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Ethical Implications in the Use of Artificial Intelligence

Rosana Muknicka

The first artificial model of a biological neuron was described 75 years ago by the article “A Logical Calculus of the Ideas Immanent in Nervous Activity”, written by the mathematician Walter Pitts and the psychiatrist and neuroanatomist Warren McCulloch. The word "Artificial Intelligence" or simply "AI" was first identified in the article written in 1955 by a mathematician from the Massachusetts Institute of Technology (MIT) called John McCarthy and his colleagues at the Dartmouth Summer Research Project, Marvin Minsky, Nathaniel Rochester and Claude Shannon.

The first studies are published regarding the artificial neural networks (RNs), which are mathematical/computational models that have processing units, interconnected by connections that represent weights, performing parallel and distributed operations. Models capable of identifying patterns and making autonomous decisions have been studied for decades. These models range from the Turing test to bio-inspired models such as artificial neural networks and genetic algorithms, or even the evolutions of these ones, such as convolutional neural networks.

There are huge expectations on a potential positive transformer for AI to be used in all sectors of the economy. However, ethical and moral issues have resurfaced as the speed of data processing and the abundance of information on the Internet has increased. As a consequence of Big Data, the importance of ethical and moral controls in the application of algorithms and databases has materialized. After all, the three laws of robotics, contemplated by Isaac Asimov in science fiction, are not enough to solve all issues regarding AI discussions today.

In this regard, for example, the scientific Article “Adversarial Attacks on Medical Machine Learning”, published in the Science Magazine on March 22, 2019, co-authored by members of Harvard University and MIT, demonstrated the bad influence of billions of dollars in the healthcare industry, not in order to save or solve the patient's sickness, but to maintain them, as long as possible, as major consumers of pharmaceuticals and hospital medical procedures. Therefore, it was found in this study that, in its programming, the

choices made by the programmers of the algorithms suffered external influences, not directly related to the improvement of patients' health.

Ethical issues should also be incorporated into the so-called *biases* present in the development of the database, i.e., every developer or programmer has his/her own experiences and history, which stimulates him/her to, even unconsciously, include his/her prejudices and opinions, sometimes biased, generating results that may be distorted and harmful to many individuals. It should also be noted that the plethora of information on the Internet today made up a database that can be considered biased as demonstrated by the project headed by a large IT company, in which a profile was created in 2016 to interact with teenagers on social networks using an artificial intelligence algorithm. However, this profile identified biased patterns and had to be removed within 24 hours of activation for reproducing many types of racist content.

How to control the external influences with economic interests and avoid the biases intentionally included in the development of databases and algorithms?

Focusing on these ethical issues, the European Community, in April 2019, published a document named “European Strategies for Artificial Intelligence”, which basically mentions that AI is not an end in itself and, on the contrary, it should promote the "improvement of the condition of the human being", not clarifying exactly what is the exact meaning and form of this improvement. However,



it should be noted that the guidelines in this document are in line with recent personal data protection standards, such as the General Data Privacy Regulation (“GDPR) and the Brazilian Personal Data Protection Law (Law No. 13.709 / 18), adopting certain principles as transparency, security, privacy and non-discrimination, among others. Further, the Organization for Economic Co-operation and Development (OECD) in June 2019 proposed principles similar to the European Guidelines to be adopted in relation to AI. Both documents demonstrated concern about the lack of control and the limits to be adopted when using AI. However, these documents are not binding, i.e., mandatory for the signatory countries, and they do not have sanctions for their non-compliance.

In Brazil, it has been pending a Bill of Law 5051/2019 from the Senate, which seeks to regulate the principles applicable to AI. This is a simplified copy of the European Guidelines combined with the OECD principles which, without even defining the terms and concepts adopted in the text and also not imposing sanctions for non-compliance, will possibly be classified as "non applicable" if eventually approved by the National Congress.

Furthermore, questions of using AI has been widely debated due to the approval of the LGPD, which will come into force on August 16, 2020 since the National Congress rejected the President's veto to the legal device that guaranteed the revision of automated decision by a natural person. At this point, the data subject is only entitled to request “review of decisions made solely on the basis of automated processing of personal data affecting his/her interests, including decisions to define his/her personal, professional, consumer and personal profile, credit or aspects of his/her personality ”(Article 20, LGPD). The legal device under review deals with automated decisions that include the concept of artificial intelligence, since there would be no natural person making decisions and reviewing them.

Although there is no Ethical Code for artificial intelligence in place, LGPD itself clarifies that both the automated decision and its revision must be carried out in a clear, appropriate and transparent way whenever requested by the LGPD controller of the personal data, i.e., the person who process the personal data. The limit to apply such law is the observance of commercial and industrial secrets which justify the non-provision of information. However, in the latter case, the National Data Protection Authority may perform an audit to verify discriminatory aspects in automated processing of personal data. LGPD can be considered one of the mechanisms of ethical control of the technical resources used to obtain automated decisions, in order to avoid discrimination of data subjects. After all, control is needed to prevent abuses, for example, ranging from unjustified denial of financial resources for the purchase of goods and services, to increased insurance and health insurance, among

others, due to a personal data collection whose access to third parties was not previously authorized by the data subject.

That having been said, in addition to the issues that guide technological advances, another sphere of discussion guides the field of the use of artificial intelligence, involving more ethical and regulatory aspects, how to use this tool that can bring great advance for mankind or represent a temerity, as stated by physicist Stephen Hawking, Apple co-founder Steven Wozniak and Tesla founder Elon Musk.



Rosana Muknicka is a lawyer and a collaborator at the Centro de Estudos Sociedade e Tecnologia (CEST-USP).

Coordinator: Edison Spina

This article is a result from the author’s ascertainment and analysis, without compulsorily reflecting CEST’s opinion.