Short communication

Scientific communication on artificial intelligence: the question of the social status of the biodroid

ABSTRACT

Boidroids, androids mixing organic and synthetic components controlled by Artificial Intelligence, will likely spread soon in the daily life, interacting with humans and thinking, behaving and feeling like humans. Such artificial entities, which would take on the appearance of humanoids in order to be better accepted in civil society, could be both a source of comfort for humans (by carrying out tasks that would improve the daily life for example) and a source of concern (by being the bearer of an intrinsic threat associated with an autonomy that humans might no longer control). Whether they are perceived positively or negatively, the question of their social status must be considered: The android Sofia was already granted citizenship in 2017 by Saudi Arabia. In order to give a legal and ethical frame to this imminent perspective, it is suggested that scientific and non-scientific communities seize the issue from now. To date, the analysis of the scientific communication on the topic shows that the scientific communities as well as the civil society are far from being prepared to this eventuality. Yet, recent advances in this area are considerable: The limits of artificial intelligence due to the capabilities of microprocessors could soon be pushed back with qubit-based technologies for example.

Keywords: Android, Artificial Intelligence, Boidroid, Ethics

1. INTRODUCTION

Scientific communication addresses communications between scientific communities as well as communication between scientific and non-scientific communities [1],[2].

It was emphasized that scientific communication between scientific and non-scientific communities was necessary for scientific contributions to be efficient, especially when a support from legislators or politicians was needed [3]. To illustrate this need, just have a look at the case of Facebook. When looking for the keywords “facebook” combined with “experiments” on Googlesholar on one hand, and combined with “privacy” or “legal issues” on the other hand (Figure 1), the curves follow the same trend. The keyword “experiments” gives an image of the scientific communities involved in the development of Facebook, and the other keywords give an image of the scientific communities involved in the human science concerns related to Facebook. The similarity of the trends shows that scientific communities of developers and of legislators have been concerned by the “Facebook phenomenon” at a similar level over time. However, when looking at the current situation, it is clear that legislators and governments experience some difficulties in regulating the activities and effects of this social network on the society. This may be explained by the fact that legislators and governments have felt concerned by the “Facebook phenomenon” later

than the scientific communities: this lag may be due to the inertia of the associated institutions or a belated awareness of the need to regulate the effects of the social network. This finding comes to confirm Jasanoff's work demonstrating that technical developments and regulations of such developments must be mutually constitutive and co-produced [4].

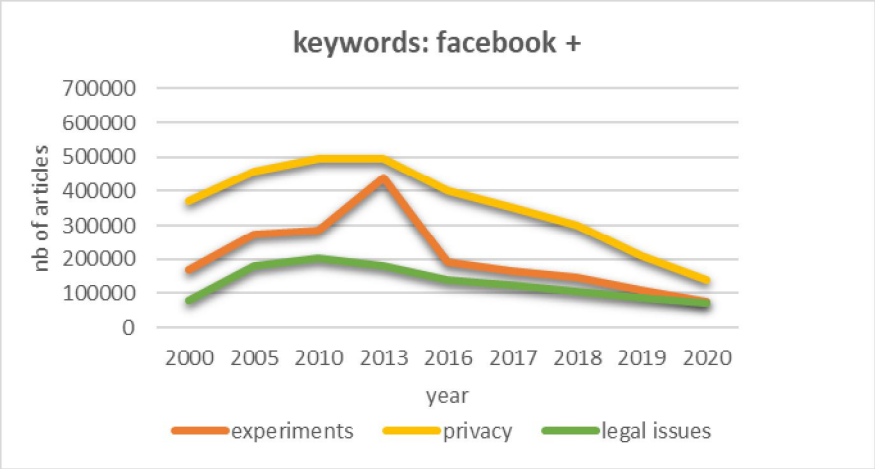

Figure 1. Trends of scientific communications from Googlesholar concerning the keywords "facebook" combined with "experiments", "privacy" or "legal issues".

The aim of this communication is to raise a question addressing the effect of Artificial Intelligence (AI) developments combined with biotechnology and mechatronics progress that might lead to a fundamental societal question addressing robots' rights for which scientific communication will play a crucial role indeed. This point was recently put into discussion at the international conference Science & You 2021 (November, 16-19, 2021; http://www.science-and-you.com/en); the present communication intends to elaborate on this point.

2. ARTIFICIAL INTELLIGENCE (AI) AND ETHICS IN 3 QUESTIONS

It is clear now that AI progress gives a new approach of how might be considered machines able to interact with humans like humans. Recently, Gasser pointed out that "predictions by experts indicate that robots will become a natural part of our environment in the coming decades. Robots are already proving useful in taking over important tasks in the healthcare and social sector, thereby relieving human employees", adding that "engineers often strive to make robots look as human-like as possible so that we break down barriers to interaction and feel comfortable in their presence" [5: 334]. In this perspective, Researchers are now seriously considering what should be the social status of this sort of machines that would be equipped with an autonomous thinking system and a self-awareness capacity [6-8]. More generally, this issue relates to "ethics" and "AI" and specifically addresses the notion of "robots' rights".

The first question is thus: in the paradigm of AI, is "robots' rights" a concern for the scientific communities. The analysis of the trend of scientific communications addressing these topics provides an element of answer. When looking at the numbers of scientific articles written in the past years addressing AI and "ethics" and looking at the proportion of articles related to "human rights" on one hand and "robot rights" on the other hand (source: Googlesholar), the trend (Figure 2) shows a significant increase of articles regarding AI and ethics from 2018 to exceed 60,000 articles in 2019, which places the subject "artificial intelligence" and "ethics"

among those most discussed by the scientific community in the field of artificial intelligence such as “Machine Learning and Probabilistic Reasoning”, “Neutral Networks”, or “Computer Vision” [9]. Among the 2019-articles, a very low consideration of robot rights is observed (0.41%) when compared with considerations of human rights (12.6%). The assumption is thus that “robots’ rights” is not yet a major concern for the scientific communities.

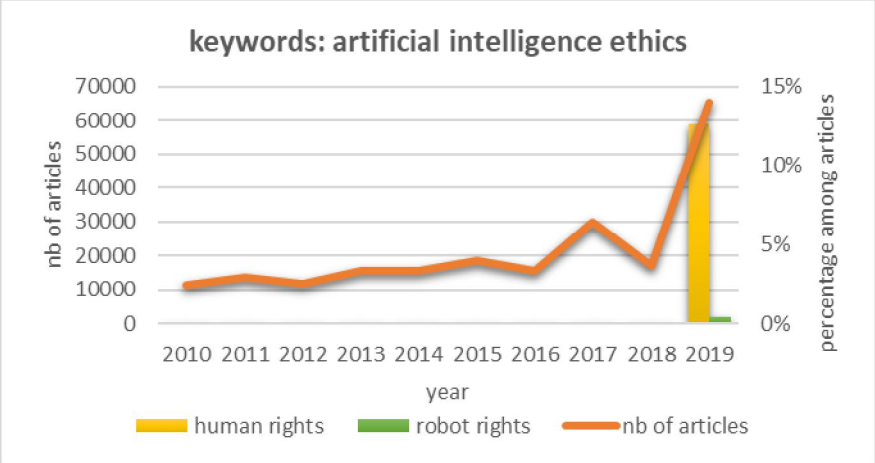

Figure 2. Trends of scientific communications from Googlesholar concerning the keywords “artificial intelligence” and “ethics” among which proportions of articles relating to “human rights” and “robot rights” in 2019.

The issue of ethics in the field of AI is therefore a concern for the people constituting the scientific communities (illustrated by the significant increase of articles) and the ethical impact of AI on robots is almost not studied when compared with that on humans.

The second question is: is “the low level of concern regarding robots’ rights” a problem? The answer to the question can be illustrated using one option among all the possible perspectives: the emergence of the biodroid. The biodroid is an android mixing organic and synthetic components. The mix is the same as for the cyborg, but the difference remains mainly in i)the origine and ii)the intelligence. The cyborg is a human augmented with cybernetics and the origin is natural as well as the intelligence and thinking system. The biodroid is built by humans: its origin is artificial as well as its intelligence and thinking system based on AI. To illustrate the purpose, the cyborg can be represented by the character Alex Murphy (Peter Weller) in the movie RoboCop (1987) by Paul Verhoeven. The cyborg is half-organic / half-synthetic, is an entity of natural origin and the brain (intelligence, thoughts) is also of natural origin. The biodroid can be represented by the character Ava (Alicia Vikander) in the movie Ex Machina (2014) by Alex Garland. The biodroid is half-organic / half-synthetic, is an entity of artificial origin and the brain (intelligence, thoughts) is also of artificial origin (AI). The biodroid does not yet exist but obviously is to appear in the near future due to the rapid progress of AI combined with this of biotechnology and computer science. For example, Artificial Intelligence can be boosted by the implementation of quantum algorithms by machine learning capacities, the training time being reduced by quantum computing [10]. Already from now, scientific communities should consider this perspective of biodroids spreading in our daily living spaces, interacting with humans, thinking and behaving like humans. Therefore, the answer to the second question is yes: the low level of concern regarding “robots’ rights” by the scientific communities is a problem.

The issue might then be double: i)conversely to the aforementioned example “Facebook”, there might be a lag in taking into consideration the question of the biodroid between scientific communities (technical science vs human sciences for example), and ii) like for the aforementioned example “Facebook”, there might be a lag in taking into consideration the question of the biodroid by scientific communities on one hand and by the politicians and legislators on the other hand.

For i), the risk is that the technical communities develop biodroids out of an ethical frame that the human science communities would be expected to have elaborated, and thus resulting in a final product that does not match regulations that would be provided later. For ii), the risk is that the technical communities develop biodroids out of any ethical and legal frames for several years until implementations of regulations. For both cases, the issue is similar: no clear ethical and legal frame for biodroids, and a legal vacuum regarding the rights of biodroids and their social interactions with humans. This problem is all the more important because, most of the time, people make a projection of human-human interactional patterns to build their interactions with robots, whether they are android or not [11] with a possible extension of this projection to the social status: if the biodroid speaks and acts like a human and humans act with it as with a human, might the biodroid be considered equally. This could lead to people constructing the status of the biodroid on an emotional basis more than on an analytical basis.

The third question is therefore: In what this double issue might lead to a problem? This might lead to the emergence of biodroids in our daily life without any political and legal framework addressing their existence and rights in the society. If the biodroids are developed as it is described above, their way of thinking and interacting with humans in the civil society might give rise to claims that would be similar to these of cyborgs or humans. Biodroids might claim for being respected as cyborgs or humans, claim for the same rights, and thus probably became unsuitable for what they have been developed.

3. CONCLUSIVE OPEN QUESTION

Therefore, it seems important to socialize the question of the social status of the biodroid endowed with Artificial Intelligence, autonomous thinking and self-awareness, via interdisciplinary scientific communication and public communication too. Biodroids emerging soon in our daily life out of the legal and ethical frame might give rise to issues. Biodroids thinking and behaving like humans might “feel” like humans and why not, claim the same rights as cyborgs, even the same rights as humans: "I am like you, give me your rights". The conclusive open question is thus: Is the civil society ready to grant the same rights to biodroids as to cyborgs or humans?

To illustrate the urgent character of the question, just keep in mind that the AI android Sophia, from Hanson robotics, was granted full Saudi Arabia citizenship in 2017 (https://www.youtube.com/watch?v=qRgvlLTy54Y, [12],[13]).

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