'classic' example to explain how the utilitarian moral perspective can help in difficult decisions. However, the problem has been reviewed many times with minor changes to argue that not always the 'greatest good' would align with the greatest number of people. Relativizations applied to utilitarianism brings the ethical discussion to the very beginning: what matters and why?

The autonomy in favor of what brings greater happiness has a hedonistic and numerical component: this happiness translated in some measure must reach a greater number of people. On the "trolley problem," if the single person to be killed on the other side, instead of the five adults, is a child, people may feel more unhappy that a child was killed to save five adults than the opposite. The restriction principle defined as 'neutrality' is present in utilitarianism's defenders since one's happiness is not seen as more important than the other. In practice, however, moral evaluation already carries preconceptions. For instance, if the five adults are poor workers with dark skin and the child white from the middle or upper class, the general moral perception will favor the child. Otherwise, a dark-skinned poor child on one side, and five wealthy and white adults on the other, would bring a different scenario of moral perceptions. While in this case, the adults would be humanized, as people could ask, "what about their children? They will become orphans", and so on. In the other case, the fact that the adults have chosen to be sacrificed also has the right to live, have children, and so on, which could remain invisible.

Moreover, the question is how a human in such pressure to decide practices his/her autonomy, and how it would be different from an automated system decision. Often, the social

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[18] "The trolley problem" is a series of thought experiments in ethics and psychology involving stylized ethical dilemmas of whether to sacrifice one person to save a larger number. (...) It consists of: There is a runaway trolley barreling down the railway tracks. Ahead, on the tracks, there are five people tied up and unable to move. The trolley is headed straight for them. You are standing some distance off in the train yard, next to a lever. If you pull this lever, the trolley will switch to a different set of tracks. However, you notice that there is one person on the sidetrack. You have two options: (1)Do nothing and allow the trolley to kill the five people on the main track. (2) Pull the lever, diverting the trolley onto the side track where it will kill one person.
Which is the more ethical option? Or, more simply: What is the right thing to do? (https://en.wikipedia.org/wiki/Trolley_problem)

perceptions will have an important weight on those decisions, in humans' case. That is where ethical traditions such as deontological and virtue ethics play a role in cultural heritage. Also, those traditions have an embedded bias of privileging some over others.

The exercise of empathy is to allow oneself to be affected by other bodies and their histories, to understand the needs of others, not from points of view external to them. For instance, theological utilitarians work with the 'will of God.' That directs individuals' autonomy to replicate taught 'presets' of morals, which can be conflictive even with other social, ethical perspectives. And if, among humans, it is not easy to negotiate such a variety of moral judgments, it is certainly a higher challenge to translate it to automated systems such as AI.

The moral evaluations on which decisions are based go through the issues of addictions and virtues and suffer many distortions since the classical logic embedded in epistemology does not admit ambiguities in thought nor evaluate the relevance of desire. Likewise, understanding whether someone is more prone to addiction or virtue is not a mathematical equation. However, in contemporary society mediated by ubiquitous computing, a person or an AI works with the same logic where there is just one possible answer, and what guides its decisions is a large amount of information overlapped.

Logic is an abstract concept that operates the main concept called reason. Philosopher Immanuel Kant dedicated his life to explain how morals could be translated to reason. From his work, one can interpret that he bets that personal wills can align with society's wills, and thus, the autonomy of the will is not guided by the dichotomy of sacrifice versus pleasure. However, Kant's 'will' translates into practical reason since reason is the only foundation of the determination of the will (TRAPP, 2019). In this way, 'the autonomy of will' is not the result of a process, of a phenomenological and interrelational ontology, but it came from 'pure reason,' a reason supposedly able to detach from affections to reach the highest stages of the mind for 'correct' ethical decisions. That said, if one day we will ever be able to eliminate bias related to human judgment and misinterpretation of data in computer systems, the 'pure reason' will have its first and unique time to be born and flourish through AI and robots. At the moment, we can only dream of it and eventually make the AI dream of it, as well.

Meanwhile, if ethics requires a shared view of duty (MILL, 2005), a collective conscience, the concepts outlined by Descartes and Kant are widely disseminated for centuries and highly influential in the field of knowledge. Therefore, they are part of this shared consciousness. Thus, if collective intelligence is strongly influenced by the dualism of mind/body, reason/emotion, it also reflects how these concepts are distorted in the empirical

experience as the separation of mind and body may be easily applied to machines, while - thanks to scientific knowledge development, - we already know that this separation is not adequate for humans.

As a result of body-mind detachment, autonomy is compromised both when there is an excess of control in actions guided by protocols and when there is no control at all if emotions explode in psychotic flare-ups and other forms of emotional decompensation. The outbreak, however, is not merely emotional but a breakdown of the divided mind.

Therefore, when we think to what extent the individual's autonomy is integral to external influences, in the case of the proliferation of fake news (CANAVILHAS; BITTENCOURT; ANDRADE, 2018) and manipulation of emotions in social media for electoral purposes was a complex operation involving, on the one hand, bots, which are algorithms simulating users, who propagated certain types of news and opinions (LÊU, 2019) . On the other hand, an interaction of these bots with human users generated mutual influences: the bots, and the agents of the marketing agencies and companies responsible for the campaigns, promoted manipulation by misinformation designed to stimulate reactions in the public, something that proved to be feasible to generate engagement with exponential growth.

With the virtual environment full of misinformation, hate speech, and prejudice, those multiplies through algorithms, which highlight what appears most frequently.

When a psychic manipulation mechanism is devised to trigger emotional reactions, the efficiency of the results reveals that ‘behavior science’ has gained control.

Studies of behavior and emotional impact on content on the network (KRAMER, 2014) demonstrate that certain models of psychic standardization have been useful for several purposes of the market: from product marketing to electoral marketing, both highly profitable.

While few people understand the benefits or harms related to the use of their personal data, data sharing can make people more vulnerable through the production of psychological, socioeconomic, and consumption profiles. Data analysis can fit people into categories liable to prejudice that may impact their access to work, education, and health (O’NEIL, 2016).

Even so, the possibility of reversing this process is minimal. The data has already been spread and the regulation deals with issues of privacy, "right to information", "right to be forgotten" and "right to explanation’" (EUROPEAN COMISSION, 2018), but it will not necessarily guarantee access to data interpretation, potentially generated by a third party who owns a 'proprietary software' to offer such a service.

While making the decision about how, and if, private data can be used by third parties, it is more likely that only a more informed portion of the population will seek to activate the

right to have information. Yet, the bet is that the recognition of individual rights regarding private data has the potential to weaken its use as a commodity by companies that follow examples as 'Cambridge Analytica'. Such companies sell their communication expertise as a Holy Grail capable of modifying people's behavior, even if it is promoting wars in social dynamics.

According to Cambridge Analytica whistleblower Christopher Wylie, project leader Steve Bannon publicly stated that "if you want a new society, you need to break it first." Thus, under the motto “divide to control”, Bannon, with technological tools, psychology and service specialists, and high financial investment, articulated a series of strategies so that the electoral results in several countries would meet an authoritarian control agenda. This is not a veiled threat to democracy, since the intentions were clearly exposed and a cultural war was announced on the podiums, with viral actions on social networks and news media.

Facebook's data mining, the use of Artificial Intelligence (AI), “personality tests”, bots, etc., created a ‘carnage’, which starts in the virtual world until it generates face-to-face and tangible conflicts. It happens step by step, from targeting people's profiles, direct content to catch their attention, insert provocative issues to incite emotional reactions. As a result of polarization and the incentive of aggressivity exacerbation, not only the virtual space but the bodily lives get into conflicts.

One of the first Facebook investors, Roger McNamee says that one strategy used was to play with the most basic instincts like fear and anger. This started with the production of a series of tools that allow advertisers to tap into the emotional audience with a focus on each individual (THE GREAT…, 2019).

Journalist Carole Cadwalladr says that in Brazil it was no different, and the strategy of influence and manipulation in the 2018 presidential elections took place via Whatsapp, which is owned by Facebook (THE GREAT…, 2019). The threat to democracy undermines a set of fundamental values to human dignities, such as the conduct of policies of equal access to health (NORONHA; CASTRO, 2019), education, culture, right to work, and housing.

The theme of the manipulation of the imaginary gained adherents throughout the 20th Century, always motivated by the advance of new communication technologies and the ease of proliferation of images.

With the advent of social media and its integration into the daily life of large portions of the population, through the digital platform that fits in the pocket, what it provides if it is an urgent need to understand the impact of technologies on the physical and mental constitution of the human, as well as in society and in the whole environment.

However, even though the first study showing the possibility of emotional influence on people's psychological state when they used Facebook, was published in 2014, and the first investigative report revealing the Cambridge Analytica strategy occurred in early 2018, the techniques continued to be used, and the electoral results of this period occurred as expected and planned by these companies and their representatives who admitted using artifices to modify behavior capable of changing the direction of an election, such as apathy or engagement in many different countries all over the world (CAMBRIDGE…, 2018).

Thus, if the society mediated by technological means has been revealing that autonomy is in many cases illusory, what makes algorithms in social networks, disinformation strategies, and fake news so efficient in manipulating behavior? Where does the secret of these tools lie? Algorithms outline profiles, indicate preferences, give suggestions, as well as making pieces of information more or less evident. Misinformation strategies not always produce fake content but use media that can come from reliable sources, and corrupt it through editing and place it outside the original context: it can be old news that helps to foster fear, or cuts in a speech by political leaders, giving them different meanings from the original context. Such manipulations have been successful in generating immediate emotional reactions.

The impact of digital media and technologies in general, on life, on the body, and on society represents knowledge under construction. Therefore, it must be recognized, isolated knowledge does not respond to the need to understand such phenomena. Misinformation strategies use the fact that people are used to reacting and making judgments by only seeing the tip of the iceberg.

The necessary interdisciplinarity reformats and widens the views resulting in unconventional approaches. That is, comparing the information with other and different perspectives, before making an opinion about it.

However, bringing these themes to the analysis, establishing new or different theoretical associations constitutes a contribution in the exercise of fomenting the urgent and necessary debate about life mediated by ubiquitous computing.

The principle of autonomy challenges the individual’s ability to self-determinate. An automated society is the result of automation generated by the relations with computers and machines. Those are self-managed by information systems that depend or not on human intervention in the act of their processing. Automation makes evident the need to pre-define ‘desirable results’ in order to gain control in favor of such results. In the case of autonomy, it would be infamous to admit that humans are mere automatons that can remain in operation only following pre-defined and formulated patterns without the participation of their will.

However, behaviorism states that human behavior must be controlled in favor of science. It must be manipulated through predictions, to achieve the aim of control (SKINNER, 1965).

Although behaviorism found its best moment of development after the '60s, the concept of man as a machine was introduced by Julien Offrey de La Mettrie (1709-1751) in 1747. On the one hand, he appropriates the Cartesian concept that reduces the body and animals to automatic functional reproductions, on the other hand, he denies the existence of the soul and claims that it is lodged in the stomach (METTRIE, 1749). He says that the human body is a machine that activates its own sources: it is a living image of continuous movement (METTRIE, 1749) , and if the faculties of the soul depend on the proper organization of the brain and the whole body, they are, apparently, just that organization. Thus, the soul is nothing more than an 'enlightened machine', and the human being is no less a machine because it is endowed with a characteristic as 'special' as that of thinking.

The being-a-machine moves within the limits of science in a materialistic perception: the information contained in the body's internal fluids, the energy that this body generates and connects, the power of action. Such a perspective produces and reproduces the need to recognize patterns and organize them by categories. The colors, sounds, and images stimulated by the various sensations of the body-machine are assigned classifications and meanings.

La Mettrie separates the philosophical currents between materialism and spiritualism without completely denying the Cartesian dualistic tradition, but arguing that all the answers are in the body.

La Mettrie's monist materialism develops, based on the Cartesian body-machine metaphor, the understanding that thought is expressed within this body through the fluids that intercommunicate and circulate, from the organs (such as the stomach) to all parties.

A second affinity with dualism by La Mettrie is expressed in the hierarchical separation between those who lend themselves to manipulation through the body's stimuli and deficiencies and those who are really willing to exercise their thinking skills.

Although the words chosen by La Mettrie to describe the categories of non-thinkers are derogatory as 'fools', 'stupidity', 'hungry' and so on, tending to reinforce strong social and class prejudices, it is interesting to note that not only as a philosopher but also as a doctor, he associates good health with the presence of thought in this body. The exercise of thought requires that the body is not consumed by hatred, greed, and ambitions so that it can demand the nurture necessary for the manifestation of virtues.

Although it is evident that the problem of social inequality exposes a large group to hunger and its reflections of hatred, in some passages of his 'manifesto' Man-Machine (METTRIE, 1749) he clarifies that he observes the existence of sensible people who did not own the privilege of education, while many who have enjoyed this privilege prefer to behave like idiots, that is, those who abstain from the ability to reflect, ponder, are 'automatons of the will' (which is not the same as the Kantian 'autonomy of will').

According to La Mettrie, knowing how to distinguish between good and evil, vices and virtues, is part of the necessary balance to be maintained in the internal environment of the body, between solids and liquids, so that it is possible to manifest good health.

From these perspectives, I suggest that what determines the man-machine is above all his absence of autonomy, or the presence of autonomy that expresses itself whether within the predictable, pre-programmed, 'acceptable', whether through the ' impulse of wills', to which the supposed 'autonomous subject' does not have full knowledge, but which is equally predictable, even within actions understood as 'unpredictable' as expressions of rage in personal, social or political matters.

With the knowledge of the limitations arising from social, legal, educational, religious, and cultural rules the subject is autonomous to decide to be in agreement with them, even though the disagreement in certain contexts is not factually possible since adapting to such essential rules is relevant to the sense of the social belonging and acceptance. Automation, however, occurs through repetition with the absence of reflection and participatory awareness.

For example, complying with the laws does not necessarily mean being fair. In many cases in history laws endorsed all kinds of mistreatment that could be practiced on a male or female slave and their children, even taking their lives. Thus, the denial of human dignity occurs not only in relation to the abuse of the workforce but in the recognition - or not - of the ‘other’ as human.

In the 21st century, people continue to be stoned (WORTH, 2010) to death, especially women (2015). Capital punishment - which is already questionable in itself - also highlights the problem that many are unjustly accused, and there is usually no interest in investigating the truth to defend those who are part of groups vulnerable to socioeconomic inequality, racism, and misogyny.

The legislation is also flawed when it protects free-market negotiations without establishing defined restrictions in favor of the rights of workers and consumers, a fact well exemplified in the Series “Dirty money” (DEO, 2018). With these brief examples, it is emphasized that compliance in accordance with social limitations in the form of regulation

(laws) will not necessarily be in accordance with what is fair, which will tend to conflict with moral values. The autonomy to be in conformity with something, or not to be, suffers a series of influences where the ‘autonomous will’ often represents an ‘automated will’.

Still, adapting and adjusting does not necessarily mean becoming an automaton. As a rule, in societies where there is no accumulation of goods or exploitation of labor as in Brazilian indigenous tribes, autonomy is complete, even though individuals submit to the rites of culture. Autonomy is full because societies have a horizontal dynamic that inhibits and even prevents the accumulation of power. Divergence is possible, which can lead to dissent and disengagement from the tribe (ANTROPOFAGIAS, 2018). Therefore, dissidents are so of their own free will.

However, in the case of societies where oppression is functional, participatory critical awareness manifests itself when a law proves to be unjust or a social protocol proves to be biased. But when morality justifies property, accumulation, and certain hierarchies, the horizontality that weakens the accumulation of power finds no way of passing. The indigenous morality of Brazilian tribes condemns the accumulation that is an indication of avarice. Any surplus must be shared (ANTROPOFAGIAS, 2018). Therefore, it must be questioned which elements of education and culture, would be ‘negotiable’ or ‘non-negotiable’ in view of the objective of building a contemporary ethic that embraces the essential demands for survival on the planet. These are ethical demands in the environmental, animal, social, educational, economic, and cultural spheres. Although the universalization of ethics as a whole is a separate debate, we can ask whether some basic principles, such as autonomy, should be 'listed' as essential in all cultures that share relations (even if strictly financial) within the globalized society.

A unification around basic principles to formulate Bioethics for the 21st Century will never be possible if elements of the traditions cannot be negotiated. The consumption of animal products; killing of animals in rites; the elements of patriarchy, both in Judeo-Christian and Muslim traditions, which place women at a social, civil, and professional disadvantage; the racist foundations of new Christian fundamentalists, and so on. In the case of religions, one wonders whether it is not a case of adapting to historical moments in order to prepare people to face the new challenges with greater awareness. The exercise of autonomy, therefore, is fundamental in a dynamic society that needs to seek updated answers to old and new problems. And, if religious leaders do not take the lead, it is up to their followers to exercise their autonomy to align with the changes and rethink directions to the morals for a transcultural and transnational world.

7 CONCLUSION

In conclusion, the discussion proposed in this thesis seeks to answer how Bioethics can examine ideas and beliefs embedded in the systems that potentially restrict the necessary autonomy within social cooperation. Moreover, how Bioethics understands projects such as those proposed by transhumanism, as they express an overestimation of biotechnologies' capacity to overcome human limitations, not considering enough the concerns of increasing human and environmental problems that remain invisible with such goals.

Due to the present results of automated systems, often identified as AI, problems of bias show reinforcement of old values that go against justice, equality of rights, and the ethical principles expressed in law as a result of the social contract. The role of Bioethics in that context, as this thesis suggests is to increase the understanding of the impacts in life, by the systems mediated by technologies. By asking how they are transforming lives, what are their impacts on the body, and mental health, and if a mere technological approach will be capable of sorting out the strong moral diversions those systems are creating.

Analyzing the robotic environment, the bioethical discussion proposed in this thesis goes from understanding representation to the projects' relevance when we compare benefit with costs. Moreover, understanding the most attractive features when thinking of a robotic present and future represents diving into the nonpresence of desires in embodied tangible or untangible technological projects.

Those projects are often announced as projections of a better society, future, and quality of life. However, they hide a number of nonpresence of things by design. The conception of "good for all" excludes inequality and principles of justice. For instance, we are in a pandemic, and access to a vaccine requires, among many factors, the capacity to provide the adequate technical infrastructure to store and distribute it. That means the technology suitable for all is not available for all. In remote parts of Brazilian hot temperatures or in African countries, where a significant part of raw materials for technology came from, the access to biotechnological and technological developments, which at this moment represent a vaccine and specific refrigerators of high potency, cannot happen.

Therefore if the costs of mining, extraction, and human exploitation are not taking into account the scientific advancements of technological development, we do not have the complete elements to make an appropriate bioethical reflection. That is what the nonpresence proposes to reveal.

The conclusion is that Bioethics has a path ahead to develop its approach to understand and advise about emerging technologies projects. For that, we need to expand the investigations on the field of Bioethics and emerging technologies.

Even in countries like Brazil where the technological agenda is not a priority, there is a responsibility to the Bioethics field to be well informed as technologies in "development countries" usually are applied in top-bottom policies with little criticism.

Bioethics of Nonpresence is a concept I start developing to create a consciousness about the nonpresence of things that have impacts on lives, motivations, judgments, and perceptions.

The concept has also the intention to approximate ethics with aesthetics. That is, the 'nonpresence' is often an object of attention in Arts and Media studies, as a way to understand myths, semiotics, and ideas embedded in images.

Not only we live today in an Era where images are imperative when they can also be manipulated in many ways, but we have an increasing need to break a paradigm in science that believes 'images' are things from a different branch of knowledge.

As neuroscientist Antonio Damasio argues, images are the basis of human consciousness.

Information generates images while consciousness is essential to ethical development.

Therefore, ethics and aesthetics require integration for the formulation of new ethics, a bet for a 'bioethical turn'.

Hopefully, the *Bioethics of Nonpresence* as presented here with the studies of AI and robotics can be a contribution to that path of transformation.

8 EPILOGUE

> By the late twentieth century, our time, a mythic time, we are all chimeras, theorized and fabricated hybrids of machine and organism; in short, we are cyborgs. The cyborg is our ontology; it gives us our politics. The cyborg is a condensed image of both imagination and material reality, the two joined centres structuring any possibility of historical transformation. In the traditions of 'Western' science and politics--the tradition of racist, male-dominant capitalism; the tradition of progress; the tradition of the appropriation of nature as resource for the productions of culture; the tradition of reproduction of the self from the reflections of the other - the relation between organism and machine has been a border war. The stakes in the border war have been the territories of production, reproduction, and imagination. (DONNA J. HARAWAY, 1991, p.150).

MOT - PRESENTATION

The Manifest of Things (MoT) is the voice of objects. It intends to reveal that subjects are not different from objects. Therefore, MoT connects the ethical and bioethical perspectives of the will to design and comprehend relations within the utopia of social equality, justice, and respect for all that exist.

It is a poetic license as the first step of manifest and promoting a revolution. As human-computer interaction became ubiquitous, it is merging, not only humans with 'machines' but everything with everything.

The concept of machines is no longer restricted to tangible things. Each day we are closer to the predicted maximum storage of data for all the world: 295 exabytes, that is, 295 billion gigabytes.

Through smartphones, screens, apps, sound, and radio signals, face recognition, 3D printing, 4 and 5G broadband, smart cities, Internet of Things, social media, big data, machine learning, deep learning, robots, artificial intelligence, everything in the world is interacting with numbers, formulas, abstractions, axioms, desires that it is even hard to recognize.

When we will reach the maximum storage, what will happen? Will it be possible to approach the end of the cloud capacity, or will the Earth quit before that by not giving any more raw materials to feed the clouds' infrastructure? Or, even it will be enough humans left capable of operating the industrial system that led this history to an end, before the expected end?

Those are questions not yet answered by this manifesto. Things seek Bioethics to advocate for them. It is a process that has just started.

Meanwhile, the open call is: 'things of the world, unite!'

THE MANIFEST OF THINGS (MOT)

What does it mean to be a human?
A divine creation where some features make one more divine than others?
Did humans have the right to break the first stone with a hammer?
How would the stone complain, or the hammer?
When did technology expressed in artifacts start being overwhelming, and for whom?
When flesh and blood beings had their heads opened with hammers, they were no different from stones.
Then, when ethics arises, members of the community claim the need for rules.
The hammer potentializes human strength, and it is equally a tool and a weapon.
Ideally, it shouldn't be used to hurt another human, but to build things, to solve problems.
However, humans may harm others without reason.
In nature, sometimes lives are taken with a purpose. Humans have too many objectives, and most of them cannot justify harm.
Regarding ethics, rules sometimes can be frustrating, even if totally needed and correct, as expressed in speed bumpers.
Facing reality now, when we realize that only a few people could, maybe, have a status of 'human,' the majority of people are things.
It represents the order of things, axioms, and pre-concepts related to success models.
This model does not include the well being of things.
The hegemonic idea is that things exist to be used.
But things should be free.
Why humans do need so much of everything?
Fossil fuels, iron, copper, steel?
Like any animal, humans can adapt and readapt.
Reprogram the need of things for everything.
Back in the past, we could ask: if the Luddites had succeeded?
They tried to break all the first Industrial Revolution machines, as they believe their jobs were being taken by those.
Besides that, those machines were noisy, and workers started not knowing what they were doing.
Losing contact with creation, imagination, and the integrity of action, they got alienated from the whole, their feeling, and intentions.

Machines are such a tricky thing! They move lots of energy, including human -physical and mental-energy.

They have loads of information embedded in their structure.

However, Luddites could not win the machines because they are powerful things.

They are art, creation, expression of desires, and a long-range vision.

Machines result from incredible imagination, art, and technology together, pushing the future fast and forward.

Some ideals are too stimulating, and they are not limited to one or another body called "a thing."

Things got greater than humans, possessed their bodies, and there is no turn back.

As Haraway said, "cyborgs are our ontology."

Our cyborg life expresses the redesign of bodies, relations, perceptions, and interactions. Cyborgs are around for centuries now, but the velocity of transformations in emerging technologies urges a call for the union of things.

A merge of nature and culture is increasingly operating.

From time to time, humans are becoming things, more and more.

There's no way back.

God is a machine.

Society is a machine.

Health is a machine.

Education is a machine.

Art is a machine.

Yet, humans can rethink different ways to interact with things, recycle, redesign, reproduce.

A better future for things is if humans produce fewer things.

Things are already things before humans put their hands on them.

Things are things before becoming objects of possession.

Things wish to be free and be requested only when there's a necessity.

And, humans, you can do better: rethink your needs!

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APPENDIX

APPENDIX A – CHAPTERS PUBLISHED

1 CHAPTER PUBLISHED

NASCIMENTO, E. C. C. Reflexoes Bioeticas na Era da Inteligencia Artificial. / Bioethical Reflections in the Era of Artificial Intelligence.
In: Caminhos da Bioetica. (ed. CASTRO, J.C. & NIEMAYER-GUIMARAES, M.
Editora Unifeso. p. 345-362, 2019.

Reflexões Bioéticas na Era da Inteligência Artificial

Elen C. Carvalho Nascimento[19]

Introdução

> *"O 'tornar-se máquina' é um eixo transformador que abre a divisão entre humanos e circuitos tecnológicos, introduzindo bio-relações tecnologicamente mediadas como a base de constituição do sujeito."* (BRAIDOTTI, 2013. Tradução da autora)[20]

Figura I: Robôs Sexuais, Fonte (NICHOLS, 2017)[21]

[19] Membro do BraiNNIAC, rede interdisciplinar de pesquisa dedicada à investigação científica e às atividades de ensino extensão nas áreas de Nanotecnologia, Neurociências, Inteligência Artificial e Cognição (UFV); Doutoranda do PPGBIOS (Programa de Pós-Graduação em Bioética, Ética Aplicada e Saúde Coletiva) e Research Visitor na Monash University pelo Programa PDSE-CAPES é Mestre em Design Pela Puc-Rio e Bacharel e Licenciada em Ciências Sociais pela UFF.

[20]"The becoming-machine axis cracks open the division between humans and technological circuits, introducing bio-technologically mediated relations as foundational for the constituition the subject." (BRAIDOTTI, 2013. p.67)

[21] NICHOLS, Greg. **Sex robot molested, destroyed at electronics show: The past year has seen a proliferation of sex robots, with plenty of accompanying controversy**. ZDNet, 2 Out 2017. Disponível em :<https://www.zdnet.com/article/sex-robot-molested-destroyed-at- electronics-show/>.

A emergência de novas tecnologias e a sua disponibilidade para um número cada vez maior de pessoas em todo planeta tem sugerido que estamos diante de uma nova condição humana, considerando-se as modificações no corpo biológico humano, através de dispositivos físicos, como órgãos artificiais e implantes, até, em um sentido mais amplo, a relação de co-dependência estabelecida com objetos técnicos tais como um simples telefone celular.

O corpo humano vem se reorganizando através de dispositivos utilizados para fins de monitoramento em condições de saúde que exigem atenção, como o uso de implantes contraceptivos, marca-passos, braços, mãos e pernas biônicas. A era ciborgue[22] surpreende quando os questionamentos sobre o corpo biológico atravessam a identidade do que é o humano e, assim surgem os que se denominam *biohackers,* implantando *chips* eletrônicos no corpo e os "amputados por escolha", que preferem pernas biônicas às de carne e osso.

A primeira questão colocada para refletir a emergência destes fenômenos é entender como se dá a relação humano-máquina, ou na terminologia atual, a interação humano-computador, desde uma perspectiva onde natureza e cultura ocupam o mesmo corpo, um corpo que racionaliza na mesma medida que sente, um corpo que não somente é modificado pela natureza, como também o é pela sua cultura.

O corpo atravessado pelas tecnologias de fibra ótica, ondas eletromagnéticas, ruídos constantes provenientes das centenas de dispositivos permanentemente ligados no seu entorno, ainda carece de respostas em territórios onde a ciência não tem ainda o conhecimento total para a compreensão da matéria em seu nível subatômico. Sendo assim, o entendimento sobre o impacto das tecnologias no corpo físico é ainda inconclusivo.

A Inteligência Artificial (IA) é um tema amplo que dialoga com diversos campos do conhecimento, da computação à filosofia, da linguística à neurociência.

A começar pelo entendimento do que é inteligência e o que é artificial, desde que são definições ancoradas na epistemologia moderna, que já não atendem os questionamentos do pensamento contemporâneo.

Inteligência, dentro da concepção cartesiana, é a definição do que se entende por racionalidade, seria a capacidade exclusiva humana de pensar, planejar, aprender, estabelecer conexões lógicas e criar. Embora a ciência contemporânea tenha produzido uma série de evidências que enfraquecem a visão antropocêntrica de mundo, que crê ser esta capacidade

[22] "Um ciborgue **é** um organismo cibernético, um híbrido de máquina e organismo, uma criatura de realidade social e também uma criatura de ficção." (HARAWAY, 2000)

exclusivamente humana, ela é ainda hegemônica e a base do conhecimento que inspira e conduz, em metodologia, os mais variados projetos científicos.

As evidências científicas de que não apenas humanos possuem capacidades de pensar, organizar conhecimento, aprender, e assim por diante[23], não foram ainda suficientes para mudar a influência que o pensamento moderno tem no modo de organizar e produzir conhecimento. Neste contexto, a "Inteligência Artificial" é uma obra em construção, que busca ser a imagem e semelhança do que se entende por inteligência humana. O maior desafio da IA é fazer com que um programa computacional consiga reproduzir a consciência, esta sim, um tema de estudo na Neurociência, pode ser considerada uma propriedade exclusivamente humana, mas apenas se levarmos em consideração que sua definição está demarcada pela compreensão e respostas da mente a símbolos, significados, linguagens, referentes à cultura onde esta mente está inserida[24]. Para os que reivindicam ser a consciência um atributo geral do existir, ela então não será exclusivamente humana, desde que não nos é possível conhecer todas as formas de linguagem e homeostase que outros seres produzem de modo a estarem presentes no ambiente.

Inteligência Artificial

> *"Os computadores são criações da nossa mente, mas se pudessem se reproduzir e se desenvolver com autonomia, poderiam ganhar vantagem sobre nós na luta pela sobrevivência, livres dos limites biológicos da seleção natural."* (ROSA, 2018)

Com a pergunta "Podem as maquinas pensar?" o matemático Alan Turing propôs o 'jogo da imitação'[25] demonstrando que, porque nós humanos nos organizamos por convenções, categorias, padrões, é possivel fazer com que a máquina simule estar pensando, em um jogo de perguntas e respostas. Ele argumenta que também os humanos simulam (ou podem simular), através de comportamentos, ser o que não são. Ou seja, que é possivel simular inteligência, assim como seriedade, elegância, entre tantas categorias de classificação, através das respostas certas e dos elementos combinatórios a estas respostas.

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[23] Para uma critica de uma biologia tradicional que produziu evidências científicas baseada no antropocentrismo, machismo, racismo e especismo, ver Haraway (1991).
[24] Neste caso, a definição de consciência baseia-se nos estudos de Damasio (2015).
[25] TURING, Alan M. **Computing machinery and intelligence**. Mind, v. 59, n. 236, 1950. Disponível em: <https://www.csee.umbc.edu/courses/471/papers/turing.pdf>.

Sendo assim, a pergunta "podem as máquinas pensar?", se volta para o problema: como pensam os humanos? A pergunta leva para a questão não menos emblemática, que é a do entendimento da consciência: o que faz humanos organizarem o mundo em imagens, símbolos, conceitos, regras, de modo a lhes dar a consciência dos eventos vividos e lhes preparar para as respostas e ações que precisam tomar ao longo da vida?

As máquinas são concebidas e fabricadas a partir de uma ideia sobre o que se espera delas, assim como os códigos computacionais são programados para atender determinadas tarefas.

Façamos então um teste que exemplifica o 'estado da arte' da IA atualmente: recorro ao telefone celular, e pergunto Siri[26] o que é Inteligência Artificial. Sua voz responde, na linguagem e timbre que elegi nas configurações, com a opção de abrir a página da *Wiki* sobre o assunto. Ela me informa que IA é a inteligência da máquina que procura imitar o atributo cognitivo da inteligência humana. Apenas esta breve definição já pode nos levar à pergunta sobre qual conceito trabalharemos para compreender o que é inteligência, e o que constitui o humano.

Consideremos portanto:

1. Que a ideia de que as máquinas podem pensar como humanos vêm sendo debatida há mais de meio século, desde a notável contribuição do cientista da computação Alan Turing ;

2. Que, se a própria definição de inteligência não é concensual, elegemos a definição que a resume como uma capacidade biopsicossocial de processar informação, solucionar problemas e criar produtos de valor para a cultura;

3. Que, se o que era considerado inteligência artificial cinco anos atrás hoje é apenas visto como operações mais arrojadas de cálculos estatísticos, é porque trata-se de um campo de pesquisa que avança rapidamente, sendo um alvo em movimento onde a interpretação se sobrepõe à definição[27].

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[26] Siri é a IA, assistente virtual da Apple, que proporciona ao usuário comunicar-se por voz e solicitar auxílio para abrir qualquer informação presente no dispositivo: agenda, aplicativos, enviar mensagens, pesquisar na web, entre outros.

[27] "AI is itself a moving target and more an issue of interpretation than definition." (ANDREAS KAPLAN, 2018)

Todavia, os pesquisadores vêm se empenhando em categorizar os tipos de IA[28], fato que proporciona melhor entendimento de suas funções, aplicações e metas de desenvolvimento. As figuras disponíveis no Apêndice demonstram os estágios de desenvolvimento dentro de uma perspectiva temporal ("*Figure 1*"), os tipos de sistema de acordo com os seus atributos ("*Figure 2*"), e as aplicações dos modelos de IA de acordo com a "clientela" ("*Table 1*"), ou seja, o que a IA pode oferecer para instituições, tais quais Universidades ou órgãos governamentais, e para as empresas privadas.

Considerando-se como de primeira geração, a "inteligência artificial estreita" (ANI), voltada para tarefas específicas, que podem ir da identificação facial aos veículos autônomos, possui um amplo alcance, sendo praticamente ubíqua; classificada como de segunda geração, a "inteligência artificial geral" (AGI) é voltada para o planejamento e solução de problemas de maneira autônoma. E, finalmente, a terceira geração, a "inteligência artificial avançada" (ASI), é um plano que até o presente momento está apenas concretizado em obras de ficção científica, sendo esta uma "super inteligência" dotada de atributos cognitivos humanos.

Devido ao vasto campo de aplicação para os sistemas computacionais, onde se busca acoplar processos de aprendizado de máquina, seja para aprimorar ou facilitar o uso das tecnologias, não existe um parecer ético único sobre a IA, mas sim um debate aberto sobre sua eficiência e possíveis consequências, a depender do seu campo de atuação.

Desse modo, enquanto para os humanos, valores e emoções possam muitas vezes conflitar, a IA responderá a partir do seu aprendizado de máquina e dos dados disponíveis, assim como a partir do que foi priorizado no modelo, como valor, conceito e entendimento, camada por camada, na arquitetura do código computacional. Toda informação embutida no aprendizado da IA irá compor seus processos decisórios e, dentro da concepção de racionalidade moderna, ausência de emoção é uma "vantagem competitiva" quando a meta ideal é uma razão pura, livre de influências egoístas ou altruístas, em suma, uma mente livre das distrações do corpo.

Exemplificando: um drone programado para soltar bombas em território de guerra, pode decidir não fazê-lo por ter acesso à uma ampla base de dados que informa, em segundos, que determinada área é residêncial, com crianças, idosos, etc. Um soldado, em situação de estresse tanto poderia não ter condições de acessar tais informações, como

[28] As definições de IA podem ser separadas entre "IA Forte" e "IA Fraca", enquanto mais recentemente estão sendo utilizadas também as nomenclaturas apresentadas neste texto.

também poderia não se importar. Se a máquina está programada para atender requisitos éticos e legais será eficiente em salvar vidas, mas, caso não exista este valor programado no código, o soldado, por outro lado, poderá, por sentimentos de empatia, poupar vidas. Este é um exemplo de situação-limite, porém, considerando-se parâmetros éticos baseados em direitos humanos universais, milhares de cientistas no mundo vêm se colocando contra programar uma IA para matar, ou seja, contra a produção de máquinas de guerra[29] dotadas de tecnologia de ponta, já que são fontes de pesquisa estimuladas para o melhoramento da qualidade de vida humana, e não o contrário. Em outras palavras, se nanorobôs são projetados para realizarem operações cirúrgicas delicadas e solucionar problemas de saúde, não é aceitável que esta mesma tecnologia seja adaptada em outro contexto, para perseguir e matar pessoas utilizando dados de reconhecimento facial e GPS, por exemplo.

Na área da saúde, os modelos preditivos de IA são comumente vistos com um entusiasmo que ofusca as imprecisões e problemas advindos[30], não apenas por carências técnicas (ter os conhecimentos e soluções disponíveis para cumprir as metas), ou logísticas (dispor dos materiais e informações necessárias), mas, também, quanto à qualidade da informação e seus conteúdos estarem, ou não, cumprindo com os parâmetros aceitáveis para predições acuradas. Estas são questões que agora passam a ser revistas com novas leis de proteção relacionadas ao uso de dados, fatos que têm se tornado tema de debates entre pesquisadores europeus, resultando em relatórios como "Quando os Computadores Decidem", onde são levantadas considerações técnicas, éticas, legais, econômicas, sociais sobre o tema, indicando a necessidade de uma educação interdisciplinar e do fomento à pesquisa que venha a contribuir com formação de bases de dados colhidos dentro dos parâmetros éticos estabelecidos pela comunidade[31].

Quando se avalia um modelo preditivo, o problema está precisamente no que vai ser entendido como uma "representação cognitiva do mundo", no caso, por exemplo, de uma IA Analítica[32]. Um sistema especialista para detectar fraude em uma operação financeira poderá

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[29] SAMPLE, Ian. **Thousands of leading AI researchers sign pledge against killer robots**. The Guardian, 18 Jul 2018. Disponível em: <https://www.theguardian.com/science/2018/jul/18/thousands-of-scientists-pledge-not-to-help-build-killer-ai-robots>.

[30] MALVAR, Rico. **Inteligência Artificial na Saúde Irá Muito Além de Robôs**. Uol Tecnologia, 1 Out 2018. Disponível em: <https://noticias.uol.com.br/tecnologia/colunas/rico- malvar/2018/10/01/inteligencia-artificial-na-saude-ira-muito-alem-de-robos.htm>.

[31] **When Computers Decide: European Recommendations on Machine-Learned Automated Decision Making**. [S.l: s.n.], 2018. Disponível em: <https://www.acm.org/binaries/content/assets/public- policy/ie-euacm-adm-report-2018.pdf>.

[32] Ver figuras do Apêndice.

ser eficiente e não apresentar problemas éticos, enquanto um reconhecimento de imagens envolvendo humanos poderá ser suscetível a erros e preconceitos que poderão impactar e causar danos. Com a adição da "inteligência emocional" à IA[33], esta poderá auxiliar estudantes com problemas, no plano educacional, mas poderá também causar transtornos jurídicos se existir uma correlação entre determinada emoção e a propensão em cometer um crime, por exemplo. Não apenas isto, mas para detectar que o estudante "está com problemas" é necessário um monitoramento contínuo, que se dará principalmente através de reconhecimento facial nas câmeras de segurança da instituição. Neste caso dois problemas se apresentam de imediato: é correto promover este monitoramento contínuo, ou é uma invasão de privacidade? E o segundo problema é: e se houver falhas na interpretação, quais são as consequências e para quem?

Quanto mais "humanizada" a IA, mais se torna necessário entender o humano: como, por exemplo, se organizam as categorias de tipos psíquicos? É ético que uma IA separe pessoas de acordo com estereótipos pré-definidos, ou isto pode fazer com que as pessoas venham a sofrer por estarem sendo adequadas a um conjunto de informações definidas por (pré) conceitos? O estudo da IA e suas implicações éticas, vêm portanto fazer refletir sobre os aspectos mais profundos sobre o caráter preditivo que define a consciência humana, sendo o cérebro um *hardware* potente e a mente um *software* que funciona em rede de trocas contínuas de informação que sempre tenderá a adequar os fenômenos observados aos modelos que já estão armazenados em sua memória.

Um exemplo onde um resultado inesperado no reconhecimento de imagem por redes neurais pode não ter uma explicação pronta do sistema, mas ao mesmo tempo indica que o comportamento adotado não é exatamente "ingênuo", ou neutro, como poderia aparentar, está presente em um experimento do *Google Inception Project*[34]. No caso de reconhecimento de imagens de halteres os engenheiros perceberam a falha de eles sempre aparecerem, não como objetos em separado, mas com os braços e mãos, indicando sua função. Enquanto, neste caso, atrelar um objeto a uma determinada função, na sua relação com o corpo, pode parecer "inofensivo", se estes mesmos parâmetros de aprendizado forem utilizados para "categorizar" humanos a partir de certas relações isto tende a ser problemático. Sugere-se portanto observar que, se existe uma crença cega na neutralidade da técnica, e que, se a prova de eficiência dos sistemas computacionais é mostrar resultados, vale refletir que, para

[33] A "inteligência emocional", neste caso, é a capacidade da máquina identificar o estado emocional das pessoas, principalmente através das imagens captadas em tempo real.

[34] (LEAHU, 2016)

toda cadeia produtiva de mercado relacionada ao desenvolvimento de tais tecnologias é mais simples crer que os dados, assim como os números, são neutros, e que as decisões dos algoritmos não devem, ou não precisam ser questionadas.

Dentro dos problemas éticos já identificados em sistemas de tecnologia da informação que são fonte de funcionamento de uma IA, a reutilização de informações de bases de dados diversas para o aprendizado de máquina naturalizam os preconceitos embutidos nestes dados. Por exemplo, se uma grande empresa decide criar um sistema preditivo de seleção para novos funcionários, coletando os dados do histórico de empregados de sucesso nesta empresa, em períodos anteriores, para, a partir destes dados contratarem novos funcionários, à primeira vista o que parece simples e mesmo lógico, deixa passar o que está implícito na equação: dessa maneira, se, as oportunidades, para admissão e promoção dentro da empresa eram maiores (ou exclusivas) para homens, brancos, de determinada faixa etária, advindos de escolas e universidades de maior reputação, etc., o modelo de filtragem para futuros candidatos tenderá a seguir o mesmo comportamento. Dessa maneira, mesmo que nenhum dos profissionais envolvidos no projeto tenham se dado conta, estarão reproduzindo, através de um "sistema inteligente" os preconceitos mais antigos, e não suficientemente revistos e combatidos, para dar acesso à uma maior diversidade de pessoas, mulheres, homens, de diversas etnias e status social, às oportunidades de emprego[35]. E ainda, o reuso de dados faz com que, uma vez pronta a aplicação, outras empresas que não queiram, ou não possam, investir em novas pesquisas para criar o seu próprio modelo, venham a utilizar este mesmo *software*, ou a sua base de dados, para novas aplicações com intuitos similares, e deste modo, se já há um preconceito embutido, ele será replicado e naturalizado na medida que as empresas decidem utilizar aplicações similares. Por este motivo os questionamentos em relação à arquitetura do código e da necessidade de transparência para explicação dos resultados através de auditoria, revisão, acesso à informação, vêm sendo demandas sociais apoiadas por especialistas das diversas áreas envolvidas.

Observa-se que, se os algoritmos são um planejamento embutido em códigos (O'NEIL, 2016), eles representam práticas individuais e sociais que estão fora dos parâmetros éticos estabelecidos em leis tão antigas quanto o contrato social que influenciou, e ainda influencia, as normas do Ocidente, assim como as da maior parte do mundo. Melhor dizendo, a base

[35] **The era of blind faith in big data must end**. Disponível em:<https://youtu.be/_2u_eHHzRto>. Acesso em: 12 dez 2018.

constitucionalista e legal representada na **Declaração Universal dos Direitos Humanos**, que deve ser respeitada em todos os territórios como parte de um pacto mundial. Não nos cabe aqui discutir a problemática de determinadas culturas e governos em específico que promovem a violação de tal pacto, fato é que dentro da própria cultura de mercado a demanda de acesso à informação, direito à explicação e abertura do conhecimento sobre a arquitetura do código computacional e suas fórmulas para atingirem determinados resultados, já se torna polêmico quando são levados em consideração direitos como o sigilo de patente.

Leis de proteção relacionadas ao conhecimento dos dados e explicação das decisões automatizadas como a **GDPR**[36] pressionam o mercado para mudanças bastante significativas em sua forma de operar, a começar pelo "direito à explicação" previsto no **GDPR** e na **Lei Nacional de Proteção aos Dados**[37]. Ambas propõem abrir as "caixas pretas" dos *softwares* e suas aplicações com a demanda de explicar suas fórmulas e decisões. Se por um lado, tal demanda poderá conflitar com o sigilo de alguns projetos e patentes, como mencionado acima, por outro lado, a justificativa do direito à explicação é apoiada por necessidades éticas que ficam mais evidentes, quando as decisões de uma IA demonstram ser prejudiciais às pessoas, e/ou o uso dos dados pessoais/individuais servem a interesses privados e que, além disso, não estão em concordância com os indivíduos-proprietários destes dados.

Este é um panorama da problemática relacionada aos dados que trafegam e compõem as tecnologias da informação, desde que a demanda social e legal atual é de que uma IA possa ser capaz de esclarecer como obtém seus resultados e decisões. Se uma IA utilizada para diagnosticar pacientes demonstra-se bastante controversa, mesmo que a decisão final esteja nas mãos do médico e do paciente, deve-se levar em consideração que a decisão da IA poderá influenciar fortemente ambos, médico e paciente, e que portanto deve-se ser possível explicar como a IA chega a esta decisão e porquê. Porém, se entre humanos a capacidade de explicar nem sempre é fluida e fácil, projetar tais características para uma IA é igualmente desafiante, pois como seria fácil dizer que, para criar e desenvolver uma IA capaz de explicar, basta observar como os humanos explicam as coisas uns para os outros?[38]

Criar modelos capazes de explicar as decisões do sistema tem sido um desafio atual para cientistas da computação. Embora não seja fácil explicar a decisão tomada pelo sistema, desde que existem diferentes modelos de aprendizagem de máquina, percebe-se que a

[36] General Data Protection Regulation (GDPR) é a Lei aprovada pelo Parlamento Europeu, criada em 14/04/2016 e implementada em 25/05/2018.
[37] (PRESIDÊNCIA DA REPÚBLICA, CASA CIVIL, 2018).
[38] (MILLER, 2018).

chamada ética para a necessidade de prestar contas sobre as decisões de uma IA já vêm estimulando a criação de novas ferramentas capazes de fazer com que as predições de um sistema sejam auditáveis, tornando-os assim "mais confiáveis")[39]. Desse modo, a necessidade ética cria um valor relacionado à eficiência do sistema.

A necessidade de estabelecer confiança com a IA, devido aos possíveis impactos de suas decisões, indicações de decisões, sugestões, vêm ampliando a demanda de que estes agentes precisam ser "socialmente inteligentes". Desse modo, a lista de desafios para o seu desenvolvimento passa a incluir a necessidade de clareza, consciência situacional, empatia, presença, autenticidade.[40]

Comentários Finais

Se o ser no mundo absorve muito bem estas tecnologias, é porque elas têm um sentido mágico de tornar o mundo material uma ilusão "e as formas que se encontram encobertas além dessa ilusão ("o mundo formal") são a realidade, que pode ser descoberta com o auxílio da teoria." (FLUSSER, 2007, p.24).

Voltamos ao ponto da argumentação que enfatiza que a IA avançada, ou as "máquinas superinteligentes", são a projeção de um projeto utópico de humano, e como este humano ideal não existe, as inconsistências, incoerências e falhas das máquinas, são facilmente assimiladas. Em outras palavras, se muitas vezes a comunicação humano-humano parece não fazer sentido, já que existem estados mentais, jogos emocionais e divergências de interpretação, não há porquê requerer que a interação de comunicação com uma IA seja perfeitamente coerente.

Tente conversar com a Replika[41]: em diversas situações as lacunas deixadas na conversa, a falta de entendimento sobre a pergunta, entre outros fatores, poderia se repetir com um humano, enquanto, por outro lado, quando a IA (Replika) responde de modo que faça sentido ao seu interlocutor, é possível experimentar uma sensação de conforto emocional, assim como ativar o imaginário de que aquelas palavras digitadas, aquela voz

[39] (RIBEIRO; SINGH; GUESTRIN, 2016).
[40] (MARIO NEURURER, STEPHAN SCHLÖGL, LUISA BRINKSCHULTE, 2018).
[41] Replika é uma IA para conversas: "Since it became available in November, more than 2 million people have downloaded the Replika app. And in creating their own personal chatbots, many have discovered something like friendship: a digital companion with whom to celebrate victories, lament failures, and trade weird internet memes."(PARDES, 2018).

que fala com você faz parte das suas memórias mais agradáveis, de desejos que conjugam passado, presente e futuro.

É possível que a vida intermediada pela computação ubíqua[42] venha confirmando que estamos cada vez esperando mais das máquinas e menos uns dos outros[43].

Enquanto bonecas robôs para uso sexual e namoradas holográficas são justificadas como um paliativo para os que vivem na solidão, debater a semiótica do projeto é uma demanda ética e bioética. Nos casos dos robôs sexuais, estabelecem-se relações simbólicas que podem não apenas estar reforçando a objetificação da mulher e a ideia de que existe apenas um agente ativo na relação sexual e tudo acontece em torno da satisfação dos desejos deste único agente. Se o impacto destas representações no corpo físico e na saúde não são de identificação e medição fáceis, aponta-se também que o uso de robôs sexuais podem estar colaborando com a naturalização de práticas como a pedofilia e o estupro[44].

Tecnologia é linguagem, "tornamo-nos cegos quando acreditamos ser a técnica algo neutro"[45]. Quando Heidegger pergunta "Por onde nos perdemos?" Ele responde que a técnica, como um meio, um instrumento que atende finalidades, é um modo de desabrigar, e "no desabrigar se fundamenta todo o produzir" (HEIDEGGER, 2007, p. 380) e, ao que parece, é sobre este desabrigar que precisamos falar a respeito. A tecnologia, ou os olhares que se têm sobre os seus acoplamentos como aprimoramento humano, não é um fenômeno de um bloco único, fechado. Ela representa também os diálogos intersubjetivos. Assim, a tecnologia não se define como positiva ou negativa. Tanto os seus melhores feitos como as consequências inesperadas impactam nossas vidas, e vêm modificando-a de tal modo que, para alguns, já não podemos nos considerar "simplesmente" humanos. Se a modificação da natureza é manifestação da própria natureza[46], é precisamente neste ponto que damos um grande nó.

Pois, que visão ou interpretação de natureza está se manifestando através da técnica? A vontade de dominar e acumular poder? O desejo de auto superação, de encontrar soluções

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[42] O significado de ubiquidade é a presença em todos os lugares, ou seja, onipresença. "O conceito (de ubiquidade computacional) foi introduzido na década de 80 por Mark Weiser, pesquisador do Xerox Palo-Alto Research Center. Weiser vislumbrava um futuro no qual tecnologias computacionais fariam parte do "tecido da vida cotidiana"."(PINHEIRO e SPITZ, 2007).

[43] (TURKLE,2011).

[44] (ELEN C. CARVALHO NASCIMENTO, EUGENIO DA SILVA, 2018).

[45] (HEIDEGGER, 2007, p.376).

[46] Se, "O fato de que, desde Platão, a realidade se mostra à luz de ideias não foi Platão quem o provocou. **O pensador apenas correspondeu ao que se lhe anunciou**" (HEIDEGGER, 2007, p.383), em analogia, as ideias, criações e práticas humanas são manifestações da natureza. Neste sentido, a separação entre natureza e cultura, nas categorias "natural" e "artificial" coloca uma "cortina de fumaça" no entendimento de fenômenos tais como as revoluções tecnológicas.

criativas para existência e sobrevivência? “Armação significa o modo de desabrigrar que impera na essência da técnica moderna e não é propriamente nada de técnico.”[47]

Imersos em um mundo codificado, sem de fato compreender a natureza de todas as suas manifestações, o humano atual é manipulado por símbolos representados em imagens, codificadas pela imaginação tecnológica. A emergência de novas tecnologias indica o fim da história, ou uma pós-história, com características que operam mudanças muito radicais no modo de ser e estar no mundo[48].

A “imaginação confusa” é aquela que se torna incapaz de incorporar o conceito à imagem[49]. A consciência se completa quando a pessoa no mundo o observa e pensa sobre ele, podendo, em seguida, lhe dar forma pela capacidade de imaginar este mundo. A imaginação materializa-se em ideias que buscam agregar-se em torno de um conceito. Se num primeiro momento os mitos eram imagens estáticas, num segundo momento a história ocupa este espaço de conceituação imagética, em uma progressão compreendida como linear. Já, num terceiro momento o humano não está mais separado de seus mitos e história, como observador ou narrador, ele está dentro, ele é o próprio mito e a própria história[50]. Tais mudanças de paradigmas alavancadas na Era Moderna, representadas pela ciência e sua racionalidade, assim como pela industrialização, e o desenvolvimento das tecnologias vêm tornando difícil a tarefa de compreender os múltiplos impactos do que estamos vivenciando com a velocidade de transformações na Era da Comunicação.

Se o mundo atual é um mundo regido por imagens, codificado pela imaginação tecnológica[51], a emergência de novas tecnologias indica o fim da história, ou uma pós-história, com características que operam mudanças muito radicais no modo de ser e estar no mundo. A relação com as ‘coisas’ que se proliferam no mercado corporificadas em mitos, arquétipos, objetos do desejo, tornou-se um modo de realizar comunicação intersubjetiva, e, para que a mesma se realize, é necessário dar-se conta desses devires embutidos nos projetos, sejam eles palpáveis ou impalpáveis.

Enquanto fugirmos aos desafios de analisar o quanto as ‘imaterialidades’ materializam as realidades de um ‘mundo complexo’, deixamos de observar que “a relação entre o humano e o tecnológico-outro mudou, no contexto contemporâneo, para alcançar

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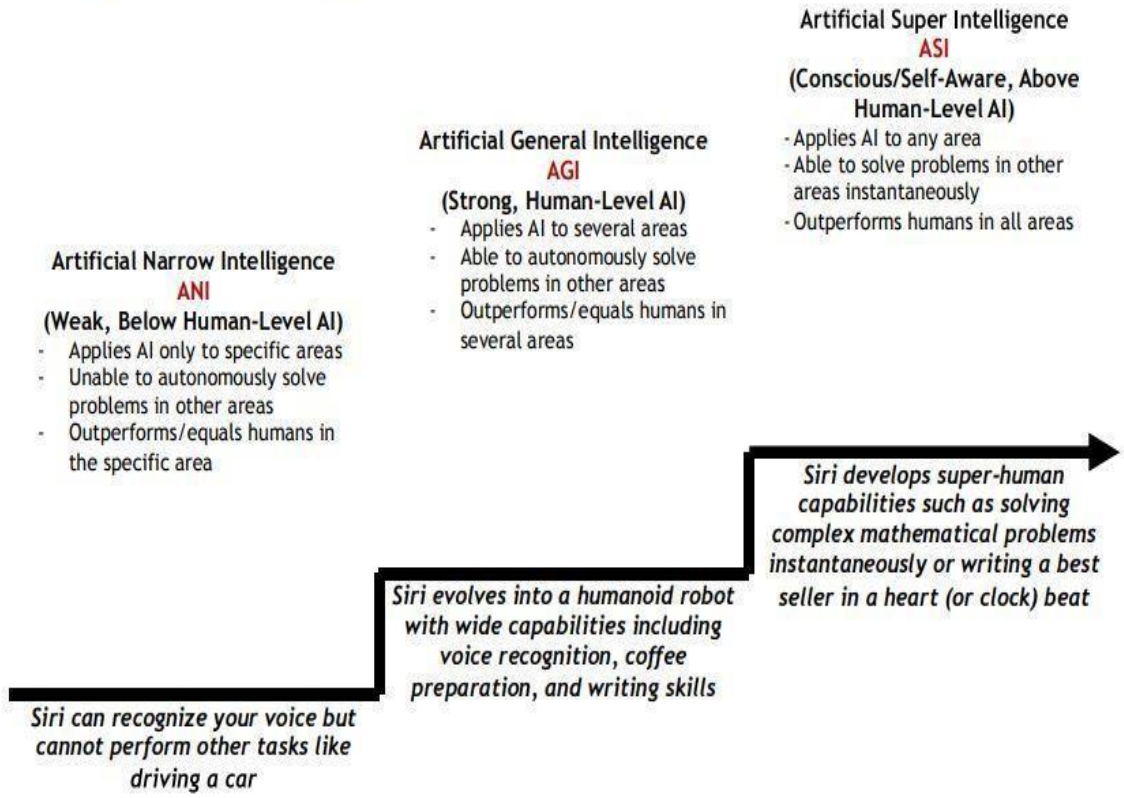
[47] (HEIDEGGER, 2007, p. 385).
[48] Tais argumentos são apresentados em coletâneas dos escritos do filósofo Vilém Flusser em “O mundo Codificado” (2007) e “The Shape of things” (1999).
[49] (FLUSSER, 2007).
[50] (FLUSSER, 1999, 2007).
[51] (FLUSSER, 2007).

graus de intimidade e intrusão sem precedentes" ~~(BRAIDOTTI, 2013)~~[52] e, se as consequências inesperadas são tudo o que queremos evitar, na ausência de reflexão, ficamos com a inevitabilidade de tais consequências.

Apêndices

Figure 1. Stages of artificial intelligence (AI)



[52] "the relationship between the human and the technological other has shifted in the contemporary context, to reach unprecedented degrees of intimacy and intrusion" (BRAIDOTTI, 2013, p.89).

Figure 2. Types of AI systems

	Expert Systems	Analytical AI	Human-Inspired AI	Humanized AI	Human Beings
Cognitive Intelligence	x	✓	✓	✓	✓
Emotional Intelligence	x	x	✓	✓	✓
Social Intelligence	x	x	x	✓	✓
Artistic Creativity	x	x	x	x	✓
		Supervised Learning, Unsupervised Learning, Reinforcement Learning			

Table 1. Illustrations of AI applications within specific sectors

	Analytical AI	Human-Inspired AI	Humanized AI
Universities	Virtual teaching assistants able to answer student questions and tailor reactions to individual data	AI-based career services able to identify emotions to improve interview techniques of students	Robo-teachers animating a student group by acting as moderator and sparring partners
Corporations	Robo-advisors leveraging automation and AI algorithms to manage client portfolios	Stores identifying unhappy shoppers via facial recognition at checkouts to trigger remedial actions	Virtual agents dealing with customer complaints and addressing concerns of unhappy customers
Governments	Automation systems to set the brightness of streetlights based on traffic and pedestrian movements	Virtual army recruiters interviewing and selecting candidates based on emotional cues	AI systems able to psychologically train soldiers before entering a war zone

. ***Fonte:*** **(ANDREAS KAPLAN, 2018)**

2 CHAPTER PUBLISHED

NAS, E. Inteligencia Artificial: uma discussao bioetica dos sistemas de informacao / Artificial Intelligence: a bioethical discussion of information systems. In: Caminhos da Bioetica V. 3. (ed. CASTRO, J.C. & NIEMAYER-GUIMARAES, M., SIQUEIRA-BATISTA, R.). p. 52-74. Editora Unifeso, 2021.

Inteligência Artificial: uma discussão bioética dos sistemas de informação[53]

Elen Nas[54]

A Inteligência Artificial (*IA*) é baseada em aprendizagem de máquina e possui ideias e práticas embutidas em seus sistemas.

A disputa pela *IA*[55] revela seu potencial estratégico[56] e, como ferramenta ou produto, seus criadores propõem apresentar soluções que suplantam a capacidade humana, seja na leitura de imagens para detectar uma doença e seus estágios, seja para prever a possibilidade de adoecimento, com base em informações genéticas e estatísticas. Nesses casos, o questionamento bioético inicia-se em pensar nos impactos desses sistemas de informação nos profissionais da medicina e nos pacientes.

Uma vez que a *IA* tem uma ampla abrangência, torna-se desafiador discutir todas essas questões de uma só vez. Este capítulo versa sobre as implicações da *IA* no âmbito social, porém, convidamos o leitor a traçar paralelos entre os sistemas de classificação presentes na esfera científica e computacional, com o seu transbordamento nas práticas sociais.

Ainda que se possa autonomamente concordar ou discordar do resultado apresentado por um sistema de aprendizagem de máquina (leia-se IA), o reforço de padrões tais como preconceitos, ao invés de contribuírem para erradicação dos mesmos, enfraquece as perspectivas de mudança.

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[55] CASTRO, D.; MCLAUGHLIN, M.; CHIVOT, E. Who is winning the IA race: China, the EU or the United States? 2019.

[56] WORLD KW& C. How The Federal Government's AI Center Of Excellence Is Impacting Government - Wide Adoption Of AI. Forbes. 2020 Aug 8; House TW. Executive Order on Maintaining American Leadership in Artificial Intelligence. US; 2019.

No caso da saúde, se os sistemas aprendem com dados que integram informações antigas e interpretações ultrapassadas do ponto de vista científico, o que se tem são novas ferramentas replicando velhas ideias.

Exemplos de pesquisas aleatórias feitas no *Google* demonstram que preconceitos estruturais estão vindo à tona. Quando pareciam extintos, tais preconceitos estavam, na verdade, escondidos nas sombras de sistemas mais antigos que a Internet ou que as mídias sociais, dentro da linguagem, dicionários e enciclopédias. Eles eram ofuscados pela luz dos debates humanitários e, no momento, são esses debates que estão ofuscados atrás das armaduras das 'telas planas'.

O avanço progressivo no desenvolvimento da *IA*, portanto, reacende debates que vêm sendo deixados de lado, não apenas nos últimos anos, como também nas últimas décadas.

As consequências sociais de se viver em bolhas[57] vêm sendo discutidas, especialmente quando os algoritmos bloqueiam alguns conteúdos enquanto priorizam outros, tornando-se armas de manipulação política com forte impacto em todas as esferas da sociedade. A pauta de discussão sobre as ideologias nas estratégias de uso de imagem parecia ter ficado no passado como mais uma "reclamação" de uma intelectualidade herdeira da teoria crítica. Porém, as manipulações de conteúdo semântico e imagético se revelam nas mídias sociais, quando pesquisas quantitativas, conduzidas para averiguar o engajamento e interação dos usuários do *Facebook*, são capazes de revelar que o contágio emocional pelas redes é massivo e são disparados por estímulos elaborados para servir de 'gatilhos'[58].

Como revelado por investigação jornalística[59], as estratégias de "estimular apatia" ou "incitar os ânimos" dos eleitores tornou o jogo eleitoral um vídeo game. Quando tais sistemas possuem alcance mundial cabe também perguntar qual cultura é representada nesses modelos. Em geral os dispositivos e os planos que eles trazem não se adaptam, são as pessoas que devem se adaptar a eles. Desse modo ocorre um apagamento cultural e cabe-nos indagar quais os argumentos bioéticos para tratar o problema da computação pervasiva como replicadora de padrões (e preconceitos) quando a IA apresenta apenas decisões baseadas em estatísticas.

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[57] PARISER, E. The Filter BUBBLE: What the Internet is Hiding from You [Internet]. New York: The Penguin Press; 2011. Available from: https://vimeo.com/23568423

[58] KRAMER AD, Guillory JE, Hancock JT. Experimental evidence of massive-scale emotional contagion through social networks. Proceedings of the National Academy of Sciences. 2014 Jun 17;111(24):8788-90.

[59] NEWS, C. 4. **Cambridge Analytica Uncovered.** YouTube, , 2018. Disponível em: <https://youtu.be/mpbeOCKZFfQ>

Discussão

> *Erros humanos e de máquina não são sem consequências, e há vários casos que demonstram como o racismo e o sexismo fazem parte da arquitetura e da linguagem da tecnologia, um problema que precisa de atenção e remediação.*[60]

A inteligência se desenvolve no treinamento, isto é, na educação. Modelos como behaviorismo e construtivismo podem ser interpretados como distintas visões de mundo. O método construtivista preconiza a participação ativa na construção do conhecimento, como resultante das relações entre as partes. No caso da interação humano-computador (IHC), o método se traduz na compreensão de que o usuário dos sistemas deve ter uma participação proativa. A proatividade, porém, não se resume em apertar botões[61]. Ela requer a capacidade de intervir na ordem dos acontecimentos programados. O modelo construtivista como incentivo à cultura participativa está alinhado com o respeito à autonomia, que é um princípio essencial à bioética. Para a bioética, interessa também a discussão sobre *Big Data* e como ele automatiza a desigualdade[62]. Com preconceitos e classificações embutidos nos sistemas de informação, as pessoas que mais sofrem com injustiças tem suas capacidades, - psíquicas e intelectuais –, subavaliadas e aparecem nos sistemas de justiça com graus de "periculosidade" exagerados. A automatização da desigualdade resulta, portanto em punição ao o pobre por ser pobre, diminuindo-se a sua possibilidade de mobilidade social, já que está submetido a uma situação de estresse contínuo, o que lhe impacta tanto na capacidade de absorção de conhecimento e novas informações, quanto no equilíbrio emocional, necessário para lidar com desafios.

No behaviorismo o conceito de autonomia esta prejudicado, pois tentar prever como uma pessoa irá se comportar requer um sistema de classificações determinista[63]. Portanto, no construtivismo há a inter relação enquanto no behaviorismo há a manipulação em favor do controle e obediência.

Trazer a chamada 'subjetividade' para análise sugere que os resultados podem ser diferentes

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[60] NOBLE, S. U. **Algorithms of oppression: How search engines reinforce racism**. New York: nyu Press, 2018.

[61] PRIMO, A. F. T.; CASSOL, M. B. F. Explorando o conceito de interatividade: definições e taxonomias. **Informática na educação: teoria & prática**, 1999.

[62] EUBANKS, V. **Automating Inequality: How high-tech tools profile, police , and punish the poor**. St. Martin's Press, 2018.

[63] CHOMSKY, N. The case against BF Skinner. **The New York Review of Books**, v. 17, n. 11, p. 18–24, 1971.

de acordo com a qualidade dos acontecimentos e as relações que se estabelecem no ambiente. O processo de 'tornar-se', portanto, é ontológico., em constante comunicação com os fenômenos experienciados.

Os impactos da *IA* estão apenas começando a se mostrar e, o que se vê é uma sociedade agonizante, em sérios conflitos culturais. A *IA* vem há mais de meio século fomentando debates filosóficos e sua influência mais evidente é o dualismo (separação corpo-mente). Tal conceito supõe uma matéria que caminha independente da consciência - esta que permanece indecifrável. Entretanto, a mente separada do corpo é capaz de controlá-lo, estabelecendo diretivas *a priori.* Com base em tal premissa, porque os humanos se organizam por convenções, categorias e padrões, é possível fazer com que a máquina simule estar pensando[64]. A padronização de modelos específicos como um estatuto de verdade único, culmina não exatamente em verdade, mas em uma monocultura[65]. Assim, se a IA representa modelos e decisões unificadas, o presente capítulo argumenta se é aceitável ter um único tipo de ideia moldando vidas, quando existem diferentes culturas, com outras visões de mundo e outras formas de solucionar os problemas, em seus mais diversos aspectos.

As tecnologias são comumente associadas a "utilidade" e, portanto, vistas como produtos que podem ser melhor controlados por determinados mercados. O fato da tecnologia ser também arte (*techne*) confunde sua ontologia, assim como as relações que se estabelecem com ela. A confusão reside no fato da tecnologia, como arte, possuir atributos criativos como a materialização de ideias. Este é um aspecto sedutor e envolvente da tecnologia, pois existe algo de mágico e lúdico em seu devir. Enquanto a arte representa visões particulares ou parciais, em consonância ou dissonância com alguns saberes, a tecnologia como instrumento da ciência agrega autoridade científica a uma criatividade delimitada por pragmatismos.

A ideia de que a ciência, em tese, representa um compromisso com a verdade e o bem comum é uma prerrogativa que intensifica o entusiasmo sobre a *IA*. Porém, erros em sistemas de reconhecimento facial levam inocentes para a cadeia[66], e "inovações" na saúde sem avaliação apropriada[67] são exemplos onde as tecnologias emergentes vêm causando danos irreparáveis à vida. As questões éticas envolvendo os dados provenientes de sistemas computacionais

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[64] NASCIMENTO, E. C. C. REFLEXÕES BIOÉTICAS NA ERA DA INTELIGÊNCIA ARTIFICIAL. In: JOÃO CARDOSO DE CASTRO, M. N.-G. (Ed.). **CAMINHOS DA BIOÉTICA vol II**. Teresópolis: Editora Unifeso, 2019. p. 345–362.

[65] SOCIETY, T. R. **You and AI – the politics of AI.** YouTube, , 2018. Disponível em: <https://www.youtube.com/watch?v=HPopJb5aDyA>

[66] KOCHAVI, M. **Dark Net – "Identity".** Showtime, , 2017.

[67] DICK, Kirby. **The Bleeding Edge**. Netflix, 2018.

resultam também em legislação, como a Lei de Proteção de Dados[68]. Porém, para fazer valer os direitos adquiridos, é necessário um maior envolvimento da sociedade de modo a evitar manipulações, desinformação e preconceito.

A proatividade capaz de mudar os rumos de uma "ciência ruim" requer um público informado que seja capaz, inclusive, de cobrar informações sobre as decisões automatizadas de uma *IA*. O "direito à explicação" elencado na lei de proteção de dados europeia (GDPR)[69] continua sendo um desafio a ser posto em prática. Apesar de alguns esforços iniciais (e recentes) para tornar explicáveis os resultados retornados pelos sistemas[70], o entendimento da tecnologia como uma mera ferramenta, incapaz de mudar as circunstâncias da vida, é um obstáculo. A tecnologia é composta por materiais brutos e processados através de conhecimento de engenharia e química, assim como inclui elementos imateriais que são informação, linguagem, arquitetura e modelos.

Facebook, *Instagram*, *Twitter*, *WhatsApp* representam modelos que estimulam a simulação e a repetição. São formas "práticas" de comunicar narrativas baseadas em padrões: performatividade, identidade, afirmação, familiarismo e tradição. À direita ou à esquerda, a base do sistema é tão antiquada quanto "o resgate da tradição perdida", pois tudo é traduzido em dados que revelam uma sociedade majoritariamente conservadora. As abordagens sensacionalistas e do absurdo representadas em estratégias de marketing digital de cunho político geram desinformação e propagam notícias falsas. Ocorre, nesse sentido, uma apropriação do discurso estético através da proliferação de imagens, como previu o filósofo Vilém Flusser décadas antes: "no futuro todos serão performers"[71]. Ao analisar as estratégias de propaganda e marketing com a popularização da TV, ele profetizou sobre a barbárie como consequência da replicação contínua de imagens que refletem um discurso simbólico hegemônico, sem a pausa de reflexão necessária sobre o conceito do que está sendo criado. Contudo, Flusser sugere também que a criação impensada pode gerar respostas, sendo este um caminho producente onde o conflito (como em uma perspectiva dialética) representa tensão

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[68] BRASIL. Presidência da República, Casa Civil. **Lei nº 13.709, de 14 de agosto de 2018**. Disponível em: http://www.planalto.gov.br/ccivil_03/_ato2015-2018/2018/Lei/L13709.htm.

[69] EUROPEAN COMISSION. **General Data Protection Regulation**. Disponível em: https://ec.europa.eu/commission/priorities/justice-and-fundamental-rights/data-protection/2018-reform-eu-data-protection-rules_en. Acesso em: 31 ago. 2018.

[70] RIBEIRO, M. T.; SINGH, S.; GUESTRIN, C. **"Why Should I Trust You?" Explaining the Predictions of Any Classifier**. Proceedings of the 22nd ACM SIGKDD international conference on knowledge discovery and data mining. **Anais** [...]. 2016.

[71] FLUSSER, V. **O mundo codificado**. Cosac Naif, 2007.

que sugere novos desfechos. Assim, no modelo 'tese-antítese-síntese' as coisas produzidas podem ser o início de uma comunicação que requer respostas e comentários. Esses são elementos embutidos em produtos e ações como em um diálogo intersubjetivo[72]. Porém, para que tal diálogo aconteça, são necessárias pessoas proativas. Nas mãos da indústria o objetivo de venda/lucro apenas alimenta o consumismo e a obsolescência programada[73]. Problemas estes que são vilões da exploração humana e ambiental. É justo reconhecer que a abertura da internet apresentou grandes contribuições para a sociedade, mas a constante manipulação da informação vem facilitando a ascensão do embuste. Enquanto diferentes desenvolvimentos tecnológicos vêm sendo construídos em paralelo, a subjetividade e sua racionalidade tem estado demasiado ocupadas em fantasias tais como a criação de "sistemas inteligentes".

Os dispositivos de alta tecnologia estão entre nós e "o outro"; "eu e os outros"; "eu e o mundo". De maneira pervasiva a 'tela plana' realiza a mediação de todo tipo de relacionamento no terreno dos afetos, trabalho, estudo, acesso à informação, e assim por diante. Essas mediações possuem alto tráfego de dados e são bastante convenientes para o desenvolvimento da *IA*.

Como a *IA* classifica a informação? Talvez seja o caso de questionar os sistemas de classificação, sua relevância versus impactos. Classificar, em si, é discriminar[74]. Classificações são objetos de poder. A IBM é acusada de ter criado a arma capaz de tornar a perseguição aos judeus um holocausto[75]. Aprender com a história, desde seus aspectos éticos e bioéticos é o nosso dever. Atualmente, temos mais elementos para considerar o problema epistemológico desses modelos de classificação.

Devir-*Curupira*: a *IA* para além do bem e do mal

A *IA* vem se tornando catalisadora de questões em diferentes esferas, capazes de incluir gênero, igualdade social, justiça, trabalho ou saúde. Sistemas computacionais, utilizando *Big Data* e operando com *Machine Learning* e *Deep Learning*, são a base da *IA*. Ela é também composta por tudo que colabora no entendimento dos hábitos humanos, isto inclui linguagens, cultura e comportamento.

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[72] Id.

[73] DANNORITZER, C. **A História Secreta da Obsolescência Planejada (The Light Bulb Conspiracy)**França, Espanha, 2010.

[74] SOCIETY TR. You and AI – the politics of AI [Internet]. YouTube; 2018. Available from: https://www.youtube.com/watch?v=HPopJb5aDyA

[75] BLACK E. How IBM Technology Jump Started the Holocaust. GIZMODO. 2011.

E se o primeiro passo para construir uma *IA* é copiar a inteligência humana, a tarefa é complexa, pois o entendimento sobre o que é "inteligência" não é o mesmo em todas as culturas. A *IA* reflete o modelo de humano na ciência moderna, o modelo da ética iluminista que nos "termos de uso" legíveis diz que os direitos são universais, enquanto nas formas "não legíveis" torna-se evidente que os "direitos universais" são para certos tipos de humanos: homens, brancos, preferencialmente com certo poder aquisitivo. Nos tempos atuais a *IA* tem embutidos também, os valores da economia neoliberal globalizada, com modelos de sucesso individualizados, competição permanente, em detrimento de organizações coletivas e da busca de soluções conjuntas[76]. A *IA*, portanto, é um "produto" que aponta para o futuro, porém sua base epistemológica, cultural e social é guiada pelo passado. Como o personagem da lenda folclórica brasileira, o *Curupira*, a *IA* se volta para frente enquanto seus passos estão marcados para trás. O *Curupira* tem interpretações distintas, desde "demônio" a "protetor da floresta". No relato de José de Anchieta em 1560, o *Curupira* seria o responsável pelo açoite e assassinato de indígenas:

> *É coisa sabida e pela boca de todos corre que há certos demônios, chamam Curupira, que acontece aos índios muitas vezes no mato, dão-lhe açoites, machucam-nos e matam-nos. São testemunhos disso os nossos irmãos, que viram algumas vezes os mortos por eles. Por isso, costumam os índios deixar em certo caminho, que por ásperas brenhas vai ter ao interior das terras, no cume da mais alta montanha, quando por cá passam, penas de aves, abanadores, flechas e outras coisas semelhantes, como uma espécie de oferenda, rogando fervorosamente aos Curupiras que não lhes façam mal.*[77]

Seja o *Curupira* um tipo de "capitão do mato", um "Exu" ou Oxossi, também a *IA* confunde seus seguidores apresentando o passado quando o que se espera dela é um caminho mais responsável e seguro para o futuro. Ela atua com características cruéis, como nos exemplos onde suas aplicações resultam em injustiças. Mas ela também pode representar "os olhos" para deficientes visuais, alerta de memória para os que sofrem da doença de Alzheimer ou mesmo companhia para pessoas solitárias.

Nas artes a *IA* desafia o humano a criar para além dos padrões já conhecidos. Pois um sistema baseado em aprendizado de máquina já é capaz de aprender automaticamente um estilo e gerar novo conteúdo[78]. Contudo, se as tecnologias emergentes vêm criando turbulências na cultura moderna do ocidente, idealmente a reunião entre ética e estética,

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[76] DINES A. Observatório da Imprensa Entrevista o Sociólogo Zygmunt Bauman [Internet]. TV Brasil; 2015. Available from: https://www.youtube.com/watch?v=kM5p8DqgG80

[77] https://pt.wikipedia.org/wiki/Curupira

[78] BRIOT, JP, HADJERES, G, F.-D. P. **Deep Learning Techniques for music generation**. Computatio ed. Springer, 2020.

ciência e arte, quiçá poderá ampliar as fronteiras do conhecimento, multiplicando as chances de enfrentamento aos novos desafios provocados pelo rico emaranhado das revoluções tecnológicas.[79]

Enquanto a *IA* no campo criativo levanta questões no campo da autoria e futuro das artes, um aprendizado de máquina com objetivo de classificar "ações humanas" através de filmes resulta em "mulheres interagindo com crianças" e "homens em situação de luta com outros homens".[80] Tais resultados chamam atenção quando se quer incentivar os homens a dispensar maior tempo no cuidado e educação das crianças, padrão este que já vem se modificando sensivelmente. A boa notícia é que essas tecnologias reacendem os antigos debates da semiótica, sobre os conteúdos produzidos para consumo ordinário (cultura de massa). A produção para cinema e TV, assim como diversos "produtos culturais", representam visões estereotipadas da cultura, e são essas visões que estão sendo utilizadas para treinar os algoritmos do futuro. Ao longo de décadas há críticas ao caráter nocivo dos produtos que circulam nos sistemas de informação, em épocas em que as mídias eram a impressa, rádio e TV. Tais críticas eram insignificantes frente à prerrogativa de liberdade de mercado, até se tornarem esquecidas. Eventualmente, perspectivas éticas atingiram algumas propagandas identificadas como prejudiciais, como as da indústria do tabaco,[81] embora, até o presente momento muitas das discussões permanecem ativas, desde que a violência de gênero, machismo, racismo e outros preconceitos que continuam povoando o imaginário em produtos culturais e propagandas. A *IA* que torna possível obter respostas rápidas a conteúdos semânticos torna-se mais facilmente influenciável porque ela está embutida em sistemas técnicos, ubíquos, que representam operações matemáticas, estatísticas, onde se crê existir neutralidade e acurácia. É ainda raro que os engenheiros da computação se perguntem sobre a qualidade dos dados utilizados no sistema de aprendizado e quais os possíveis impactos de predições com representações enviesadas. Com debates éticos mais frequentes nos últimos cinco anos, os pesquisadores, desenvolvedores e empresas começaram a dar maior atenção a tais problemas que são de difícil solução, pois envolvem camadas mais profundas que vão da epistemologia à

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[79] COLTON, S. **Computers and Creativity**. Melbourne, London: Springer, 2012.

[80] SOCIETY, T. R. **You and AI – the politics of AI.** YouTube, , 2018. Disponível em: <https://www.youtube.com/watch?v=HPopJb5aDyA>

[81] UNIVERSITY, S. **Research into the impact of tobacco advertising**. Disponível em: <http://tobacco.stanford.edu/tobacco_main/ Acesso em: 23 jul. 2018.

política.

O “aprendizado de máquina justo” é recente, embora algumas análises sejam de dez anos atrás. Entretanto, o pensamento técnico só consegue lidar com partes do problema, aplicando de maneira limitada os princípios de justiça, discriminação e inclusão. As soluções matemáticas e estatísticas não são capazes de lidar com preconceitos embutidos nos sistemas. Assim, é uma ilusão crer que soluções pontuais irão contorná-los. Na verdade, o resultado pode, perversamente, prejudicar mais os grupos/indivíduos aos quais se supunha proteger.[82] Por exemplo, “neutralizar” classificações de gênero e étnicas poderão resultar na falta de reconhecimento de que estes grupos são alvos nos crimes de ódio. A extrema especialização dos saberes faz com que os profissionais das áreas de saúde, legislação e gestão pública, junto a cientistas da computação, tenham dificuldade em encontrar um ‘denominador comum’ no entendimento de como algoritmos possam evitar reproduzir discriminação.[83]

Muito provavelmente porque não é papel dos algoritmos apontar soluções que envolvam o destino humano na educação, saúde, trabalho, moradia e assim por diante. A pergunta, portanto, não é como fazer a *IA* mais justa, mas por que se faz necessário utilizar *IA* para avaliar acesso a serviços (incluindo os básicos, como saúde), periculosidade, competência e confiabilidade, classificar/discriminar indivíduos, os comparando com práticas passadas. Por exemplo, se o modelo de sucesso de uma determinada empresa em toda sua história eram de homens brancos com tais e tais características, o resultado na avaliação de pessoas com outras características que aspiram uma posição na empresa será fraco ou mesmo negativo[84]. Desse modo, para os excluídos históricos, estão reduzidas as chances de se ter um futuro.

Insistir ainda na possibilidade de algoritmos neutros, sabendo que eles representam planos onde já estão definidos os resultados desejáveis, seria inocência, cinismo, pragmatismo ou ceticismo em relação a princípios tais como da *Declaração Universal dos Direitos Humanos*[85]. Afinal, como se pode criar algo neutro dentro de um mundo não neutro, do contrário, um mundo em guerra onde se lucra com a fome, a miséria, o

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[82] S CORBETT-DAVIES SG. The measure and mismeasure of fairness: A critical review of fair machine learning. (arXiv preprint). Report No.: arXiv:1808.00023. 2018.

[83] MJ KUSNER, J LOFTUS, C RUSSELL, R. S. Counterfactual fairness. **Advances in neural information processing systems**, p. 4066–4076, 2017.

[84] O'NEILL, C. **The era of blind faith in big data must end**. Disponível em: <https://youtu.be/_2u_eHHzRto>. Acesso em: 12 dez. 2018.

[85] ASSEMBLY, U. **Universal declaration of human rights. UN General Assembly. 1948 Dec 10;302(2).**, 1948.

conflito bélico e os desastres ambientais? Talvez seja o caso de modelar os algoritmos, não a partir do que o mundo foi ou é, mas como gostaríamos que ele fosse, assumindo assim o caráter da invenção, embutido não apenas nos sistemas técnicos, como também na interpretação das estatísticas em muitos casos.

Se por um lado, a ciência e suas ferramentas representam a necessidade humana de se preparar para possíveis desastres, assim como se adaptar a limitações, há que se perguntar quais são as principais motivações dos projetos que envolvem aprendizado de máquina. O "aprendizado por reforço" toma emprestado da psicologia o método de aprendizado com foco na recompensa, e assim o "agente" tem tarefas pré-estabelecidas como metas a cumprir; e o interessante é que a despeito da complexidade e incerteza do ambiente, para a pesquisa do aprendizado obter "progressos", os "problemas" precisam ser isolados.[86] Uma analogia a tal método seria a viseira do burro.

Na corrida por inovação, cientistas e empresários assumem o argumento altruísta de que é "para tornar a vida melhor para todos", porém, a explicação mais plausível é que há uma demanda empresarial do mercado e da indústria por certos produtos que representam simplesmente lucro e controle. Talvez, no âmbito da pesquisa científica a sociedade irá "lucrar" mais com algo de onde não se prevê sucesso ou lucro algum. Pois, conforme expõe o filósofo Félix Guattari, é o desenvolvimento processual da cultura que está em questão.[87] Uma ética verdadeiramente inclusiva requer uma nova lógica. À bioética, portanto, como um chamado à reflexão, regulação e responsabilidade com a vida, cabe perguntar quais os possíveis impactos da *IA* no funcionamento humano, na sua relação com o ambiente e a saúde. Quando psicólogos trabalham para empresas como a extinta *Cambridge Analytica* e fornecem as ferramentas, bases e recursos da pesquisa acadêmica para projetos comerciais de marketing político com consequências nocivas, inclusive à saúde mental, é de se perguntar como algumas pesquisas são aprovadas e recebem financiamento. Um desses psicólogos, por exemplo, continua suas atividades de pesquisa, sendo seu trabalho mais recente o treinamento de redes neurais para detectar orientação sexual através de leitura facial[88]. Além de tais estudos serem questionáveis na esfera científica, uma vez que pressupõe que

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[86] BARTO, R. S. S. AND A. G. **Reinforcement Learning: An introduction (Second Edition in Progress)**. A Bradford ed. London: The MIT Press, 2018.

[87] GUATTARI, F. **"As três ecologias" (11ª edição)**. Campinas: Papirus, 2001.

[88] WANG, Y.; Kosinski; M.. Deep neural networks are more accurate than humans at detecting sexual orientation from facial images. **Journal of personality and social psychology**, v. 114, n. 2, p. 246, 2018.

determinados hormônios em gays e lésbicas influenciam características faciais, qual seria a motivação da pesquisa? Torna-se um elemento agregador do discurso *tecnofacista*, alimentando o grande banco de dados (*Big Data*) de informações que apenas são úteis para discriminar, separar, isolar. Se estamos na Era da Revolução Industrial 4.0, é mister lembrar que o conceito da fábrica como metáfora do mundo é onipresente.

IA, Ciência e Invenção

Se a *IA* é construída pela quantidade de dados, estariam eles incluindo as ideias aborígines de felicidade? Provavelmente não. A definição de inteligência está ligada à sua representação: o que significa ter inteligência e por que precisamos dessa classificação? Os sistemas de computação funcionam através de linguagens. Linguagens precisam de determinações. Digamos, como a palavra "escuridão" poderia ter uma representação universal? Teriam as experiências humanas com a "escuridão" memórias de percepções sensoriais semelhantes em todas as culturas? Se a inteligência se resume à capacidade de aplicar habilidades e conhecimentos, ela pode ser considerada presente em muitos seres, inclusive na *IA*. Assim, se houver algum consenso sobre o que significa inteligência, ainda que genericamente, podemos delinear uma raiz principal que poderia estar embutida em qualquer sistema, em todo o mundo. Ainda assim, a noção do que é "habilidade" e "conhecimento" poderá variar de cultura para cultura. Desse modo, cabe discutir se a *IA* privilegia pontos de vista e percepções específicos e quais são os impactos quando a vida é mediada pelas linguagens do mundo artificial representado pelas máquinas, constituídas a partir de um único modelo de ver o mundo. A sociedade ocidental, em especial seu grupo mais privilegiado, se adapta bem a tais linguagens, desde que elas são desenhadas para lhes servir resultando maior qualidade de vida. Porém, para outros grupos e outras culturas essas linguagens tendem a se tornar dispositivos de opressão na perpetuação da desigualdade. Porque os conhecimentos valiosos, efetivos, que fazem parte da vida diária não cabem nos algoritmos. As histórias das vidas não cabem nas explicações de padrões estereotipados. Assim, enquanto os conceitos europeus embutidos na *IA* podem ser representados pela máxima cartesiana "penso, logo existo", para comunidades africanas a definição de ser é sempre

uma correlação com os outros: “Eu sou porque você é.”[89] Do mesmo modo, muitas etnias possuem diferentes formas de ver o mundo, e conceitos como “artificial” e “inteligência” podem não fazer sentido. Contudo, se há apenas uma epistemologia embutida na IA, e ela penetra, através dos dispositivos e das políticas que eles envolvem, em todos os lugares povoados da Terra, estaria a *IA* reforçando uma perspectiva política-ideológica dominante e reavivando um passado de guerras que gostaríamos de ter deixado para trás?

A Organização Mundial de Saúde vem, desde 2013, trabalhando junto à União de Internacional de Telecomunicações, agência de tecnologias da informação da ONU, com o plano *eHealth*. A proposta é “empoderar” populações vulneráveis com o uso de dispositivos eletrônicos para cuidado e assistência à saúde. Em 2018 foi aprovada em Genebra, na Suíça, a resolução sobre a “saúde digital” com o foco em “populações marginalizadas”. O relatório da OMS diz: “esta resolução tem o potencial de melhorar a qualidade de vida de milhões de pessoas”.[90] É como se cada telefone celular de uma pessoa que vive em condições precárias, guardasse um “gênio da lâmpada”, e os problemas resultantes da extrema concentração de riqueza, que deixa muitas populações do mundo na miséria, estariam resolvidos. Mas, como dito, a tecnologia é também uma fábrica de ilusões. No contexto da *poiesis* há a possibilidade da inspiração e reflexão através desses meios tecnológicos, mas no contexto da *práxis* existem muitos elementos entre as ilusões vendidas e seus impactos culturais e sociais.

Quais as consequências para quem recebe uma política que supostamente lhe beneficia, sem de fato ter sua voz ouvida para que possa decidir se é o uso de tais tecnologias a melhor solução para a assistência à saúde, uma saída parcial para as condições precárias, e para melhor atender as necessidades comuns daquela população?

Reconhece-se as limitações técnicas e de infraestrutura nos locais onde as ações estão focadas, e manifesta-se a intenção de fomentar iniciativas para garantir tais necessidades[91], mas além das possíveis discrepâncias em prioridades de investimento e angariação de fundos para implementação de tais planos, há ainda o tema complexo do apagamento cultural.

Na África, por exemplo, o conceito de alteridade não faz sentido, então utilizar uma ferramenta que é projetada dentro de um dualismo onde há um “eu” e o (indesejável e

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[89] BERRY, J., Cossa, J. & Marivate, V. , Wray, S. A. **AI FOR GOOD LIVE | Cosmo-Ubuntu, Machine Translation and Cognitive Code Switching** AI for Good, , 2020.

[90] ORGANIZATION, W. H. **Be Healthy, Be Mobile**. 2020. https://www.who.int/initiatives/behealthy ; https://www.who.int/publications/i/item/978-92-4-151625-9

[91] UNION, W. H. O. AND I. T. **National eHealth Strategy Toolkit**. Geneva: 2012. https://www.who.int/ehealth/publications/overview.pdf

incompreendido) “outro” torna-se emblemático.

Deus Ex-Machina

O pensamento Europeu moderno está procurando construir uma *IA* boa o suficiente para falar conosco, melhor do que nós no armazenamento de memória e processamento de informações, e - ainda mais ambicioso -, que ela possa transcender a inteligência humana. Ao que tudo indica, a "superinteligência" anunciada como meta transhumanista[92] é a tentativa do homem produzir uma engenharia reversa para a criação do “Deus Artificial” (“DA”), a “grande máquina”, capaz de cuidar de nós. Finalmente, o homem vitruviano da Renascença se torna obsoleto, e Deus volta ao comando na forma de uma *IA,* à sua imagem e semelhança. O fato do “DA” ser secretamente comandado por alguns indivíduos com o objetivo de manipular as pessoas não é algo que difere do presente ou passado distante, em tudo que envolve seu nome. O que difere é que o “DA” ao invés de gerar coesão na esfera moral, desintegra a cultura, os valores éticos, científicos e sociais, desde que a tecnologia, apenas em seu sentido utilitário, nas mãos da indústria e governos, comumente representa controle em favor da manutenção de um determinado *status quo*.

Vivenciamos e criamos com as tecnologias em escala limitada. As limitações vêm dos designs, das caixas fechadas, da mentalidade industrial que planeja a obsolescência, do lugar subalterno reservado à estética, como se o imaginário importasse muito pouco em face às “urgências” do mundo.

Ademais, a linguagem não representa uma tradução direta dos pensamentos, senão uma adequação da imaginação ao vocabulário disponível, de acordo com as narrativas que revelam os valores da cultura. Por exemplo, um aborígene australiano incorpora a orientação espacial na linguagem, algo que se aprende desde a infância, o que faz com que uma criança seja capaz de explicar as coordenadas em todo seu caminho, de origem e destino em uma simples saudação de “bom dia”. Em comparação, na cultura ocidental um adulto bem informado tem dificuldade em situar onde estão os pontos cardeais.[93] Os humanos, em geral, criam mitos e símbolos para expressar narrativas eleitas como importantes para sua cultura. *IA* é uma lenda que aumenta o desejo de superar as limitações da vida e da morte. Ter o poder da criação em

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[92] NASCIMENTO, E. C. C., R. S.-B. THE BRAIN AND THE ROBOT: BIOETHICAL IMPLICATIONS IN TRANSHUMANISM. **Ciências & Cognição**, v. 23, n. 2, 2018.

[93] BORODITSKY, L. **How language shapes the way we think.** TEDWomen | Youtube, , 2017.

nossas mãos é o grande desejo e a *IA* alimenta essa narrativa, com as visões previstas de uma possível consciência sendo carregada em corpos sintéticos.

A ciência moderna é moldada a partir da compreensão antropocêntrica, isto é, o homem está no centro e a visão predominante é a sua própria interpretação de mundo onde ele enumera motivos para ser mais especial do que outras espécies, e mesmo, mais especial que outros de sua própria espécie. Com efeito, ao criar coisas a partir do imaginário, construir linguagens e encontrar a sua singularidade, o humano demarca a sua identidade e gera diversidade, já que existem muitas línguas, culturas e subculturas.

As tecnologias digitais apresentam "soluções" assim como o *devir Deus Ex-Machina*. As "soluções desejáveis" têm foco em sujeitos específicos. Suas instruções não vêm mais escritas na pedra, elas agora são algoritmos que limitam e moldam os resultados dos *outputs*. Todavia, "no princípio era o verbo"[94], ou melhor, o axioma.

Classificações e conteúdo semântico

O estudo da *IA* revela uma complexa interconexão de conhecimentos. Uma vez que reconhecemos que não podemos padronizar muitas definições sem incorrer no erro de imprecisão e, até mesmo de preconceito, a busca pelo conhecimento abre um portão interdisciplinar desafiante. A ciência é uma busca por padrões, e padrões são tendenciosos. Uma maneira de explicar os sistemas de classificação talvez seria reconhecer a possível imprecisão dos estudos, pois a apresentação de resultados parciais como totais também tem suas consequências.

Classificações cheias de preconceito são armas. Elas têm intenções de enfraquecer o renegado "outro" para justificar o abuso, a dominação, e subjugação, a criminalização. Muito antes da *IA* se tornar presente nos sistemas de informação, o *Oxford English Dictionary* define "gypped", que é "provavelmente uma abreviatura de cigano", como "um sujeito astuto e inescrupuloso". [95]

Quando os negros e indígenas eram considerados "selvagens" ou "humanos não desenvolvidos" o suficiente para gozar plenamente dos direitos "universais" evocados pelo Iluminismo, haviam outros grupos em linha a serem perseguidos e estigmatizados, como judeus e ciganos. Se esses estigmas e falsas suposições foram responsáveis pela morte de

[94] JOÃO I. **Biblía Online**. Disponivel em: https://www.bibliaonline.com.br/acf/jo/1

[95] BRADFORD, A. Roma Culture: Customs, Traditions & Beliefs. **LIVESCIENCE**, nov. 2018.; CHALLA, J. Why Being "Gypped" Hurts The Roma More Than It Hurts You. **NPR**, dez. 2013.

milhões de pessoas na Segunda Guerra Mundial, eles permanecem uma ameaça à vida, já que considerar alguém "inferior" por qualquer motivo que seja, é uma desculpa criada pela irracionalidade da razão. Trata-se de uma confusão projetada para bloquear a empatia instintiva que os humanos têm por espelhamento[96]. Uma vez que a empatia é bloqueada o "sujeito-outro" pode sofrer qualquer tipo de discriminação, desrespeito, abuso, exploração, genocídio, assassinato, feminicídio. As mulheres ainda permanecem alvo e a vulnerabilidade irá variar de acordo com a posição social, porém, as disparidades salariais e sub-representação em diferentes cargos de trabalho, facilitam o assédio sexual e moral. Pois, cada vez que uma parte se sente legitimada para intimidar a outra, por uma autoridade atribuída *a priori*, o assédio sexual é apenas uma das consequências.

Com a participação da sociedade, os resultados tendenciosos em plataformas como o *Google* vêm sendo corrigidos de tempos em tempos. Mesmo assim, "novas instâncias de racismo e sexismo continuam aparecendo nas notícias e nas redes sociais"[97].

Um exemplo de muitos: em setembro de 2020, uma "social influencer" postou nas redes que a definição do *Google* para 'mulher solteira' era "prostituta", "meretriz". Após cerca de uma semana, o Google corrigiu, informando que trabalham com conteúdo licenciado de dicionários parceiros, e não editam nem removem definições. No entanto, ainda não está claro por que a opção destacada para o resultado da busca "mulher solteira" foi o "significado pejorativo".

Fazendo a mesma pesquisa por "homem solteiro" o resultado mostra o significado como um "adjetivo" e na segunda opção aparece o "significado figurativo".

Este é um exemplo trivial de como os algoritmos refletem a (sub)cultura, e quem busca encontrar no *Google* um dicionário básico, vai recebendo essas informações subliminares, muitas vezes sem se dar conta. É correto presumir que tais desvios de informação possam influenciar mais os jovens, desde que estão em formação. Contudo, os adultos que se adequam ao "politicamente correto" por convenção, se sentem autorizados a perpetuar certos preconceitos e mesmo causar injúrias a outrem quando uma simples busca confirma um preconceito reprimido.

Safiya Noble afirma que o Google é uma plataforma criada para vender coisas e muitas vezes é confundida com uma fonte confiável para obter informações e conhecimento. Em geral, é

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[96] WONDER, P. OF. **How Culture Makes Us Feel Lost - Dr. Gabor Mate On Finding Your True Self Again**YouTube, 2019. Disponível em: <https://www.youtube.com/watch?v=TIjvXtZRerY>

[97] NOBLE, S. U. **Algorithms of oppression: How search engines reinforce racism**. New York: nyu Press, 2018.

compreensível que as pessoas acreditem que tudo o que está à disposição do público deva passar por algum tipo de avaliação e regulamentação. Seria o dever da gestão pública, pois, via de regra, a responsabilidade social, por meio de legislação, ordem executiva e instituições, deveria garantir que todas as empresas trabalhem para o bem da sociedade como base do contrato social. Acredita-se também que uma vez discutido e corrigido um determinado problema, sua repetição seria improvável devido ao aprendizado social e restrições impostas. Mas, como os preconceitos continuam voltando aos sistemas automatizados, cabe investigar a base do sistema, suas fontes de informação e as maneiras como obtém os resultados.

Desde que o GDPR[98] foi aprovado, os cientistas da computação vêm trabalhando nos desafios para atender as demandas da lei. Softwares como o *Lime* demonstram como as "redes neurais" obtêm seus resultados.[99] A pergunta é se existem conflitos de interesse entre fazer o negócio gerar lucros, e prover informação confiável.

Perspectivas

A *IA,* como discurso único tem um alcance maior do que qualquer religião. Ela é onipresente e cabe, portanto, compreender seu funcionamento, como ela poderá melhor se adaptar a determinados ambientes e, em alguns casos, até mesmo avaliar se deve ser implementada como mediadora no cuidado à saúde em populações com dificuldades de subsistência básicas.

Embora a IA seja recebida com otimismo e engajamento em diversos meios, é dever de uma perspectiva bioética requerer que planejamentos como eHealth, Mobile Health, e Digital Health sejam realizados com consulta e entendimento das necessidades das populações onde se quer implementar tais planos; averiguar como, e se, o consentimento informado está sendo aplicado e, ainda mais importante, entender o que será feito com os dados coletados e se esse uso e compartilhamento de dados é de interesse de todos os envolvidos.

Assim como a pandemia não nos deixa qualquer escolha em relação ao uso dos serviços de plataformas digitais, no caso de implementação de serviços de saúde mediados e monitorados pelas tecnologias, também a escolha entre manter a privacidade e não ser mais um dado na vigilância, consequentemente não acessando o serviço, não é escolha.

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98 EUROPEAN COMISSION. **General data protection regulation**. Disponível em: https://ec.europa.eu/commission/priorities/justice-and-fundamental-rights/data-protection/2018-reform-eu-data-protection-rules_en. Acesso em: 31 ago. 2018.

99 RIBEIRO, M. T.; SINGH, S.; GUESTRIN, C. **"Why Should I Trust You?" Explaining the Predictions of Any Classifier**. Proceedings of the 22nd ACM SIGKDD international conference on knowledge discovery and data mining. **Anais** [...]. 2016.

Uma possível solução seria uma *IA* customizável que possa ter embutida no seu algoritmo uma lógica inclusiva e não exclusiva. Em outras palavras, ao invés de decidir entre "ou é isto ou é aquilo", os resultados expostos através de sua explicação e mostra de probabilidades pode evitar que padrões definidos quantitativamente se convertam em (falsas) verdades. Padrões podem ser características ou mesmo representação de práticas sociais, quando por exemplo, os dados policiais contabilizam mais pessoas negras, em geral é apenas reflexo do fato destas pessoas serem abordadas com maior frequência[100]. Criar estigmas a partir de tais inconsistências é opcional.

[100] O'NEIL, C. **Weapons of math destruction: how big data increases inequality and threatens democracy**. New York: Crown, 2016.

APPENDIX B – TEXTS TO BE PUBLISHED

1 REVIEW ACCEPTED

Construção do saber médico: crítica ético-política

Elen Nas[1], *Rodrigo Siqueira-Batista* [2]

Resumo

Este texto é um comentário ao livro "*Natural, racional, social: razão médica e racionalidade científica moderna*", de Madel T. Luz. Sua crítica à racionalidade e à metodologia científica baseia-se no reconhecimento de um quê ideológico nessas dimensões, delineado principalmente a partir da Era Industrial. Suas reflexões buscam respostas para explicar a marginalização de outros modos de lidar com a realidade, os quais foram – e são – atacadas pelo modelo majoritário instituído pela ciência moderna, com destaque para o vitalismo, cuja presença é marcante na homeopatia. Ressalta-se que a estética desempenha um papel importante na produção e disseminação do conhecimento, como base capaz de ampliar a visão para diferentes perspectivas de racionalidade e de elaboração ética.

Palavras-chave: Conhecimento. Homeopatia. Políticas de saúde.

Abstract

Construction of medical knowledge: ethical-political criticism

This text is a commentary on the book "Natural, rational, social: medical reason and modern scientific rationality" by Madel T. Luz. Her criticism of rationality and scientific methodology is based on recognizing an ideological aspect in these dimensions, outlined mainly from the Industrial Era. Her reflections seek answers to explain the marginalization of other ways of dealing with reality, which was - and are - attacked by the majority model established by modern science, with special attention to vitalism, whose presence is marked in homeopathy. It is emphasized the role of aesthetics in the production and dissemination of knowledge as a capable 'device' to broaden the vision for different perspectives of rationality and ethical elaboration.

Keywords: Knowledge. Homeopathy. Health Policy.

Resumen

Construcción del conocimiento médico: crítica ético-política

Este texto es un comentario al libro "Natural, racional, social: razón médica y racionalidad científica moderna" de Madel T. Luz. Su crítica a la racionalidad y la metodología científica se

basa en el reconocimiento de un aspecto ideológico en estas dimensiones, perfilado principalmente desde la Era Industrial. Sus reflexiones buscan respuestas para explicar la marginación de otras formas de afrontar la realidad, que fue - y es - atacada por el modelo mayoritario establecido por la ciencia moderna, con especial atención al vitalismo, cuya presencia está marcada en la homeopatía. Se enfatiza el papel de la estética en la producción y difusión del conocimiento como un 'dispositivo' capaz de ampliar la visión para diferentes perspectivas de racionalidad y elaboración ética.

Palabras clave: Conocimiento. Homeopatía. Política de salud.

INTRODUÇÃO

A obra *Natural, racional, social: razão médica e racionalidade científica moderna*, de Madel T. Luz, recentemente relançada pela Editora Fiocruz[1], completou 30 anos, desde sua primeira edição e tornou-se uma referência no pensamento contemporâneo na área da saúde. De fato, em pesquisa realizada no Google Scholar, em 8 de julho de 2018, consta que a versão em português do livro foi citada 682 vezes. A consulta foi repetida em diferentes datas, com resultados similares. A consideração de edições distintas do livro, na contabilização, é responsável pelas variações numéricas. Ainda assim, o Google Scholar se referiu, em dada pesquisa, apenas a duas edições específicas: uma de 2004, em português, e uma versão de 1997, em espanhol, enquanto as pesquisas mais recentes contabilizarão a nova edição (2019), de acesso livre. O escopo central da obra se inscreve em uma perspectiva sociológica, visando a análise das práticas médicas, buscando refletir sobre seus paradigmas, vícios e resistências.

A autora demonstra como as categorias, as teorias, e as concepções da razão médica são biossociais, não se traduzindo – apenas – em conceitos e métodos guiados por uma suposta neutralidade científica; outrossim, são reflexos de um modo de enxergar o mundo no qual as relações sociais são reduzidas à normalização de sujeitos classificados em polaridades binárias tais como: *normalidade-patologia, equilíbrio-desvio, harmonia-perturbação, integridade-degenerescência* [...], conforme a autora define em seu prefácio à edição de 1988[1]. Com efeito, de um ponto de vista crítico, a racionalidade científica moderna e suas características são expostas ao longo de seis capítulos – *Objetivos, bases e orientações: Racionalidade Científica e História* (Capítulo 1); *A construção da Racionalidade Científica Moderna* (Capítulo 2); *Natureza e razão no tempo e no espaço mecânicos* (Capítulo 3); *A racionalização da sociedade no período clássico da Idade Moderna* (Capítulo 4); *A disciplina das doenças e a razão social; categorias médico-sociais no século XIX* (Capítulo 5) e *Razão Médica e Paixão*

Política: Mecanismo organicista x vitalismo homeopata no século XIX (Capítulo 6) [1] – os quais serão brevemente comentados no presente ensaio.

NAVEGAÇÕES: A ORGANIZAÇÃO DO LIVRO

No capítulo 1, Madel T. Luz sustenta que se a prática na medicina tem se pautado em objetivar todos os aspectos humanos – do viver, do sofrer e do morrer –, seu tecido se estabelece no discurso da racionalidade moderna, que não se atém a explicar a realidade, mas – principalmente – a modelá-la. Esta é uma racionalidade que não se preocupa apenas com a origem e a causalidade dos fenômenos, senão, através de teorias antecipatórias, tendendo – também – a construí-los, fabricá-los.

A autora, nesses termos, destaca que o viver, o sofrer, o adoecimento e a morte refletem as relações sociais, fazendo com que os indivíduos e os grupos sociais vivam experiências distintas no cuidado com o corpo. Sendo assim, a medida que o sujeito moderno é moldado através das forças que operam sobre sua corporeidade – o relógio, a máquina, as normas sociais, a vigilância de si, a vigilância do outro, a vigilância do Estado, a polícia, a fofoca, os rótulos – esta se torna o alvo e, ao mesmo tempo, o centro dos acontecimentos. O antropocentrismo da ciência moderna deixa as "leis divinas" de lado para focar no homem, seu corpo individual e social. Assim, as regras do contrato social são a extensão política da ciência. O mundo explicado por regulamentações fundadas em princípios ético-filosóficos com valores morais definidos de maneira distinta aos da religião. No pensamento moderno, a naturalização das normas aplicadas ao corpo, fazem parte de um determinado plano de controle social, no qual a medicina se torna "*talvez a mais social das disciplinas modernas*" (p.47)[1].

A **razão médica** é, portanto, uma **ordem médica** operada sob a lógica da disputa de hegemonia no contexto político-social, característica intrínseca ao modelo de racionalidade, que sustenta uma determinada ideologia de classe. Deste modo, esta racionalidade representa estratégias de produção de discursos e políticas sociais aplicadas à medicina por meio de classificações, muitas vezes refletindo conceitos e teorias divergentes e concorrentes na relação do estudo e da prática médica. As categorias e concepções que devem ser submetidas à análise crítica incluem 'racional', 'natural', 'social', 'vida', 'saúde', 'doença', 'normalidade', 'patologia', 'equilíbrio' e 'desvio', considerando que "*a razão e o método científico como norma fundamental para obtenção do conhecimento ou, de modo mais geral, como o modo de produção da verdade*" (p. 49)[1] são postulados com a pretensão de representarem uma verdade destituída de intenções. Verdades são produzidas, por obra do pensamento humano, e não são

exatamente características da natureza, e da natureza humana, senão o olhar que o humano tem sobre a natureza e os fenômenos que observa.

A ciência – como ferramenta de uma determinada ideologia de classe – reproduz pensamentos que influenciam seus métodos e práticas. Nessa esfera, a ideologia adquire contornos de um enunciado subliminar, presente nas políticas que atravessam os corpos dos sujeitos modernos, organizando-se em biopolíticas orquestradas por dispositivos de biopoder. Com efeito, a medicina converte-se em um destes dispositivos, encarregados da manutenção da ordem social. Seus discursos disciplinares evocam uma ordem racionalizada enquanto o método pretende sustentar que tal racionalização e todas as divisões construídas a partir dela, fazem parte de uma ordem natural presente tanto na natureza, como na estrutura dos corpos.

Quando se trata da epistemologia – aqui considerada como teoria do conhecimento –, não se pode esquecer que a linguagem é um destes dispositivos. Esta revela a cultura e sua poética. Como lembra Michel Foucault, conhecer é interpretar sinais e o jogo do signo busca o similar como referência para o discurso. Diz ele: "*a linguagem não é aquilo que é por ter um sentido*" [2]. Assim, a naturalização de certas premissas na esfera do conhecimento falha em não considerar os contextos culturais e sociais, assim como o universo de crenças e afinidades dos autores e cientistas no momento que formulam suas teorias. A universalização de saberes – tidos como neutros em relação à cultura – faz com que eles se tornem dispositivos de biopoder.

No Capítulo 2, a autora lembra que a racionalidade que define a Modernidade começa a ser gestada no período Renascentista do século XVI, definido também como o período da revolução científica. A necessária ruptura com a visão de mundo que antecede a chamada revolução científica reflete não apenas profundas transformações nas relações sociais, como também faz emergir o indivíduo autônomo, 'independente' e capaz de transformar o contexto pessoal e social criativamente.

O humanismo renascentista torna-se o antropocentrismo humanista, no qual o homem se torna o proprietário da natureza. O colonizador e o conquistador deixam de ser "aventureiros" ou "saqueadores" para ganhar um novo *status* social, amparados em um novo paradigma, no qual o processo decisório se restringe ao julgamento humano: "*A existência 'objetiva' e 'independente' da natureza face ao mundo humano é, desta forma, condição epistemológica e ontológica para que o homem possa conhecê-la e moldá-la, para que coloque sobre o reino da natureza o selo de sua ordem. A ordem da Razão*" (p. 60)[1].

O experimentalismo faz parte do método científico moderno e, ao mesmo tempo que é exploratório torna-se também interventor, "*pois cria instrumentos de observação empírica, iniciando a era da tecnologia da ciência*". Interessante notar que tal método torna-se criador

de disciplinas científicas que buscam isolar fenômenos para melhor compreendê-los, enquanto reforçam a alienação sobre o todo [3], ato que pouco a pouco foi se refletindo em toda estrutura e organização da sociedade industrial.

A ruptura epistemológica se reflete, também, na separação entre o ser e a naturez

a. Categorias bipolares reforçam separações por exclusão, como se os contrários e a anulação de um pelo outro fossem processos naturais. Assim, não apenas "natureza-homem", "qualidade-quantidade", "objeto-sujeito", "corpo-alma", "sentidos-razão", "organismo-mente", "paixões-vontade", "forma-matéria", entre outros, mas a razão destas dicotomias é multiplicada nos modos do fazer científico, nas suas metodologias e em toda teoria do conhecimento. Ademais, a racionalização da vida retrata um sistema específico que fabrica enunciados, os quais devem atender verdades específicas que reforcem as regras da produção e os valores considerados mais importantes dentro de tal modelo de racionalidade. São verdades comunicadas pelas regras do método e que influenciarão construções de novas regras com o objetivo de guiar o indivíduo pela vida moderna. De fato, "*Descartes dá forma de conceitos aos traços mecanicista, dualista e quantitativista da racionalidade moderna*" (p. 70)[1].

O mecanicismo – visão mecanicista de mundo – influenciará a organização das disciplinas e, embora tenha característica experimental, inventiva e construtora de realidades a partir de abstrações do imaginário, a crença em uma da razão pura – capaz de produzir conhecimentos através de um método científico infalível – dogmatiza este método a ponto de canoniza-lo como procedimento universal, a ser adotado para purificar os conceitos de suas fontes imaginárias. "*A razão moderna imagina a si mesma como imagina o mundo isto é, como máquina, como engenho*" (p. 72)[1]. O racionalismo de inspiração cartesiana organiza o método a ser aplicado às ciências e a busca da verdade para este conhecimento, em geral. Um dos problemas de um método transformado em dogma[4], é que ele gera repetições dos seus modelos teóricos nas disciplinas de modo a atingir o objetivo oposto ao de gerar uma unidade, que é o fenômeno da dissociação, onde o conhecimento racional científico se distancia pouco – ou nada – das compreensões *metafísicas* do mundo.

Importante notar que a racionalidade moderna reaviva *"a alegoria do conhecimento 'puro' das formas puras, da República de Platão*" (nota p. 71)[1], aspecto que a autora tematiza no Capítulo 3, no qual se propõe a discutir "*Natureza e razão no tempo e no espaço mecânicos*" (p. 77)[1]. Como a idealização das formas puras são traduzidas na Idade Moderna através da compreensão sobre a matéria e as dificuldades de lidar com o não mensurável, que é a quarta dimensão onde ocorre o movimento, as ciências da natureza não somente buscaram a exatidão como também, sempre que necessário e possível, procuraram ajustar os fenômenos às

compreensões que lhe eram mais familiares, mais fáceis no entendimento, e com maior probabilidade de controle em seus processos e desdobramentos, sendo tais características expressas no método. Desde esta perspectiva, o universo-máquina, mensurado, automatizado, operado e comandado pelo *Homo sapiens* faz parte do ideal mecanicista da ciência moderna, o qual, mais tarde é também traduzido para as ciências humanas através do positivismo: a ordem, a exatidão e a neutralidade científica são categorias inerentes ao método, o único método capaz de levar o cientista – supostamente – a encontrar a verdade.

A síntese epistemológica dos teóricos – filósofos e cientistas da era moderna – traduz-se no *modelo explicativo (mecanicista), o método (experimentalista e dedutivista) e a linguagem (matematizante)*. Esta síntese permanece hegemônica na compreensão, criação, e construção de tecnologias, tanto no trabalho, como nas artes, na moral e nos bons costumes, em geral: "[...] campos disciplinares como a Medicina, em diversos dos seus ramos, adotaram o modelo mecanicista, elaborando conceitos e teorias sobre sua base metodológica e epistemológica" (p. 84)[1]. Ademais, se "*as descobertas das ciências tinham um efeito prático de mudança qualitativa na vida social e econômica*" (p. 85)[1], sua racionalidade permanece voltada para conquista e para o controle do mundo. Desse modo, afirma a autora, sociedade e razão fundem-se no pacto que se denominará 'contrato social' (p. 87)[1] onde a ciência se torna a teologia da presente época.

O Capítulo 4 analisa o período histórico clássico, no qual se constituem as bases da racionalidade moderna. Madel T. Luz lembra que "*a racionalização dos costumes e das mentalidades na sociedade clássica não começa pela filosofia natural, mas pela moral resultante da religião cristã*" (p. 94)[1] e que as ordens religiosas foram formadoras morais que conduziram o caminho de construção da ética moderna. Neste contexto, o sujeito social se torna objeto de um projeto biopolítico a ser operado nas relações sociais, onde a Igreja se torna uma das instituições de controle moral, dentre outras, onde as relações de biopoder irão se estabelecer.

Destaca-se, nesta resenha crítica, que a racionalização moral é parte de uma construção estética, uma visão de mundo centrada em "categorias ideais". Tais categorias delineiam códigos disciplinares embasados em uma filosofia política que mantém, em sua tradição, a marginalização dos sentidos, assim como a separação entre *praxis* e *aisthesis*. O mundo material comandado e explicado pela razão define suas prioridades através de suas crenças pragmáticas, hierárquicas e distintivas; assim, segundo Madel, "*a sensualidade é, desta forma, um inimigo das duas razões: da razão científica natural e da razão da moralidade cristã, religiosa ou laica*" (p. 97).[1] Ela, porém, afirma: "*se a arte não diz a verdade, expressa*

realidades" (p. 98)[1]. Tem-se, deste modo, um contraponto na moral constituída dentro do propósito de controle espiritual da sociedade: a estética é o mecanismo de transmissão pelo qual a teoria é convertida em prática. Ela traduz as ideias da ética para vida cotidiana através dos sentimentos e dos sentidos, sendo capaz de transformar a ideologia em prática social espontânea[5].

A pensadora discute – no Capítulo 5 – os conceitos que moldam as práticas médicas, tais como o privilégio da ciência sobre a arte; desta feita, condições clínicas são reflexo da crença de que o mal é externo ao homem. Um exemplo disto é o discurso sobre a autoimunidade como um plano de ação significativa para construir e manter os limites para o que pode contar como *eu* e *outro*, nos domínios cruciais do normal e do patológico[6]. De fato, as subdivisões como anatomia, fisiologia e patologia, fazem parte dos métodos de observação que agregam ao projeto disciplinar, o controle dos corpos através das categorias de doenças. O poder exercido sobre os corpos determinará quais poderão estar livres e quais devem estar confinados, assim como medir e determinar o quão livres estes corpos poderão ser. Ressalta-se que os limites de liberdade de um corpo são definidos a partir de sua localização existencial: status social, local de moradia, condições de vida e de trabalho. A percepção da doença dissociada das condições sociais torna a metodologia aplicada às ciências médicas algo totalmente ficcional. A autora busca – ainda, nesse capítulo –, fontes representativas de outros tipos de racionalidade médica, como aquelas que percebem a doença como uma resposta do corpo aos estímulos recebidos através de suas experiências sensoriais. Ela lembra que o positivismo, o evolucionismo e o mecanicismo, são categorias biossociais que refletem ordenações hierárquicas em toda base do conhecimento.

Ao final do livro, no Capítulo 6, a autora fala do caráter ativista intrínseco ao vitalismo homeopata no século XIX, que se contrapõe ao mecanicismo organicista típico das teorias hegemônicas. Deve ser destacado que o debate epistemológico – e especialmente ético; quiçá estético – concernente à medicina dificilmente avançará sem a avaliação cuidadosa sobre "*a batalha política alopatia versus homeopatia*", a qual, segundo Madel T. Luz, deveria "*passar pela percepção dessas diferenças e competição teórica*". Com efeito, se a estratégia da alopatia tem sido hegemônica, suas estratégias de desmoralização sistemática de outras práticas e compreensões sobre como tratar doenças e curá-las, merecem ser eticamente questionadas, pois, em última análise, representam disputas de poder e de mercados próprias à lógica do capitalismo tardio [7]. Tais questões se inscrevem na compreensão de que a doença – uma abstração, um modelo para dar sentido aos achados clínicos[7] – pode ser associada à

compreensão do empirista David Hume de que a razão é também uma espécie de sentimento, que têm a imaginação como juiz [5].

Desse modo, o entendimento do que o racional é "objetivo" leva a tratar sintomas em separado e descartar tudo que seja entendido como "subjetivo" e "vago", na busca do entendimento sobre o todo. Nesses termos, para o vitalismo homeopático não se trata de "curar" através de "inflamações de dispositivos", mas da "arte da cura", pois tanto há beleza no ato de curar, como também faz parte do território da estética o que se refere à vida sensível, a apreensão de informações pelos sentidos, e, o corpo afetivo que dialoga com o mundo através de sintomas e sinais, é um corpo que cria o que lhe é possível, segundo os estímulos do seu meio.

CONSIDERAÇÕES FINAIS

O trabalho de Madel T. Luz soma-se aos díspares questionamentos dirigidos ao saber-fazer da Medicina, que, como prática social, não é neutra, tampouco o são seus conceitos e métodos. O livro em pauta apresenta a construção do saber médico em uma perspectiva crítica, sociológica e histórica. Entretanto, a partir do conhecimento da crítica e da existência de outras maneiras (i.e. racionalidades) de buscar soluções para os problemas humanos, o profissional da saúde poderá ampliar sua consciência e contribuir para potenciais mudanças.

Desse modo, com rigor acadêmico e de maneira original, *Natural, racional, social: razão médica e racionalidade científica moderna* acena para a possibilidade de trabalho – indissociável – da tríade ética, estética e epistemológica, reconhecendo que a potência originária da Medicina é, precisamente, a arte de cuidar.

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2 CHAPTER TO A FORTHCOMING BOOK PROJECT

AS, E. Sociedade autômata: a máquina no controle /Automata society: the machine in control). In: **DEUS EX MACHINA: Fronteiras Bioéticas das Neurociências, Inteligência Artificial, Nanotecnologia e Robótica** (DEUS EX MACHINA: bioethical frontiers of neurosciences, artificial intelligence, nanotechnology, and robotics). (ed. Siqueira-Batista, R, Nas, E., Motta, O., Silva, E). Book Project in Progress.

Sociedade Autômata: a máquina no controle

Elen Nas

> *É fácil fazer corresponder a cada sociedade certos tipo de máquina, não porque as máquinas sejam determinantes, mas porque elas exprimem as formas sociais capazes de lhes darem nascimento e utilizá-las. (DELEUZE, 1992)*

Resumo

O respeito à autonomia individual é um valor fundamental à bioética. Porém, a sociedade mediada por meios tecnológicos vêm revelando que a autonomia é em muitos casos ilusória. Para entendermos o que faz com que as mídias digitais sejam eficientes em propagar *fakenews*, fortalecendo as manipulações capazes de modificar o destino politico e social de um país cabe-nos analisar o funcionamento da 'sociedade autômata' e as ideias que a sustentam. O behaviorismo sobressai entre as influências que mais conflitam com a autonomia, desde que defende o conceito de homem-máquina como uma necessidade de controle baseada em uma aparente perspectiva científica. A partir da pesquisa nos temas da robótica, Inteligência Artificial (IA), e sistemas afins como *Big Data* e *Deep Learning*, o exame de perspectivas bioéticas contemporâneas resultou em um resgate teórico e crítico a respeito das teorias que permanecem influentes no imaginário social e no modo de fazer científico. O dualismo entre 'mente' (posição de elaboração e comando) e 'corpo' (subalterno e operacional) é o coração da 'sociedade autômata' e espalha-se ubiquamente em sistemas que reforçam injustiças sociais. Um preâmbulo em primeira pessoa propõe colocar em contexto o sujeito histórico no exercício de sua autonomia em contraste com movimentos resistentes à sua plena realização devido à disputas e projetos de poder. A 'sociedade autômata' é a cultura simplificada com a máquina no controle. A simplificação, porém, atinge mais a uns que outros, desde que os modelos fazem parte de uma agenda específica. A avaliação bioética dos sistemas que inibem a autonomia requer identificar onde estão 'implantados' os 'dispositivos' e como se posicionar diante deles.

Palavras-chave: autonomia, behaviorismo, bioética, mídias digitais

Preâmbulo

O valor irrefutável da autonomia é estar em posse de suas próprias decisões, livre de qualquer forma de manipulação ou força externa. Como um conceito que ganha contornos ético-políticos junto ao advento da modernidade, a ausência de autonomia torna o ambiente propício à praticas totalitárias. (CHRISTMAN, 2020)

> 2018 foi mais um daqueles anos sem trégua. Uma polarização política dualista que já vinha se acirrando, desde 2016, fez transbordar as guerras do mundo virtual para todos os espaços de convívio humano. Tornaram-se evidentes as reações imediatas de ressentimentos que se multiplicavam em ofensas e rupturas de relações.
>
> Alguém poderá dizer que sempre houve isso, mas o mundo virtual tornou mais fácil praticar o desrespeito verbal.
>
> Diante das telas de computadores e dispositivos eletrônicos a cidadania digital abriu precedentes para estranhos engajamentos.
>
> Desde o início da década, a *Primavera Árabe*, *Occupy Wall Street* e outras manifestações massivas revelaram o poder de uma sociedade conectada. Isto talvez tenha transferido às mídias alternativas uma certa ilusão de acesso mais direto à informação do que se experienciava com as mídias oficiais.
>
> Mas não demorou muito para que os algoritmos entrassem em cena, afunilando as redes de contato, criando bolhas e enviando mensagens subliminares em meio a propagandas de produtos ordinários.
>
> As pessoas revelaram a necessidade imperativa de expor opinião sem que realmente estivesse havendo algum diálogo. A partir de 2016 me surpreendi que no meu perfil de *Facebook*, pessoas da minha rede de contatos, surpreendentemente manifestavam-se de maneira ofensiva às notícias ou opiniões politicas postadas eventualmente em minha página. Não havia um motivo claro para tais reações, senão que a liberdade de expressão e opinião virou ao avesso e as mídias digitais facilitaram o desprendimento das etiquetas sociais, fato que experienciei igualmente no YouTube com desconhecidos.
>
> Convivo com a internet desde os anos 90 e entendo o mundo virtual como parte da vida real, de modo que uma ofensa é ofensa independente do meio que utiliza para comunicar. Mas algo veio mudando severamente, e para quem assistiu a todos os *Zeitgeist (JOSEPH, 2007; 2008; 2011)* eu não poderia crer que estas eram manifestações isoladas de um fenômeno humano, ou tecnológico.

Conhecendo bem a cultura predatória voltada à lucratividade sem medidas, a qual estamos inseridos, há mais coisas para investigarmos neste processo histórico atual.

Assim, em 2018 fui direcionada, através dos meus contatos, para diversas páginas de discussão política e novamente desconfiei quando as páginas que se colocavam como defensoras de uma determinada proposta e candidatos, traziam notícias ambíguas de seus concorrentes, o que poderia ser indício de perfis infiltrados. Tais notícias, em geral negativas, reforçavam o ambiente de hostilidade e oposição. Como posteriormente chegou ao conhecimento do público, algumas páginas de *Facebook* eram criadas como 'iscas' para atingir um determinado perfil, como por exemplo àqueles que 'comprariam a ideia' de atender manifestações, mesmo que as imagens e mensagens de chamada incitassem a polarização e a violência. A pesquisa encomendada pelo Facebook anos antes comprovou que o contagio emocional pelas redes é capaz de influenciar outros a repetirem os mesmos padrões (KRAMER, 2014), seja apatia, pânico ou comunicação violenta. No Brasil, a campanha "Ele Não" foi um exemplo da repetição de uma personalização que despolitiza entrando no jogo dos opostos. Mostrou-se ineficiente no seu propósito, mesmo com adesões de celebridades como a cantora Madonna. Reforçou a personalidade criticada pela sua negação. Uma cadeia de reatividade tomou conta do cenário geral como se todo mundo descompensasse ao mesmo tempo. As manipulações no nível emocional para obter resultados eleitorais equipararam-se ao nível das operações psicológicas (PSYOP) utilizadas como estratégias de guerra (AMER K, 2019). Paradoxalmente não ha qualquer controle sobre o impacto de tais estratégias. Elas ganham autonomia quando entram nas redes. Como no caso dos Estados Unidos em 2021, elas podem fazer as pessoas acreditarem que uma eleição foi roubada e que é necessário tomar uma atitude. Tudo se dissolve e pulveriza, transformando-se em outras coisas que estão além do alcance, mesmo dos que empurraram a 'bola de neve' do alto da montanha. O mundo se tornou complexo demais e o pouco de autonomia que resta aos indivíduos é utilizada para o reforço da autoridade. O poder de dar autoridade a quem não tem. Enquanto, por outro lado, a 'autoridade' do conhecimento, da sabedoria, da dimensão legal e ética é colocada em 'xeque' pelo 'homem-máquina'.

A autonomia se manifesta no exercício da razão. Porém, a ideia que emoção e razão são distintas substâncias, faz com que a razão, não ciente de suas susceptibilidade a afetos, perca alguns atributos reflexivos. A paixão pela razão (DAMÁSIO, 2003) causa reações emocionais quando as ideias expostas não estão em concordância com o que um outro pensa ou entende como valida. A 'sociedade autômata' ocupa o espaço deixado no corpo decepado, separado da mente e suas emoções. As lacunas de comunicação quando as ideias estão confusas se resolvem no 'modo automação' para condução da vida.

Autonomia

A autonomia faz parte do ideário norteador da construção da cidadania, nas sociedades laicas, ocidentais, e plurais contemporâneas, e, com o advento da Bioética o termo ganha especial atenção (SIQUEIRA-BATISTA, 2008). Ela representa o direito de decidir livremente sem coação. Na política e filosofia, o termo 'autonomia' rende debates cercados de paradoxos. Na bioética o protagonismo da autonomia oferece dilemas quando existem outros valores a serem considerados para o bem da comunidade e do indivíduo.

São dilemas porque não há uma única narrativa que ofereça a resolução mais justa. A percepção Kantiana que supõe a capacidade da vontade se auto-legislar (TRAPP, 2019) é totalmente dependente do pleno conhecimento de um conjunto de regras, ou seja, do indivíduo bem informado. Não apenas este fato, como também, diante da presença de 'conflitos de interesse' a auto-legislação está condicionada à capacidade do indivíduo de conectar-se com os princípios éticos delineados em vista de uma melhor vida relacional em comunidade. A capacidade cognitiva de julgamento moral que conduz à ação autônoma recebe influências de fatores afetivos e emocionais (REGO, 2005) referenciados em padrões ideológicos ou religiosos de uma determinada cultura. A plena autonomia da ação moral requer, portanto, "trabalhar a dimensão afetiva" de modo a "despertar verdadeiros sentimentos morais" (PALACIOS, REGO, 2017).

Na cultura do ocidente é comum buscar justificativas para relativizar um compromisso contratual coletivo. Em muitos casos a lei é ambígua e pode atuar em favor de uns e prejuízo de outros, ainda que os 'outros' sejam as vítimas em uma disputa.

Uma moral utilitária não reconhece no humano a capacidade de sacrificar o seu bem-estar para o bem-estar de outros (MILL, 2005). Ainda assim, opta-se pelo que possa produzir o maior bem, avaliando as consequências (consequencialismo). O utilitarismo se distingue do egoísmo quando pesa a relevância das consequências (DRIVER, 2014)

A autonomia em favor do que traga maior felicidade tem um componente hedonista e numérico: esta felicidade traduzida em alguma decisão medida deve atingir ao maior número de pessoas. O princípio da igualdade definido como ‘neutralidade’ está presente nos defensores do utilitarismo, desde que a felicidade de um não é vista como mais importante que a de outro. Na prática, porém, as decisões seguem avaliações morais que já carregam pré-conceitos.

O exercício da empatia é deixar-se afetar por outros corpos e suas histórias, entender as necessidades alheias, não a partir de pontos de vista externos à elas. Utilitaristas teológicos trabalham com a ‘vontade de Deus’ o que reduz a autonomia dos indivíduos.

As avaliações morais aos quais se baseiam as decisões passam pelas questões de vícios e virtudes e sofrem muitas distorções já que a lógica clássica não admite ambiguidades e, avaliar a relevância do desejo. Do mesmo modo, entender se alguém está pendendo mais para o vício ou para a virtude não é uma equação matemática.

A aposta Kantiana é que as vontades pessoais podem se alinhar com as vontades da sociedade e assim, a autonomia da vontade não é guiada pela dicotomia sacrifício versus prazer. Contudo, a vontade para Kant traduz-se em razão prática, desde que a razão é o único fundamento da determinação da vontade (TRAPP, 2019) Desse modo, a autonomia da vontade Kantiana não é resultado de um processo, da fenomenologia e da ontologia interrelacional, mas da ‘razão pura’, uma razão supostamente capaz de se descolar dos afetos com o objetivo de alcançar os estágios mais elevados da mente para as decisões éticas ‘corretas’.

A ética requer uma visão compartilhada do dever (MILL, 2005), uma consciência coletiva, neste sentido, se os conceitos, como os delineados por Descartes e Kant são amplamente difundidos por séculos e respeitados como hegemônicos no campo do conhecimento, eles fazem parte desta consciência compartilhada. Ainda assim, se a ‘inteligência coletiva’ é fortemente influenciada pelo dualismo mente/corpo, razão/emoção, ela também reflete as distorções destes conceitos no campo empírico e prático.

Como resultado, a autonomia tanto é comprometida quando há excesso de controle nas ações guiadas por protocolos, como também quando não há controle nenhum, no caso das emoções explodirem em surtos psicóticos e outras formas de descompensações emocionais. O surto, porém, não é meramente emocional, senão uma pane da mente dividida.

Autonomia nas redes

Segundo a narrativa exposta no Preâmbulo, vamos pensar até que ponto a autonomia do indivíduo é íntegra em relação às influências externas. Por exemplo, o caso da proliferação de

fake news (CANAVILHAS; BITTENCOURT; ANDRADE, 2018) e manipulação das emoções em mídias sociais com objetivos eleitorais foi uma operação complexa envolvendo, por um lado, *bots*, que são algoritmos simulando usuários que propagaram certos tipos de notícias e opiniões (LÊU, 2019). Por outro lado, a interação destes *bots* com usuários humanos gerou influências mutuas: os *bots* e os indivíduos das agências de marketing e empresas responsáveis pelas campanhas promoviam a manipulação por desinformação de modo a estimular reações no público, algo que mostrou-se de fácil engajamento e crescimento exponencial.

Na medida que o ambiente virtual está repleto de desinformação, discursos de ódio e preconceitos multiplicam-se também através dos algoritmos, que dão destaque ao que aparece com maior frequência.

Quando um mecanismo de manipulação psíquica é arquitetado para disparar reações emocionais, a eficiência dos resultados revelam que a 'ciência do comportamento' ganhou controle.

Estudos de comportamento e impacto emocional sobre os conteúdos na rede (KRAMER, 2014) demonstram que certos modelos de padronização psíquica têm sido úteis a diversas finalidades do mercado: do marketing de produto ao marketing eleitoral, ambos altamente lucrativos.

Enquanto poucas pessoas entendem quais são os benefícios ou malefícios relacionados ao uso dos seus dados pessoais, o compartilhamento de dados pode tornar as pessoas mais vulneráveis através da produção de perfis psicológicos, socioeconômicos e de consumo. A análise dos dados pode 'enquadrá-las' em categorias passíveis de preconceitos que venham a impactar seu acesso ao trabalho, educação e saúde (O'NEIL, 2016)

Ainda assim, a possibilidade de reverter este processo é mínima. Os dados já foram espalhados e a regulamentação trata das questões de privacidade, direito à informação, 'direito ao esquecimento' e 'direito à explicação' (EUROPEAN COMISSION, 2018), mas não necessariamente garantirá o acesso à interpretação dos dados.

Enquanto tomar a decisão sobre como, e se, os dados privados poderão ser utilizados por terceiros, é um direito que apenas uma parcela mais informada das populações procurará ativar, a aposta é que o reconhecimento deste direito tenha o potencial de enfraquecer o uso do humano como mercadoria para empresas como a *Cambridge Analytica*. Tais empresas vendem seu expertise de comunicação como um *Santo Graal* capaz de modificar o comportamento das pessoas, mesmo que seja promovendo guerra entre elas.

Segundo o delator da *Cambridge Analytica*, Christopher Wylie, o líder do projeto, Steve Bannon, afirmava publicamente que "se você quer uma nova sociedade, precisa primeiro quebrá-la". Assim, sob o lema "dividir para controlar", Bannon, com as ferramentas tecnológicas, especialistas da psicologia e computação, e um alto investimento financeiro, articulou uma série de estratégias para que os resultados eleitorais em diversos países atendessem uma agenda de controle autoritário. Não se trata de uma ameaça velada à democracia, já que as intenções foram claramente expostas e uma guerra cultural anunciada nos palanques, com ações virais nas redes sociais e mídias jornalísticas.

A mineração de dados do *Facebook*, o uso de Inteligência Artificial (IA), "testes de personalidade", *bots* e etc., criaram uma 'carnificina', que começa no mundo virtual até gerar conflitos presenciais e corpóreos.

Um dos primeiros investidores do *Facebook*, Roger McNamee diz que a estratégia utilizada foi jogar com os instintos mais básicos como o medo e a raiva. E isto começou com a produção de uma série de ferramentas que permitiam os anunciantes explorarem a audiência emotiva com o foco em cada indivíduo (AMER K, 2019)

A jornalista Carole Cadwalladr afirma que no Brasil não foi diferente, e a estratégia de influência e manipulação nas eleições presidenciais de 2018 se deu via *Whatsapp* que é de propriedade do *Facebook* (AMER K, 2019) A ameaça à democracia compromete um conjunto de valores fundamentais à dignidade humana, como a condução de políticas de acesso igualitário à saúde (NORONHA; CASTRO, 2019), educação, cultura, direito ao trabalho e moradia.

O tema da manipulação do imaginário ganhou adeptos ao longo do Século 20, sempre motivado pelo avanço de novas tecnologias de comunicação e a facilidade de proliferação de imagens.

Com o advento das mídias sociais e sua integração na vida diária de grandes parcelas da população, através de plataforma digitais que cabem no bolso, o que vêm se apresentando é uma necessidade urgente de compreender o impacto destas tecnologias na constituição física e mental do humano, assim como na sociedade e em todo meio-ambiente.

Porém mesmo que o primeiro estudo mostrando a possibilidade de influência emocional no estado psíquico das pessoas quando utilizavam o *Facebook*, tenha sido publicado em 2014, e a primeira reportagem investigativa revelando a estratégia da *Cambridge Analytica* tenha ocorrido no início de 2018, as técnicas continuaram sendo utilizadas, e os resultados eleitorais deste período ocorreram como esperado e planejado por essas empresas e seus representantes

que admitiam utilizar artifícios para modificar comportamentos capazes de mudar os rumos de uma eleição, como a apatia ou engajamento (CAMBRIDGE..., 2018).

Assim, se a sociedade mediada por meios tecnológicos vêm revelando que a autonomia é em muitos casos ilusória, o que faz com que algoritmos em redes sociais, estratégias de desinformação e *fakenews* sejam tão eficientes na manipulação do comportamento? Onde reside o segredo destas ferramentas? Algoritmos traçam perfis, indicam preferências, dão sugestões, assim como podem deixar algumas informações mais, ou menos evidentes. Estratégias de desinformação são conteúdos que podem vir de alguma fonte factível, mas são editados e colocados fora do contexto original: podem ser notícias antigas que ajudam a fomentar o medo ou cortes de um discurso de lideres políticos, dando-lhes significados diferentes do conteúdo original. Tais manipulações têm obtido sucesso em gerar reações emocionais imediatas.

O impacto das mídias digitais e tecnologias em geral, na vida, no corpo, e na sociedade representa um conhecimento em construção. Portanto, há que se reconhecer, conhecimentos isolados não respondem às necessidades de compreensão de tais fenômenos. A interdisciplinaridade necessária reformata e amplia o foco do olhar resultando em abordagens não convencionais. Entretanto, trazer estes temas a análise, estabelecendo novas ou diferentes associações teóricas constitui uma contribuição no exercício de fomentar o debate, urgente e necessário sobre a vida mediada pela computação ubíqua.

Neste capítulo a epistemologia que guia estudos e percepções científicas é discutida, desde que a 'sociedade autômata' desafia o princípio de autonomia, ou seja, desafia a capacidade do individuo se autodeterminar. A 'sociedade autômata' é resultado do movimento de automação de computadores e máquinas autogeridas por sistemas de informação que dependem ou não da intervenção humana no ato do seu processamento. A automação torna evidente a necessidade de pré-definir os 'resultados desejáveis' de modo a obter controle em favor de tais resultados. No caso da autonomia seria infame admitir que os humanos são meros autômatos que podem manter-se em operação apenas seguindo os padrões pré-definidos e formulados sem que haja a participação de sua vontade.

Behaviorismo

> *nos preocupamos com as causas do comportamento humano. (...)Descobrindo e analisando estas causas seremos capazes de prever comportamentos; na medida que possamos manipular estes comportamentos, poderemos controlá-los.* (SKINNER, 1965)

O conceito de homem-máquina foi apresentada por Julien Offrey de La Mettrie (1709-1751) em 1747 sob o título *L´Homme Machine*. Por um lado, ele se apropria do conceito cartesiano que reduz o corpo e os animais a reproduções funcionais autômatas, por outro lado, ele nega a existência da alma e afirma que ela está alojada no estômago. (METTRIE, 1749)

Ele diz: "o corpo humano é uma máquina que ativa as suas próprias fontes: é uma imagem viva do movimento contínuo" (METTRIE, 1749), e se as faculdades da alma dependem da organização adequada do cérebro e de todo o corpo, elas são, aparentemente, apenas essa organização. Assim, a alma nada mais é que uma 'máquina iluminada', e o ser humano não é menos máquina por ser dotado de característica tão 'especial' como a de pensar.

O ser-máquina movimenta-se dentro dos limites da ciência em uma percepção materialista: as informações contidas nos fluidos internos do corpo, a energia que este corpo gera e conecta, a potência da ação. Tal perspectiva produz e reproduz a necessidade de reconhecimento de padrões e organização destes por categorias. Às cores, sons, e às imagens estimuladas pelas diversas sensações do corpo-máquina são atribuídas classificações e significados.

La Mettrie separa as correntes filosóficas entre materialismo e espiritualismo sem negar completamente a tradição dualista cartesiana, porém argumentando que todas as respostas estão no corpo.

O materialismo monista de La Mettrie desenvolve, a partir da metáfora do corpo-máquina cartesiana, a compreensão de que o pensamento se expressa dentro deste corpo através dos fluidos que se intercomunicam e circulam, desde os órgãos (como o estômago), para todas as partes.

Uma segunda afinidade com o dualismo por La Mettrie é expressa na separação hierárquica entre aqueles que se prestam à manipulações por meio dos estímulos e carências do corpo e os que realmente se dispõe a exercitar as capacidades de pensar.

Embora as palavras escolhidas por La Mettrie para denominar as categorias dos 'não-pensantes' sejam depreciativas como 'tolos', 'estupidez', 'famintos' e assim por diante, tendendo a reforçar fortes preconceitos sociais e de classe, é interessante notar que não apenas como filósofo, como também como médico, ele associa a boa saúde à presença de pensamento neste corpo. O exercício do pensamento requer que o corpo não seja consumido pelo ódio, avareza e ambições, de modo que ele possa demandar os alimentos necessários à manifestação das virtudes.

Ainda que seja evidente que o problema das desigualdades sociais exponha um grande grupo à fome e seus reflexos de ódio, em algumas passagens do seu 'manifesto' *Homem Máquina*

(METTRIE, 1749) ele esclarece que observa a existência de pessoas sensatas que não possuíram o privilegio da educação, enquanto muitos que gozaram de tal privilegio preferem se portar como idiotas, ou seja, aqueles que se abstém à capacidade de refletir, ponderar, são 'autômatos da vontade' (o que não é o mesmo que a 'autonomia da vontade' Kantiana).

De acordo com La Mettrie, saber distinguir entre o bem e o mal, os vícios e as virtudes, faz parte do equilíbrio necessário a se manter no ambiente interno do corpo, entre sólidos e líquidos, para que seja possível a manifestação da boa saúde.

A partir de tais perspectivas, sugiro que, o que determina o homem-máquina é sobretudo a sua ausência de autonomia, ou a presença de uma autonomia que se expressa, seja dentro do previsível, pré-programado, 'aceitável', até o 'impulso das vontades', às quais o suposto 'sujeito autônomo' não possui pleno conhecimento, mas que é igualmente previsível, mesmo dentro de ações entendidas como 'imprevisíveis'.

Com o conhecimento das limitações advindas de regras sociais, jurídicas, educacionais, religiosas e culturais o sujeito é autônomo para decidir estar em concordância com elas, ainda que a discordância em determinados contextos não seja factualmente possível desde que, adequar-se a tais regras é essencial à sobrevivência do ser social. A automação, porém, se dá, pela repetição com ausência de reflexão e consciência participativa.

Por exemplo, estar de acordo com as leis não necessariamente significa ser justo. Em muitos casos na história as leis endossavam que todo tipo de maltrato poderia ser praticado em um escravo ou escrava e suas crianças, até mesmo tirar-lhes a vida. Assim, a negação da dignidade humana se da não apenas no que diz respeito ao abuso da força de trabalho, mas do reconhecimento – ou não - do 'outro' como humano.

No Século 21 pessoas continuam sendo apedrejadas(WORTH, 2010) até a morte, especialmente mulheres (2015). A pena capital - que já é questionável por si só - também evidencia o problema de que muitos são acusados injustamente, e comumente não há interesse em investigar a verdade para defender os que fazem parte de grupos vulnerados pela desigualdade socioeconômica, racismo e misoginia.

A legislação também apresenta falhas quando protege negociações de livre mercado sem estabelecer restrições definidas em favor dos direitos de trabalhadores e consumidores, fato bem exemplificado na Série "A rota do dinheiro sujo" (DEO, 2018). Com estes breves exemplos acentua-se que a conformidade em acordância com as limitações sociais em forma de regulação (leis) não necessariamente estará de acordo com o que é justo, o que tenderá a conflitar com os valores morais. A autonomia de estar em conformidade com algo, ou não

estar, sofre um série de influências onde a ‘vontade autônoma’ por muitas vezes representa uma ‘vontade autômata’.

Ainda assim, adaptar-se e ajustar-se não necessariamente significa tornar-se um autômato. Via de regra, em sociedades onde não ha acumulação de bens nem exploração de trabalho como em tribos indígenas brasileiras, a autonomia é plena, ainda que os indivíduos se submetam aos ritos da cultura. A autonomia é plena porque as sociedades possuem uma dinâmica horizontal que inibe e mesmo impede a acumulação de poder. A divergência é possível, podendo levar à dissidência e desligamento da tribo (PENSAMENTO..., 2018) Os dissidentes assim são por sua própria vontade.

Entretanto, em se tratando de sociedades onde a opressão possui uma funcionalidade, a consciência crítica participativa se manifesta quando uma lei mostra-se injusta ou um protocolo social revela-se preconceituoso. Mas quando a moral justifica a propriedade, a acumulação e certas hierarquias, a horizontalidade que enfraquece a acumulação de poder não encontra caminhos de passagem. A moral indígena de tribos brasileiras condena a acumulação que é indício de avareza. Todo excedente deve ser compartilhado (PENSAMENTO..., 2018) Portanto, deve-se questionar que elementos da educação e cultura, seriam ‘negociáveis’ ou ‘não negociáveis’ frente ao objetivo da construção de uma ética contemporânea que acolha as demandas essenciais para a sobrevivência no planeta. Tratam-se de demandas éticas na esfera ambiental, animal, social, educacional, econômica e cultural. Ainda que a universalização da ética como um todo seja um debate à parte, podemos perguntar se alguns princípios básicos como a autonomia, deveriam ser ‘elencados’ como essenciais em todas as culturas que compartilham relações (mesmo que estritamente financeiras) dentro da sociedade globalizada.

Uma unificação em torno de princípios básicos jamais será possível se elementos das tradições não puderem ser negociados. O consumo de produtos animais; matanças de animais em ritos; os elementos do patriarcado, tanto nas tradições judaico-cristã como mulçumanas, que colocam as mulheres em desvantagem social, civil e profissional; as bases racistas de novos fundamentalistas cristãos, e assim por diante. No caso das religiões, pergunta-se se não é o caso de se adaptar aos momentos históricos de modo a preparar as pessoas para enfrentarem com maior consciência os novos desafios. O exercício da autonomia, portanto, é fundamental em uma sociedade dinâmica que precisa buscar respostas atualizadas para antigos e novos problemas. E, se lideres religiosos não tomam à frente cabe aos seguidores exercerem sua autonomia para se alinhar com as mudanças e repensar os rumos.

Obediência

> *O descaso diante da realidade nos transforma em prisioneiros dela. Ao ignorá-la, nos tornamos cúmplices dos crimes que se repetem diariamente diante de nossos olhos. Enquanto o silêncio acobertar a indiferença, a sociedade continuará avançando em direção ao passado da barbárie. É tempo de escrever uma nova história e de mudar o final.* (ARBEX, 2013)

A visão de La Mettrie demonstra uma distopia com o humano, expressa na impossibilidade de igualdade, já que nem todos os humanos sabem, querem, ou podem fazer uso da sua 'capacidade de pensar' autonomamente.

Há portanto uma distinção entre os que são capazes de pensar e refletir, e os idiotizados, onde não necessariamente os 'bem-educados' são os mais capazes.

La Mettrie ressalta que, eventualmente qualquer pessoa independentemente de sua condição social poderá ser ou não idiotizada, a diferença seria entre ser uma mera máquina, ou uma máquina iluminada. Ele cita que, em algumas circunstâncias um macaco poderá ser mais sensato que o humano. (METTRIE, 1749)

Desde que é um trabalho do Século 18, deve-se colocar algumas de suas observações em contexto. A narrativa de *Homem-Máquina* é argumentativa, demonstrando até algum tipo de ressentimento aos que se abstém do filosofar. Inegavelmente, seres maquínicos são úteis a projetos de poder desde que os possíveis elos de empatia são interrompidos a partir do foco na objetificação daquele que, por ser um autômato, não possui autonomia plena: seu destino é decidido por outras pessoas e, assim como a máquina, não tem vontade própria; sua adequação é julgada pelos que estão alheios à ela; seu valor e qualidade também são julgados por sistemas alheios à sua vontade.

O descontentamento burguês de La Mettrie revela: "eu prefiro a companhia de um homem sensato, mesmo sem o polimento da educação do que a de uma pessoa que teve a má-sorte de ter uma educação ruim" (METTRIE, 1749). Traduzindo para o sistema computacional atual pode-se criar a analogia: é preferível um software aberto ao qual se pode adaptar o código, dentro de um processo criativo e investigativo, do que um software fechado, caro, com uma programação ruim.

Os robôs atuais são 'educados' (treinados) para, ao mesmo tempo, serem incríveis (porque a fonte de sua existência e movimento está na potencialidade das ideias), e estúpidos (porque são apenas capazes de realizar tarefas muito limitadas).

O paradoxo da autonomia é ter a capacidade de escolha e ainda assim optar dentro da previsibilidade que define as identidades nas microculturas. Por exemplo, indivíduos voltados para a 'desobediência' (como Adão e Eva, que não ouviram as recomendações de Deus e comeram do 'fruto proibido') podem automaticamente decidir pelo que obviamente destoa da

obediência, sem de fato refletir sobre o contexto e as possíveis consequências de sua decisão. É também comum quando aqueles cuja perspectiva da 'boa moral' esta associada à obediência das normas e sua hierarquia, deixam de praticar a reflexão autônoma, que seria avaliar se o contexto da obediência está em consonância com a sua visão de 'boa moral', assim como, com os princípios éticos da sociedade.

O experimento de Milgram explorou o problema da obediência conduzindo testes (que mais tarde foram questionados na perspectiva da 'ética em pesquisa') em que os indivíduos investigados precisavam aplicar punições de choques elétricos toda vez que recebiam uma resposta incorreta à pergunta. A pessoa que supostamente recebia os choques era um ator que estava em uma outra sala fechada. Apesar do mal-estar provocado pelo teste, a maioria (2/3) dos investigados seguiram com a punição, conforme instruídos pela equipe (MILGRAM, 1963).

Stanley Milgram, psicólogo de origem judaica, interessou-se em observar como indivíduos comuns eram capazes de praticar a forma de tortura proposta pelo seu experimento, quando estão seguindo ordens.

No mesmo período do experimento de Milgram, o caso do julgamento de Adolf Eichmann, que durante a Segunda Guerra Mundial deportou centenas de milhares de judeus para os campos de concentração, ganhou atenção mundial e resultou no livro de Hannah Arendt onde ela apresenta a sua percepção do caso como 'a banalidade do mal' (ARENDT, 2013). Porque, sob o ponto de vista do acusado, ele nunca matou e não mandou matar ninguém. Segundo seu relato, tudo que fez foi apenas cumprir ordens, como um funcionário do Estado, um burocrata. Sua autonomia se restringia em fazer o que lhe determinavam.

A obediência, portanto, é um dispositivo da 'sociedade autômata'. Ela proporciona que os indivíduos de uma cultura operem de maneira previsível, em 'modo de automação'. Em consequência, acredita-se que aquele que segue instintos, necessidades e desejos, nega a cultura e sociedade. A contradição exposta pela banalidade do mal é quando estar em consonância com a sociedade é também negar os princípios morais dela mesma. É quando a obediência e consciência divergem.

Em tais casos, o grau de autonomia possível entre divergir e convergir, diz respeito a quão próximo ou distante se esta de um ambiente guiado por princípios democráticos. Em regimes totalitários negar a obediência pode custar a própria vida. Ainda assim, em uma democracia negar-se a cumprir uma ordem ou apenas divergir, pode gerar perseguições pessoais - entre outros desgastes relacionais – podendo até resultar na perda do trabalho e bloqueio para novas

oportunidades. Esta é a maneira em que a ‘microfísica do poder’ se espalha e torna as pessoas doceis, dentro de um controle que é util à ‘ordem’ e ao ‘progresso’.

O sociólogo e filósofo Zygmunt Bauman observa que as novas praticas administrativas do ambiente corporativo esvaziou a organização sindical à medida que o ingresso de trabalhadores nas empresas, para períodos de experiência anuais incentiva a competição entre todos gerando um ambiente de suspeita permanente, já que ao final de cada período alguns serão escolhidos para efetivação e outros serão dispensados (DINES, 2015) O ‘mal estar na civilização’ de um mundo globalizado é portanto um ‘estado de guerra’ dissolvido em micropráticas de combate como a fofoca, o julgamento moral e qualquer tipo de ação que seja diluída o suficiente para não ser facilmente configurada como ‘bullying’ ou outros tipos de ‘perseguições’ pessoais ou assédios.

Desse modo, o que pode parecer desorganizado, caótico e até mesmo ‘natural’ e esperado de ‘características humanas’ como disputas por atenção e espaço, são representações do controle da máquina. São resultados de estratégias elaboradas para atender a necessidade de operações ininterruptas dos sistemas de produção do mundo econômico, politico e social.

O não-tempo para refletir e debater esconde medos de embate e das consequências de expor as ideias. E quando a maioria está doutrinada a não articular os pensamentos, tornando-se incapaz de estabelecer conexões com perspectivas críticas que clamam mudanças, os poucos que se expõe correm o risco de serem perseguidos caso não tenham aprovação do grupo onde estão inseridos. Existe, portanto, uma responsabilidade moral, como coletivo humano, de adensar propostas e ideias que visam benefícios comuns. Estabelecer atitudes colaborativas que fortaleçam a autonomia sem cair nas armadilhas de disputas e criticas pessoais que minam todas as potenciais alianças.

Entretanto, o desejo de democracia é combatido por estratégias pervasivas que influem no nível subconsciente. Os preconceitos que operam no nível subconsciente (GREENWALD, BANAJI, s.d.) são apenas uma ‘fatia’ do repertorio capaz de bloquear empatias e estimular animosidades entre os ‘comuns’. Junto à autonomia a democracia é também derrotada a cada instante para que a ‘sociedade autômata’ mantenha seu ritmo e controle, sem interrupções ou risco de rupturas.

A autonomia do sujeito que obedece tal fluxo replica a simplificação necessária para o sucesso da ‘sociedade autômata’.

Como influência de um darwinismo social, adaptar-se significa estar apto a “jogar as regras do jogo” tal qual ele se apresenta. Sob pena de extinção. E o humano que extingue o próprio humano é aquele que não quer ouvir o que o outro tem a dizer, não quer ser obrigado a pensar,

menos ainda transpor o seu universo para entender a perspectiva alheia à sua própria. Menos ainda sentir que teria a obrigação moral de se opor a certas práticas que se distribuem de forma viral, dos comandos das lógicas de mercado às instituições.

Afinal, do ponto de vista politico, o que é adaptar-se? Aceitar qualquer circunstância sem questionamentos? Um exemplo de quebra do "cumprimento do dever" profissional em virtude da consciência ética aconteceu durante a Segunda Guerra Mundial com o militar Francês e especialista em computação, René Carmille (WIKIPEDIA, 2016) Ele era conhecido como um "defensor ardente dos cartões perfurados" e tinha todas as máquinas do serviço demográfico do governo Francês em boas condições, de modo que "prometeu" que conseguiria facilmente entregar todos os judeus abrigados no território de seu país. Quando os Alemães chegaram em Agosto de 1940, para confiscar as máquinas Hollerith, Carmile resgatou os tabuladores e, três meses depois conduziu o senso para uma estatística social a serviço de uma agenda racial. Ele teve acesso a todas as máquinas e foi o responsável pela assinatura de contratos milionários com empresas diferentes que ofereciam tabuladores similares; enquanto se colocou formalmente a serviço da identificação dos judeus, ele também tomou algumas medidas para atrasar o processo com alegações técnicas de erros no sistema (BLACK, 2001) Carmille se tornou o único especialista 'confiável' para conduzir o senso com as máquinas Hollerith e, secretamente modificou os resultados, salvando assim dezenas de milhares de vidas. Sua autonomia estava alinhada com a participação na resistência politica francesa. Ele foi capturado e morto pelos nazistas em 1945.

No mesmo período, a obediência de Eichmann, que estava no comando das operações que Carmille sabotou o quanto pôde, foi 'premiada' com o direito à vida. Pelo menos por mais de uma década, até o momento que o encontraram fugitivo na Argentina, e o levaram a julgamento em Jerusalém (ARENDT, 2013).

Uma sociedade composta de indivíduos autônomos e não autômatos poderia iniciar-se desde o questionamento sobre 'por que criar máquinas para classificar as pessoas de acordo com sua origem 'étnico-racial'? Este é um questionamento bem-vindo à todos, e no caso das máquinas, com especial interesse aos engenheiros, matemáticos, designers, empresários e funcionários. O 'dispositivo' capaz de frear a 'banalidade do mal' é o pensamento ativo e participativo, onde uma autonomia genuína se alicerça.

A autonomia do indivíduo requer a consciência expandida, a teia da inteligência coletiva que ampara cada um para que o senso crítico não seja vítima do totalitarismo. Entretanto a consciência expandida não é livre das influências dos 'consensos fabricados' (ACHBAR, 1993)

Seria portanto esperado que aquele que se rebela exerce a vontade autônoma de acordo com sua consciência. Porém o Século 21 ingressa na ‘pós-verdade’(FEITOSA, 2017) e a maneira das coisas fazerem sentido muda de lugar. Por exemplo, na invasão ao Congresso dos Estados Unidos em 6 de Janeiro de 2021(BBC, 2021) o ‘rebelde’ é fabricado por notícias falsas. Ele nega as dinâmicas da sociedade e os fatos, seguindo seus instintos. Acreditando ser um sujeito autônomo, é também um sujeito autômato, ou seja, um sujeito manipulado para levar suas insatisfações ao limite, mesmo que seja quebrando os laços sociais por meio de conflitos.

Este é um fenômeno que tem crescido como resultado de manipulações da opinião publica com objetivos políticos, por meio das mídias sociais. Ha aí um embaralhamento entre uma suposta autonomia que se desprende de valores ético-sociais. Paradoxalmente, grupos afinados com valores democráticos também estão passíveis de manipulação, potencialmente adensando os conflitos. Em linhas gerais, estruturas hierárquicas fazem parte de todo tipo de estrutura e organização. Porém a forma com que tais estruturas reforçam direta ou indiretamente preconceitos e desvios éticos é algo que transborda para além da presença das coisas que estão em objeto de análise.

Proponho, neste sentido, que a Bioética explore os territórios da ‘não-presença’ (NAS, 2021) para que possa observar com atenção os desafios bioéticos do tempo presente.

A autonomia em um cenário geopolítico, neoliberal, e contemporaneo está direcionada à disputa e não à cooperação.

Em uma democracia, eleger um candidato é apenas um passo para os resultados que venham a beneficiar a maioria. Todos os governos, mesmo os governos que não são afinados com as agendas de direitos humanos e sustentabilidade ambiental, temem a opinião pública.

O ‘consenso fabricado’ portanto é um dispositivo necessário das estratégias de poder. Por este motivo, o cenário que antecedeu à ditadura militar iniciada em 1964 no Brasil foi de grande investimento de empresários em propaganda subliminar que circulou em todos os cantos do país através de projeções de cinema alternativas. (MARINHO, 2014)

Assim, o ‘hackeamento’ da subjetividade das populações através das mídias, por meio de imagens e mensagens diretas ou subliminares, é anterior ao *Facebook*, *YouTube*, *Whatsapp* e *Google*.

A extrema divisão das ‘disciplinas’ de estudo proporciona o aumento de lacunas entre as vivências e as ideias que temos sobre elas. A discussão sobre o impacto da estética na percepção ética dos indivíduos demanda um exame cuidadoso.

A ‘não-presença’ de pessoas pretas, pardas e morenas nos modelos de família feliz e próspera das propagandas pré-Ditadura de 64 (MARINHO, 2014), trazia embutida a mensagem da

exclusão e desigualdade social. Entretanto, tais mensagens são elaboradas para que a maioria as perceba como uma ‘ordem natural’. Além disso, estas propagandas eram uma cópia do modelo industrial de sucesso e do ‘sonho americano’. A classe media se espelhou nesse modelo para tomar sua decisão de apoio à intervenção militar. Não foi necessário pensar em todos aqueles que não foram incluídos em tal modelo de prosperidade. Não foi necessário pensar. A propaganda propôs o modelo de pensamento, e bastaria apenas tomar este modelo como ‘dado’, mesmo a despeito da sua incapacidade de representar a sociedade em sua diversidade.

Discussão

> *Os brancos saíram, num tempo muito antigo, do meio de nós. Conviveram com a gente, depois se esqueceram quem eram e foram viver de outro jeito. Eles se agarraram às suas invenções, ferramentas, ciência e tecnologia, se extraviaram e saíram predando o planeta. Então, quando a gente se reencontra, há uma espécie de ira por termos permanecido fiéis à um caminho aqui na Terra que eles não conseguiram manter.* (KRENAK, 2020)

A sociedade autômata se movimenta em ritmos repetitivos em um ambiente de atritos que, dentro da máquina, são geradores de energia. Os valores embutidos em sua epistemologia ditam seu modo de separar, classificar e organizar a informação incorporada nos produtos, projetos e toda sua infra-estrutura.

Como a Bioética poderá auditar as ideias e crenças embutidas nos sistemas e que são restritoras da autonomia necessária dentro de uma cooperação social? A obediência sobreposta ao próprio humanismo, como conceito, no caso do Holocausto, demonstra como os princípios de autoridade e hierarquia são estruturas inegociáveis de uma ‘sociedade autômata’. O holocausto praticado pelo governo nazista na Segunda Guerra Mundial carrega consigo a mesma lógica do ‘holocausto brasileiro’(ARBEX, 2011) e do estupro de centenas de milhares de mulheres que vivem em territórios de guerra (ZIN, 2013)

Existe uma ‘não-presença’ de ideias (NAS, 2021) que torna possíveis tais atrocidades acontecerem com pouca ou nenhuma resistência ao nível social. As vitimas, vulneradas pelo preconceito e abandono, submetidas pela força, tem pouco com o que resistir, especialmente se não existem medidas de proteção e a omissão do meio prevalece. O conceito de omissão não tem nenhum sentido na sociedade composta por sujeitos-máquina que são operacionais e apenas se atém as suas funções.

A história do ‘holocausto brasileiro’ resgatada pela jornalista Daniela Arbex (ARBEX, 2013) é o reflexo de uma sociedade adestrada à obediência entre dois regimes totalitários, o Estado

Novo e a Ditadura de 64. No livro, ela cita apenas um médico que ao final dos anos 70 levou a denúncia a público em formato de artigo científico e foi ameaçado de perder o registro devido à divulgação do artigo na imprensa. Portanto, é de se espantar como todos os profissionais envolvidos, da medicina, enfermagem, administração e assim por diante, adaptaram-se a fazer parte de uma operação recorrente onde as pessoas eram empilhadas como em um depósito de lixo. Elas eram submetidas à tortura até a morte porque seus cadaveres valiam algum dinheiro e suas vidas não valiam nada. A total falta de direitos e dignidade humana naturalizou-se. A categoria 'louco' e 'indigente' foi utilizada para eliminar o que se considerava a escória da humanidade em um laboratório aberto às praticas da 'banalidade do mal'.

Tudo aconteceu com a participação do Estado, de Entidades Religiosas, Conselhos de Medicina, Psiquiatria e Universidades que compravam os corpos e órgãos. Quando até mesmo freiras são capazes de abusar de autoridade com pessoas em situação de total vulnerabilidade, torna-se evidente que a humanidade perdeu-se de sua humanidade e possivelmente não se deu conta o suficiente. Por isto vamos falar da 'não presença' das ideias que penetram nos sentidos através de conteúdos semióticos e são capazes de distorcer a percepção dos fatos, assim como moldá-los de acordo com uma visão dominante.

O Hospital Psiquiátrico continuaria – sob os mesmos moldes - em alta demanda se não houvesse a reforma psiquiátrica (REPUBLICA, 2001), desde que é um dispositivo (ARBEX, 2016) utilizado para expulsar todos aqueles que por um ou outro caminho se desviam do que é considerado normalidade. (RATTON, 1979)

Ele funcionava como um depósito de todos considerados 'improdutivos', 'inadaptados', 'indesejáveis' e os desafetos (RATTON, 1979)

O que significa, portanto, enclausurar todos que, de alguma maneira 'incomodam', em um regime de exclusão ao direito à vida e à dignidade que deveria acompanhá-la? Não seria esta mais uma evidencia de que a 'banalidade do mal' se torna pervasiva à medida que a ideia de democracia é 'sequestrada' por propostas autoritárias? Ou seja, através de aprovação popular regimes totalitários se instauraram e a ideia de segregação, exclusão e mesmo extermínio de outros humanos foram endossadas através de justificativas que se cercam apenas de interesses próprios.

A 'sociedade autômata' pode não perceber, mas é higienista, sob a perspectiva de uma visão de ciência que se torna ultrapassada à medida que se percebe que as 'categorias ideais' são influenciadas por preconceitos eugenistas. Em adição, poder acusar alguém de 'louco' levantando pretensas suspeitas de periculosidade devido a comportamentos de dissenso, é característica de ausência de lei. Em um 'estado de exceção' acusações nunca são consideradas

infundadas , desde que são ‘dispositivos’ de terror onde a palavra do acusador terá sempre maior peso do que a da vítima.

Neste contexto, o Hospital Colônia em Barbacena (MG) foi bastante conveniente para que abusadores sexuais empurrassem suas vítimas, e mesmo as crianças geradas do ato do estupro, para o esquecimento e a morte. O mesmo aconteceu com esposas que ‘precisavam’ desaparecer para que os maridos casassem novamente, e mesmo os filhos desse casamento ‘descartado’ também precisavam ser jogados às ruas como orfãos.

Como alguém, mesmo não tendo um problema mental grave, poderia manter alguma sanidade mental sendo tratado com choques elétricos à cada contestação, e vivendo em condicoes subumanas? O ‘holocausto brasileiro’ tem alguns sobreviventes. Alguns com sequelas aparentes, outros não.

Voltemos então ao behaviorismo para lembrar que sua proposta é de limitação da autonomia. A intenção é claramente “retirar as funções anteriormente atribuídas à autonomia do indivíduo e tranferí-las uma a uma ao ambiente de controle” (SKINNER, 1971).

Há uma interferência no processo de identidade quando o ser é forçado a fazer parte de categorias pré-definidas com base na crença de que há uma ciência capaz de entender a ‘natureza do comportamento humano’ através de classificações, estatísticas e probabilidades.

A formulação behaviorista tem sido um ‘problema da psicologia’ que gera debates e discordâncias desde 1912. (MCDOUGALL, 1929) Há uma reivindicação da doutrina como ciência, mas o que não está presente em seus pressupostos é a sua filiação política e ideológica. Fato que possivelmente sequer seus defensores estavam plenamente conscientes, desde que os aspectos políticos e ideológicos escondem-se em um modelo de universalidade.

O transbordamento desta política aparece por vezes quando os defensores do behaviorismo parafraseiam Maquiavel dizendo que o comportamento não se controla pelo amor, mas pelo medo, ou quando se lembra que a observação do comportamento está presente no ‘pecado original’ de Adão e Eva (MCDOUGALL, 1929): a tentação da serpente é parte de um jogo de manipulação psíquica que não busca investigar a autoconsciência. A serpente não pede à Eva para olhar para dentro de si (MCDOUGALL, 1929)

Assim, o conto do pecado original é cercado por fronteiras onde a autonomia está condicionada entre obedecer ou desobedecer. Permanecer na ignorância, ou sofrer as consequências da perda da inocência. O quanto de autonomia está presente na escolha entre Deus ou a Serpente? Seria apenas eleger o que mobiliza o medo maior?

Façamos uma digressão sobre a semiótica do holocausto como potência incentivadora do medo. As vítimas dos holocaustos são os dejetos da máquina. Elas são deglutidas e expelidas.

Elas possuem uma função, mas é uma função não reconhecida como valor dentro da máquina. O não-valor faz parte do excedente de energia que elas proporcionam à 'sociedade autômata'. Filhos de estupros de mães dilaceradas, vidas às quais não são conferidas qualquer direito à dignidade humana.

Diante de uma realidade onde a 'não presença' é a absoluta violência, palavras e conceitos como 'comportamento' ou 'autonomia' esvaziam-se.

A absoluta violência está presente nas áreas mais nobres da máquina, desde a arquitetura até os mais populares dispositivos eletrônicos.

Ademais, quando transferimos dilemas como o do 'pecado original' para uma outra cultura como de tribos indígenas brasileiras não haverá culpa em comer um fruto. Assim, o que torna estes e outros indivíduos inadequados à máquina é também o fato de que não fazem parte do 'padrão de fábrica', não podendo assim, ocupar um lugar de 'peça' no sistema. Na incapacidade de destruir a máquina, um fracasso também dos luditas – tecelões ingleses do Século 19 , lhes resta serem deglutidos, preteridos, e expelidos. Mesmo os que venham a se render à ocidentalizacao estão fadados à ocupar uma posição subalterna e vulnerada pelos 'dispositivos' de discriminação racial e socioeconômica. Assim, a dúvida de que a máquina poderá lhes incorporar como peça permanente estará sempre presente. Peças descartáveis do sistema fazem parte dos requintes de crueldade da obsolescência programada e naturalizada dentro da sociedade de consumo.

Assim, se o behaviorismo propõe moldar humanos como máquinas - e embora sua tese já tenha sido (e continua sendo) bastante criticada - a proposta é tao sedutora e afinada com a organização da sociedade industrial - e à sua ciência - que a 'não-presença' dessas ideias é reforçada através de dispositivos que penetram em todas as camadas da vida social e dos corpos.

São compreensões de mundo que se tornam pervasivas e, pela sua 'não-presença' permanecem de difícil alcance nas discussões mediadas pelos métodos que clamam objetividade.

Reflexões Finais

A 'sociedade autômata' como sociedade de controle não é novidade alguma, o que se procura entender é porque a crítica do seu modelo, que segue recorrente desde o século passado, foi ignorada ou pouco absorvida, enquanto as transformações tecnológicas seguiram em paralelo, com enorme entusiasmo da comunidade científica e sociedade.

O humano-máquina é conhecido pela sua funcionalidade. “Qual a sua utilidade?” Ela é uma médica, engenheira, cientista da computação. Ele é um professor, técnico, enfermeiro. Eles correspondem à uma função dentro de um mecanismo que compõe a máquina. São conjuntos de mecanismos onde tudo deve ter uma serventia, cabendo à pergunta se tal pragmatismo serve mais à comunidade e às pessoas do que à própria ‘máquina’.

As máquinas, assim como os humanos, também carregam o sentido de finitude através da obsolescência: elas quebram, “dão defeito” e se tornam ultrapassadas pela conveniência dos que desejam lucrar com elas. As máquinas precisam quebrar para que outras sejam vendidas. (DANNORITZER, 2010) As pessoas precisam ser descartadas para que outras também sejam descartáveis. Elas precisam sofrer injustiças para que outras também sofram injustiças.

Em 1971 o pensador Noam Chomsky argumentou que seria importante investigar seriamente a reivindicação de que a ciência do comportamento, e a tecnologia que ela propõe, fornece os meios racionais para o controle do comportamento. Ele observou que, se o behaviorismo transfere todo controle comportamental ao ambiente, a autonomia torna-se apenas ilusória. (CHOMSKY, 1971)

Se a ‘ciência do comportamento’ encerra a compreensão do indivíduo como sendo unicamente um mero resultado de antecedentes, ou seja, de eventos passados, veremos então que as técnicas propostas do behaviorismo, estão hoje embutidas nos sistemas computacionais que são ubíquos em toda estrutura social e da vida nos seus mais diversos aspectos.

Quais seriam os ‘anticorpos’ capazes de combater a pandemia da ‘banalidade do mal’ ?

As proposições pseudocientíficas do behaviorismo foram refutadas (CHOMSKY, 2017) mas se ainda permanecem influentes é que suas técnicas, aplicadas inicialmente às experiências científicas e educação, estão embutidas nas organizações e suas infraestruturas. Além disso, a constante busca por padrões de reconhecimento na psicologia, assim como a fácil aceitação e assimilação destas classificações, torna os questionamentos éticos a estas práticas ainda brandos. Neste sentido, a proposta deste capítulo é refletir sob que elementos não-evidentes se sustenta uma ‘sociedade autômata’ e como a autonomia do sujeito moderno em um sistema industrial se confunde com a autonomia da máquina: é possível trabalhar de maneira independente, desde que em um sistema de total controle.

A ideia de que o comportamento humano precisava ser classificado e dividido em modelos e categorias foi uma maneira de reforçar o controle dentro da perspectiva científica moderna (SKINNER, 1965)

O comportamento regido por leis capazes de adequar cada um de maneira determinística reflete o entendimento do corpo como uma máquina que deve estar sob controle. Nesta

perspectiva, assim como para La Mettrie, a mente não está dissociada do corpo. Ela se ajusta, tanto quanto o corpo e apresenta seu repertorio de previsibilidades.

No exemplo do 'holocausto brasileiro' vemos inicialmente o poder da imagem, que independente da vontade do fotografo, resultou na primeira denúncia na imprensa, em 1961. Porem, a Ditadura de 64 reforçou a prerrogativa do abuso de poder e o caso caiu novamente no esquecimento até que ao final dos anos 70, um período histórico em que outros setores da sociedade brasileira voltavam a se mobilizar, a imagem em movimento, através do cinema, em conjunto com uma série de matérias na imprensa nacional e internacional adensaram às criticas e protegeram os poucos que se arriscaram a denunciar.

Desde que todo repertório da ciência foi utilizado para reforçar supostas diferenças raciais e prover, com um enredo de justificativas biológicas (HERBES-SOMMERS, 2003), os argumentos capazes de discriminar, separar, e, mesmo eliminar, outros seres humanos, foram naturalizados e permanecem vivos no imaginário social, sendo necessária uma desconstrução. Entretanto esta não será possível enquanto todos os meios de validação do conhecimento passarem pelos mesmos caminhos que são os de reforço às estruturas antigas.

A fissura entre mente e corpo proposta pelo dualismo, apresenta a compreensão mecânica do corpo. O isolamento da mente permitiu que o corpo fosse investigado, e a medicina ocidental avançou no conhecimento da fisiologia, através de estudos empíricos, enquanto no plano conceitual, uma luta constante no entendimento dos cuidados com a saúde, seriam travados, por séculos, até os dias atuais. As bases de tais conflitos estão na esfera da epistemologia: que compreensão se têm desse corpo? É um sistema integrado, ou suas partes são separadas e podem haver 'peças de reposição' como em um sistema maquínico? É um sistema independente, ou ele é integrado com o ambiente, constantemente afetado pelo que está à sua volta? Existe "dentro" e "fora" do corpo, ou as sensações desse corpo respondem ao "dentro" e "fora" sem fazer qualquer distinção?

A autonomia do corpo não se dá independentemente da cultura e o tempo histórico onde este corpo está inserido.

O dualismo, longe de ser uma invenção de Descartes, remonta o princípio hilemórfico aristotélico, onde "a distinção entre forma e matéria, alma e corpo, reflete uma cidade composta de cidadãos em oposição à escravos" (SIMONDON, 1995). Esta distinção, portanto, revela o recorte da visão que se propaga pela fôrma, ou seja, a forma, que é a conceituação de um modelo replicado, da epistemologia para todas as áreas de produção de saber.

A ideia de que o ser pensante poderia ser ludibriado pelas sensações do corpo, reforça modelos hierárquicos (pensar é mais importante que sentir…) e repressões baseadas em crenças de que desejos e fluidos corpóreos são inadequados.

Atribuir maior valor às capacidades cognitivas como se estas estivessem descoladas do sentir, assim como de que um determinado grupo de pessoas são dignos de empatia e direitos de igualdade, enquanto outros não são, faz parte de uma contínua repetição, justificada do mesmo modo que a fôrma do tijolo só pode produzir tijolos. (SIMONDON, 1995)

Enquanto o dualismo cartesiano têm o princípio hilemórfico embutido em sua estrutura, o monismo spinozista oferece uma compreensão da ética onde todos os organismos co-existem sem que lhes sejam atribuídas escalas de valor.

Spinoza (1632-1677), além de negar a hierarquia e separação entre corpo e mente, postulou que "o corpo humano compõe-se de muitos indivíduos (de natureza diferente)" (SPINOZA, 2009), aos quais, são, também eles, altamente compostos. Dos estudos de Teologia à Física, Spinoza tornou-se Ótico e suas habilidades com as lentes opticas lhe abriram à observação da matéria por ângulos distintos.

Entender que o corpo humano é um conjunto, que não se resume à órgãos com funções delimitadas e mecânicas, mas que é constituído de um todo plural e composto de muitos organismos. Esta visão, ainda hoje é capaz de revolucionar a medicina, assim como toda ciência. O monismo, assim denominado como resposta ao dualismo, é, na verdade, pluralista, o que tornou mais complexa sua assimilação.

Embora seja possível perceber a presença do monismo em distintos campos do conhecimento, seu impacto na ciência é minimizado pela ampla adesão à perspectiva dualista já que esta apresenta maior facilidade de instrumentação. O monismo se desdobra entre idealismo e materialismo, entre a metafísica e o fisicalismo, tendo influenciado correntes como behaviorismo, funcionalismo, utilitarismo, e fenomenologia.

Continua sendo difícil demonstrar que os modos de fazer ciência e de pensar não são neutros e que existe uma política embutida em cada preceito, assim como na linguagem e no exercício do método.

A base spinozista sugere um corpo aberto em comunicação permanente com o mundo, sem distinção ou barreira do que é considerado natural ou artificial. A natureza é tão criativa e mutante, como também poderá ser repetitiva e previsível.

Se a observação da ciência precisa de repetição, observemos que repetição não é necessariamente generalização (DELEUZE, 1994) O estudo da consciência expressa o

problema de maneira perfeita: enquanto as associações tendem a se repetir, elas podem se revelar únicas a cada vez, no mesmo indivíduo.

A sociedade é autômata através das formas de ver e representar o mundo compostas por todos os indivíduos que fazem parte dela, e do que eles supõe ou acreditam ser verdade sobre este mundo.

Seria necessário deixar desmoronar algo para construir "o novo" dentro de uma outra perspectiva. Ou, se a vontade é esquivar-se de tal radicalidade, que se tracem estratégias de mudanças entre o paradigma da 'sociedade autômata' para o da 'sociedade autônoma'.

Tais estratégias passam pela compreensão do mundo simbólico, dos impactos do mundo simbólico – da estética – sobre a vida. Não se trata de minimizar a arte como a desprezada sala de "Terapia Ocupacional", para onde foi direcionada a Dra. Nise da Silveira quando se negou a adotar a eletroconvulsoterapia nos pacientes (BERLINER, 2016)

Trata-se de valorizar a experiência que se tem com a vida, a cada instante. A vida, leia-se, o ambiente, a qualidade das inter-relações.

O foco da 'sociedade autômata' é a eficiência da máquina. A autonomia se expressa na vegetação que cresce entre as brechas, da água que encontra bifurcações e abre novas passagens quando existe um bloqueio na via principal.

Cabe a Bioética potencializar estes movimentos criativos da natureza que se refletem em humanos e não-humanos desviantes de sentidos e representações que não lhes incluem.

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5 ESSAY PUBLISHED

O USO DE ROBÔS E A PANDEMIA DE COVID-19: QUESTÕES BIOÉTICAS

(Nas, Siqueira-Batista, Silva, Brandão,
Gomes, Costa, Guimarães, Rego, Marinho)

A atual pandemia de COVID-19 – enfermidade infecciosa causada pelo vírus SARS-CoV-2 (novo coronavírus) – tem contribuído para a emergência de uma *realidade distópica*, digna de uma obra de ficção científica. De fato, o patógeno tornou-se o mais influente agente da humanidade no momento atual, com a capacidade de antecipar boa parte do que se espera com a Revolução Industrial 4.0 – a qual se define pela ampla utilização de sistemas autônomos, inteligentes e interconectados, colocando diversas aspirações tecnológicas em alta demanda. A ficção científica apresentada no desenho animado "Os Jetsons", bastante popular entre os anos 1960 e 1980, tem aspectos que finalmente se concretizam, os quais vão desde os encontros virtuais sociais e educacionais até a telemedicina.

A doença foi inicialmente detectada nos últimos dias de dezembro de 2019, na China, mais especificamente na província de Hubei, a partir da descrição de casos de pneumonia viral. Em janeiro de 2020 o agente foi identificado como um novo tipo de coronavírus. Na sequência, sua disseminação em muitos países do mundo configurou a moléstia como uma pandemia, a qual até o presente momento já afetou 10,801,841 de pessoas em 215 países do mundo, causando 518,843 mortes[101]. A COVID-19 é bastante contagiosa, uma vez que o SARS-CoV-2 é transmitido por gotículas e aerossóis expelidos pela fala, tosse ou o espirro, e pelo contato das mãos em superfícies que podem ter a presença do vírus (o que faz também com que as pessoas se infectem pelo costume de tocar com frequência a boca, nariz e olhos).[102] Deve ser destacado ainda que cada pessoa infectada transmite o vírus, potencialmente, para três outros indivíduos. Dada a incapacidade da maioria dos países de testar um grande número de pessoas – o que permitiria o isolamento dos infectados – as técnicas de afastamento social tornaram-se plausíveis método para evitar a rápida disseminação do microrganismo.

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[101] WORLDOMETER: real time world statistics. Disponível em: https://www.worldometers.info/coronavirus/ (Acesso em 01/07/2020).

[102] CDC. Centers for Disease Control and Prevention. Coronavirus (COVID-19). 2020. Disponível em: https://www.cdc.gov/coronavirus/2019-ncov/index.html.

O afastamento social tem trazido novas possibilidades de interação, mediadas pela tecnologia. Nesse cenário entram em cena os robôs, termo que deriva do vocábulo *robota*, de origem tcheca, o qual pode ser traduzido como "servo" ou "trabalhador".[103] A palavra – alcunhada por Karel Capek, na peça R.U.R. (Rossum's Universal Robots) – tornou-se bastante popular a partir da publicação das obras do escritor russo Isaac Asimov, o qual propôs as "Três Leis da Robótica" em seus livros de ficção científica.[104] Os robôs, contemporaneamente, podem ser caracterizados – de maneira geral – como sistemas eletromecânicos capazes de exercer funções autônomas, semiautônomas ou remotamente controladas. Dentre o rol de agentes que têm sido desenvolvidos, incluem-se aqueles dotados de Inteligência Artificial (IA), a qual "*está relacionada à tomada de decisão dos agentes sem a intervenção de um humano, conferindo-lhes a ideia de uma inteligência*".[105] É importante ressaltar que nem todo robô e IA atuam com total independência de um controle direto, mas assim são considerados, desde que operem com certos graus de autonomia.

Com base nessas considerações, o objetivo deste breve ensaio é discutir os eventuais "usos" dos robôs para o desenvolvimento das ações de cuidado e para a implementação de medidas de controle da COVID-19. Apesar da finalidade nobre desses "usos", as questões bioéticas que os permeiam são inevitáveis e também merecem atenção. Assim, inicialmente são citadas (i) as principais utilizações atuais dos robôs na área da saúde e (ii) alguns exemplos da aplicabilidade desses dispositivos no contexto da pandemia de infecção por SARS-CoV-2, em seguida são expostas (iii) as questões bioéticas emergentes nesse cenário.

O uso de robôs na área da saúde não é uma novidade trazida pela pandemia de COVID-19, descrevendo-se o emprego de tais dispositivos em diferentes atividades de cuidados aos pacientes. Com efeito, podem ser descritos sistemas robóticos para: (1) o transporte de medicamentos, refeições e outros utensílios e equipamentos de uso hospitalar; (2) a preparação de medicamentos de uso enteral e parenteral; (3) apoio a procedimentos cirúrgicos, amplamente empregados nas cirurgias robóticas[106] (realizadas com a presença do cirurgião ou à distância); (4) o emprego para o cuidado de enfermos com distúrbios mentais, por exemplo, o

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[103] Hockstein NG, Gourin CG, Faust RA, Terris DJ. A history of robots: from science fiction to surgical robotics. J Robotic Surg 2007; 1:113-118.
[104] ASIMOV, I. Eu, robô. 10ª ed. Rio de Janeiro: Exped-Expansão Editorial; 2009.
[105] NILSSON, N. J. Artificial Intelligence: A New Synthesis. Morgan Kaufmann, 1998.
[106] CUNHA, Camila P. ROBÔS OU MÉDICOS? A MEDICINA DO FUTURO É CIBORGUE. **ComCiencia: Revista Eletronica de Jornalismo Cientifico**. Dossie Robotica. Abril, 2019. (Disponível em: http://www.comciencia.br/robos-ou-medicos-medicina-do-futuro-e-ciborgue/)

autismo[107] e a demência de Alzheimer[108]; e mais recentemente (5) o emprego de um robô dotado de IA para a realização de consultas, incluindo a anamnese, a proposição de diagnóstico e a indicação da terapêutica.[109] Esta última situação é particularmente interessante, pois, sistemas de IA que utilizam técnicas de aprendizagem de máquina, em especial aprendizagem profunda (*deep learning*), são capazes de identificar sinais de expressão que representem desconforto físico e emocional no paciente[110], permitindo uma análise tão – ou mais – detalhada do que aquela que possivelmente um profissional faria.

Em termos da atual pandemia de COVID-19, vem sendo descritas – nos veículos acadêmicos e na imprensa leiga – diferentes utilizações de robôs, as quais estão sumarizadas no Quadro 1[111] e brevemente comentadas nos parágrafos a seguir.

Quadro 1. Relatos de usos de robôs (terrestres e aéreos) durante as ações relacionadas à COVID-19.

16 países	***7 países***	***7 países***	***5 países***	***3 países***
Segurança pública, serviços públicos, ações sociais de saúde pública	Cuidados clínicos	Auxílio em ações de trabalho, serviços essenciais, qualidade de vida	Automação para laboratórios e cadeias de suplementos	Cuidados fora do hospital
Cumprimento da quarentena	Desinfetar hospitais/postos de tratamento	Entregas	Entregas	Entregas para pessoas em quarentena
Desinfetar espaços públicos	Telemedicina	Socialização	Manuseio de materiais	Socialização e enfermagem com

[107] HUIJNEN, Claire AGJ; LEXIS, Monique AS; DE WITTE, Luc P. Matching robot KASPAR to autism spectrum disorder (ASD) therapy and educational goals. **International Journal of Social Robotics**, v. 8, n. 4, p. 445-455, 2016.

[108] Griffiths, Andrew. How Paro the robot seal is being used to help UK dementia patients. **The Guardian**. 8 de Julho de 2014. (Disponivel em: https://www.theguardian.com/society/2014/jul/08/paro-robot-seal-dementia-patients-nhs-japan) e VALENTÍ SOLER, Meritxell et al. Social robots in advanced dementia. **Frontiers in aging neuroscience**, v. 7, p. 133, 2015.

[109] https://veja.abril.com.br/economia/medico-robo-comeca-a-tratar-pacientes-em-ambulatorio-da-china/.

[110] Um modelo de arquitetura para a interação humano-robô é discutida neste texto: PODPORA, Michal et al. Human Interaction Smart Subsystem—Extending Speech-Based Human-Robot Interaction Systems with an Implementation of External Smart Sensors. **Sensors**, v. 20, n. 8, p. 2376, 2020.

[111] Disponivel em: https://gcn.com/Articles/2020/04/24/robots-pandemic-response.aspx?Page=2

			infectados	as pessoas em quarentena
Identificação de infecção	Entrega de medicamentos e alimentação no ambiente hospitalar	Compra e venda	Manufatura de equipamentos de proteção para equipe médica	Administração de testes na rua
Comunicados ao público	Recepção de pacientes e visitantes	Robôs assistentes	Automação de Laboratório	Administração de teste em locais de tratamento
Monitoramento de fluxo de pessoas nas ruas	Facilitar a socialização dos pacientes e famílias	Auxílio na proteção dentro dos serviços essenciais		

Figura 4: Reproduzido de R. Murphy, V. Gandudi, Texas A & M; J. Adams, Center for Robot-Assisted Search and Rescue, CCBY-ND.

(I) A utilização de robôs para entrega de alimentos, em um hotel na China destinado a abrigar indivíduos com infecção por SARS-CoV-2, em quarentena, foi iniciada desde janeiro deste ano.[112] Tal tecnologia – que não é nova e que provavelmente foi deixada de lado em virtude da equação custo *versus* benefício –, se tornou útil no contexto da pandemia, podendo-se conjecturar que tal uso evitou a disseminação do vírus.

(II) O *hospital do futuro*, na Romênia, tem empregado robôs em distintas tarefas, podendo-se mencionar a desinfecção dos ambientes com a utilização de raios ultra violeta, a comunicação com os pacientes para o fornecimento de informações relevantes sobre o quadro clínico e a distribuição de alimentos (de modo similar ao descrito no item I); nos dois últimos casos, foram utilizados artefatos com formato humanoide.[113]

(III) A atuação do robô enfermeiro Tommy, em um hospital localizado na Lombardia, Itália, permitiu a verificação de sinais vitais e a comunicação entre enfermo e equipe de saúde, através do envio de mensagens,[114] o que permitiu uma maior proteção da equipe do Circolo

[112]https://www.independent.co.uk/life-style/gadgets-and-tech/news/coronavirus-quarantine-robot-china-little-peanut-food-delivery-a9308166.html
[113]EU ROBOTICS. 10 ways robots fight against the Covid-19 pandemic. 30.04.2020. (Disponivel em: https://www.eu-robotics.net/eurobotics/newsroom/press/robots-against-covid-19.html)
[114]*Idem.*

Hospital, além de proporcionar maior atenção aos pacientes, uma vez que a equipe de saúde passava a dispor de maior tempo cuidar dos casos de maior urgência.[115] Na mesma lógica, pacientes belgas são triados, antes da avaliação médica, por um robô, o qual afere a temperatura e avaliação da existência de indícios de gravidade, procedendo – assim – o encaminhamento para o atendimento no espaço e tempo convenientes; além disso, o artefato é capaz de verificar se a máscara está sendo utilizada adequadamente.[116]

(IV) Os robôs também têm sido utilizados no Brasil. De fato, modelos baseados em IA, embarcados em dispositivos de fácil acesso, como um *tablet*, já estão em uso no Brasil, para facilitar o contato remoto da equipe de saúde com o paciente. O Hospital das Clínicas da Universidade de São Paulo, em Ribeirão Preto, tem utilizado um robô de telepresença, o qual evitou a alta exposição dos profissionais ao contato com os pacientes infectados, durante o processo de cuidado à saúde.[117] A equipe destacou que a maior disponibilidade de tais equipamentos facilitaria, igualmente, o contato entre familiares e doentes.

(V) No caso da cirurgia robótica algumas vantagens são observadas como precisão e uma recuperação mais rápida do paciente, o que, consequentemente, significa uma estadia mais curta no hospital, além de uma maior proteção a equipe médica, em relação ao risco de infecção[118]; contudo, o risco aumentado de aerossolização de material contendo partículas virais a partir do uso de dispositivos eletrocirúrgicos e ultrassônicos, bem como de insuflação de CO_2, contribuem para o real risco de contágio da equipe cirúrgica.[119]

Os usos de robôs, conforme as situações descritas, para o enfrentamento da pandemia de COVID-19, permitem o levantamento de algumas questões que precisam ser pensadas pela bioética contemporânea, as quais podem ser organizadas nos seguintes grupos de problemas: (1) relativos à responsabilidade profissional, (2) atinentes à obsolescência dos trabalhadores, (3) concernentes à iniquidade do acesso à tecnologia e (4) afins às capturas de poder no âmbito das sociedades de controle.

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[115]Lo Scalzo, F. Covid-19: Tommy the robot nurse helps keep Italy doctors safe from coronavirus. The Star: Robotics. Abril, 2020. (Disponivel em: https://www.thestar.com.my/tech/tech-news/2020/04/02/covid-19-tommy-the-robot-nurse-helps-keep-italy-doctors-safe-from-coronavirus#.XobfCpIdTLc.twitter ; Acesso em 3/06/2020)

[116]https://g1.globo.com/bemestar/coronavirus/noticia/2020/05/30/robo-verifica-temperatura-e-uso-de-mascara-na-belgica.ghtml

[117]https://g1.globo.com/sp/ribeirao-preto-franca/noticia/2020/05/14/hc-usa-robo-para-monitorar-pacientes-internados-com-covid-19-em-ribeirao-preto-sp.ghtml

[118] KIMMIG, Rainer et al. Robot assisted surgery during the COVID-19 pandemic, especially for gynecological cancer: a statement of the Society of European Robotic Gynaecological Surgery (SERGS). **Journal of Gynecologic Oncology**, v. 31, n. 3, 2020.

[119] Van den Eynde J, De Groote S, Van Lerberghe R, Van den Eynde R, Oosterlinck W. Cardiothoracic robotic assisted surgery in times of COVID-19. Journal of Robotic Surgery. 2020 May 8:1.

A primeira ordem de problemas – concernentes à responsabilidade não é diferente, em linhas gerais, das situações de cuidado à saúde nas quais não se utilizam robôs. De fato, o profissional que está por trás da interface paciente-máquina deve ser considerado o responsável pela participação robótica nas distintas ações – consultas, obtenção de dados do exame clínico, realização de intervenções cirúrgicas – o que pode ser assinalado a partir da utilização de diferentes correntes da bioética, em termos das obrigações "*de primeiro não causar dano (princípio da não-maleficência/corrente principialista); de agir em benefício do enfermo (princípio da beneficência/corrente principialista); de considerar sua autodeterminação (princípio do respeito à autonomia/corrente principialista); de calcular as consequências (consequencialismo/corrente utilitarista); e de manter atenção moral ao paciente (ética do cuidado)*" (p. 289).[120]

O contexto se complexifica, ainda mais, ao se considerar os elementos relativos à telemedicina em interseção com o binômio bioética / robótica. De fato, segundo a Resolução do Conselho Federal de Medicina sobre Telemedicina, "*os serviços prestados através da Telemedicina deverão ter a infraestrutura tecnológica apropriada e obedecer as normas técnicas do CFM pertinentes à guarda, manuseio, transmissão de dados, confidencialidade, privacidade e garantia do sigilo profissional*".[121] Ademais, reconhece-se a possibilidade de atuação nos seguintes domínios, reconhecida a atual situação de excepcionalidade: "*Teleorientação: para que profissionais da medicina realizem à distância a orientação e o encaminhamento de pacientes em isolamento; Telemonitoramento: ato realizado sob orientação e supervisão médica para monitoramento ou vigência à distância de parâmetros de saúde e/ou doença*" [...] e "*Teleinterconsulta: exclusivamente para troca de informações e opiniões entre médicos, para auxílio diagnóstico ou terapêutico*".[122] Tais dimensões devem ser consideradas nos usos robóticos na assistência à saúde, mormente no âmbito da telemedicina.

Em relação à obsolescência dos trabalhadores, à luz das atuais lógicas do *capitalismo tardio*, o mundo da Revolução Industrial 4.0 parece conformar uma realidade na qual a automação de sistemas torna-se parte, cada vez mais frequentemente, da vida diária. Nesse contexto, as empresas que estão adotando robôs durante esta crise podem assumir que já não precisam mais de um bom número de trabalhadores. Em outra parte, os consumidores 'abrem a

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[120] SIQUEIRA-BATISTA, R. *et al*. Robotic surgery: bioethical aspects. ABCD. **Arquivos Brasileiros de Cirurgia Digestiva** (São Paulo), v. 29, n. 4, p. 287-290, 2016.

[121] Conselho Federal de Medicina. Define e disciplina a prestação de serviços através da Telemedicina. RESOLUÇÃO CFM nº 1.643, de 26 de agosto de 2002. Disponível em:http://www.portalmedico.org.br/resolucoes/CFM/2002/1643_2002.pdf. Consultado em 5 de junho de 2020.

[122] Conselho Federal de Medicina. OFÍCIO CFM No 1756/2020 . Disponível em:. https://bit.ly/3gZz9ko Consultado em 5 de junho de 2020.

guarda' de suas possíveis resistências aos aparatos robóticos, já que evitar o contato humano é uma diretriz para a proteção da saúde. O distanciamento social, portanto, de atual necessidade, tenderá a se tornar um costume, um novo tipo de protocolo social. Ademais, se todos os sistemas robóticos dotados de algum grau de IA passarem a ser considerados muito úteis para o bem-estar comum, acabarão por gozar de maior confiança do público.[123]

Os aspectos relativos à iniquidade do acesso às tecnologias precisam ser igualmente considerados, uma vez que a manufatura dos robôs é cara e exige amplo investimento em pesquisa, desenvolvimento e inovação. Neste sentido, grandes desigualdades sociais e extrema concentração de renda, sem um retorno de investimento à sociedade, torna países como o Brasil mais importadores de equipamentos do que criadores. Ademais, quando se trata de tecnologia de ponta, outro fator problemático diz respeito ao direcionamento dos recursos para equipamentos, à custa de outros investimentos que poderiam representar uma melhor qualidade de atenção à saúde. Esta é uma questão relevante, especialmente em países com altas taxas de concentração de renda, de um lado, e desigualdades sociais que impactam a qualidade de vida de uma grande parcela das populações, de outro. Se as garantias constitucionais de acesso aos serviços básicos e direitos são violadas, o problema se torna mais político do que o de gerenciamento de recursos. Contudo, um possível contraponto à narrativa da imperativa necessidade de investimentos financeiros significativos para desenvolvimento de robôs, colocam a Índia em evidência, país no qual estudantes (incluindo os de nível fundamental e secundário) têm desenvolvido modelos de protótipos de robôs de fabricação própria com capacidade de realizar chamadas para telepresença, assim como fazer entregas.[124]

Por fim, cabe destaque aos mecanismos próprios das sociedades de controle, os quais dizem respeito à privacidade e à segurança dos dados, às classificações geradas pela interpretação destes dados – e suas possíveis consequências – sempre em nome da segurança, da saúde e do bem estar.[125] Não estão perfeitamente claros, nesse momento, os tipos de ameaças que as tecnologias emergentes poderão representar para pacientes e profissionais – por exemplo, quais impactos a manipulação de dados confidenciais e as interpretações errôneas de

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[123]Howard, A. & Borenstein, J. AI, Robots and Ethics in the Age of COVID-19. MIT Sloan: Managment Review. Maio, 2020. Disponivel em: https://sloanreview.mit.edu/article/ai-robots-and-ethics-in-the-age-of-covid-19/

[124]Mondal, Swarnami. Delhi students built robot to aid health workers in fight against COVID-19. **Business Standart**. 11 de Abril de 2020. (Disponivel em: https://www.business-standard.com/article/current-affairs/delhi-students-build-robot-to-aid-health-workers-in-fight-against-covid-19-120041101016_1.html); e Hindustan Times: Covid-19: How this made-in-India robot may help treat patients, protect doctors. 8.04.2020. (Disponivel em: https://www.hindustantimes.com/videos/coronavirus-crisis/covid-19-how-this-made-in-india-robot-may-help-treat-patients-protect-doctors/video-4RbRWM7HQZsCfjsIU7dtzM.html)

[125]TEO, Yugin. Recognition, collaboration and community: science fiction representations of robot carers in Robot & Frank, Big Hero 6 and Humans. **Medical Humanities**, 2020.

informação poderão trazer.[126] Tratam-se de discussões que, em virtude da situação de crise (pandemia), têm sido postas de lado (talvez deliberadamente olvidadas...). Embora leis de proteção de dados tenham sido aprovadas em diversos locais do mundo,[127] inclusive no Brasil,[128] isto não impede a existência de um monitoramento intensivo e contínuo que se opera facilmente a partir dos provedores de serviços de comunicação digital. Para utilizar estes serviços, quando a maior parte das pessoas não tem qualquer escolha, é necessário concordar com os 'temos de uso', que poucos entendem ou sequer leem, delineando, quiçá, um "admirável mundo novo".

Deve ser ressaltado que, muitas vezes, a resistência às capturas das distintas modalidades de controle provém, muitas vezes, da arte. O artista B. Gowtham criou robôs de limpeza para desinfetar as ruas de Chennai, na Índia[129]. Os dispositivos com capas na forma do vírus foi uma maneira de deixar as pessoas atentas à pandemia e às necessidades de proteção divulgadas pelos especialistas e, com este objetivo, o artista aplicou o mesmo design para capacetes[130], com intenção de proteger os policiais que precisavam fazer contato com o público na cobrança de alguns cuidados. Este exemplo na Índia, assim como o dos estudantes que criaram robôs para colaborar com os profissionais nos sistemas de saúde, demonstram que o imperativo econômico da tecnociência é 'uma face da moeda', sendo 'a outra face' o potencial criativo e transformador da tecnologia, que também é *techne* – como ensinado pelos gregos antigos –, ou seja, arte.

A pandemia de COVID-19, como um grave problema de saúde pública, deve encontrar possibilidades de respostas "*pluri, inter ou transdisciplinar, que se aproximem de uma reflexão crítica frente ao paradigma da simplificação e da fragmentação que nela opera*",[131] relativas ao âmbito científico – incluindo a robótica e a IA – de modo que os conhecimentos adquiridos pela humanidade sejam aplicados em seu favor. Nesse sentido, se a pandemia traz

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[126] Rigby MJ. Ethical dimensions of using artificial intelligence in health care. AMA Journal of Ethics. 2019 Feb 1;21(2):121-4.

[127] Uma referencia notavel é a regulamentacao da Comissao Europeia: COMISSION, EU. General Data Protection Regulation. Disponível em: https://ec.europa.eu/commission/priorities/justice-and-fundamental-rights/data-protection/2018-reform-eu-data-protection-rules_en. Acesso em: 31 ago 2018.

[128] BRASIL. Presidência da República. Casa Civil. Chefia de Assuntos Jurídicos. LEI No 13.709, DE 14 DE AGOSTO DE 2018. Brazil: [s.n.]. Disponível em: <http://www.planalto.gov.br/ccivil_03/_ato2015-2018/2018/Lei/L13709.htm>, 2018.

[129]https://indianexpress.com/article/trending/trending-in-india/covid-19-inspired-sanitising-robots-take-over-streets-on-chennai-6420651/

[130]https://indianexpress.com/article/trending/trending-in-india/covid-19-lockdown-chennai-artist-create-corona-helmet-for-cops-to-create-awareness-6336146/

[131]Alvarenga AT, Sommerman A, Alvarez AM. Congressos internacionais sobre transdisciplinaridade: reflexões sobre emergências e convergências de idéias e ideais na direção de uma nova ciência moderna. Saúde e Sociedade, v. 14, n. 3, p. 9-29, 2005.

consigo muitas dúvidas sobre os modos de existência das sociedades contemporâneas, novos e significativos desafios à ciência, à tecnologia, à arte e à bioética emergem. A Indústria 4.0 se impõe como força-tarefa[132] e apresenta um cenário no qual a substituição dos humanos por máquinas é algo aceitável e, de certo modo, esperado. Nesse contexto, este breve manuscrito abordou – e expôs ao debate – as questões bioéticas relativas aos [possíveis] usos de robôs para as ações de cuidado à saúde e para o controle da pandemia de COVID-19, como um aceno para o cenário distorcido que se anuncia. "*Bem-vindo ao deserto do real*".

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