

Proceedings

The Case of Artificial vs. Natural Intelligence: Philosophy of Information as a Witness, Prosecutor, Attorney or Judge? [†]

Marcin J. Schroeder

Akita International University, Akita 010-1211, Japan; mjs@aiu.ac.jp; Tel.: +81-18-886-5984

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Abstract: The relationship between artificial and natural, human intelligence becomes currently an issue of the primary importance for the world. The threats of technological singularity in the form of ultraintelligent machines occupied many philosophers, but thus far nobody paid attention to the encroaching singularity of relatively low level automation which eliminates need for low skill labor force and threatens wide masses of human population. Economists predict that many occupations regarded as requiring high skills will become spurious too. The only solution for the optimal coexistence of the artificial and natural intelligence is in the reform of education. The solution does not require anything new as the liberal arts education promoted human intellectual development leading to the roles which machines least likely can assume.

Keywords: artificial intelligence; natural intelligence; automation; information technology; education reform

1. Introduction

The relationship between artificial intelligence (AI) and natural intelligence of human being is not a new topic of philosophical inquiry. However, thus far it was not much more than a matter of speculative or futuristic reflection. After all, even now the introductory problem of defining intelligence in its natural or artificial form has not received definitive, commonly accepted solution. The threats of “intelligence explosion” predicted by Irving John Good [1] or “technological singularity” anticipated by Vernor Vinge [2] and popularized by Ray Kurzweil [3] with the catastrophic visions of ultraintelligent machines escaping human control and comprehension do not belong to the primary concerns regarding the future of humanity. Global warming, degradation of environment, overpopulation, lack of sustainability in the use of fundamental resources, violent conflicts stimulated by religious and cultural intolerance seem much more dangerous and already fully manifested problems which require immediate intervention. Discussion of such a nebulous subject as artificial intelligence can be viewed as detraction from what actually is important and what should engage the limited available means for a collective action.

On the other hand most recent political developments of a global importance caught everyone by surprise, even those who strongly believe to become their beneficiaries. Their consequences are still unknown, but are of a grave concern for people all over the world, as they undermine political, economic and military stability everywhere. The conditions leading to Brexit or to the US presidency of Donald Trump, or in general to the wide spread of populism and to the rebellion against globalization, were diverse and complex, but there is no doubt that the main factor was the frustration and anxiety in developed countries generated by declining job market, specifically in the domains of economy engaging people with lower levels of education. The fact that at the surface it is a matter of rising popularity of populism and isolationism should not be misleading. Populism by

the definition is addressing in its political actions large masses of less affluent parts of the society by utilizing resentment towards social elites as a way to gain political power. The problem is not in populist or nationalistic ideologies, but in the conditions that make these ideologies attractive to masses. Of course, the acts of terrorism committed by a third party are very convenient tool for the propagation of populist or nationalistic ideologies, so they cannot be completely dismissed, but the actual roots of the shift in this direction is always in the economic situation and its interpretation.

Thus, we have declining number of jobs for those with limited education which is interpreted as a result of globalization. In the US the tight job market in manufacturing is blamed on Chinese or Mexicans who in their countries do the same work for much lower wages and attract investment of American businesses. In the UK it is easy to convince people that their jobs are taken by Eastern Europeans or other EU citizens who can easily and legally immigrate to UK and who happens have frequently better education. The solution seems easy, close the borders, build the walls, withdraw from international political or economic unions, levy taxes on products from abroad and the life of all society will return to its old glory. For our purpose it is not important to assess truth or falsity of such bizarre economic recipes. More important is to investigate the actual source of the problem and since this source is closely related to the subject of the relationship between the artificial and natural intelligence, it is necessary to analyze the problem in the perspective of the philosophy of information.

This paper follows economic analyses which show that the main reason for declining job market for those with lower levels of education is not the abduction of jobs by labor force abroad or by migrants, but the technological progress in automation which eliminates need for less skilled work [4]. This progress is being associated with artificial intelligence and here we have our case of artificial vs. natural intelligence. It is the role of philosophy of information to reflect on the relationship between these two forms of intelligence, to assess severity of the problem of their coexistence and to seek solutions which will make this coexistence beneficial for humanity. The importance of such reflection is increased by the predictions in economic analyses that the fate of the low skill jobs in manufacturing will be soon shared by many or even majority of jobs defining the middle class.

The most important thesis of this paper is that we are already within the singularity anticipated by many authors, but this singularity is not caused by the arrival of ultraintelligent machines which are beyond our comprehension. The actual transformations which dramatically change human affairs are at the other end of intelligence spectrum and are related to jobs which require very limited capacities that can be already implemented in robots. Thus the danger is not in artificial ultraintelligence, but in the army of artificial intelligent midgets capable of fast and accurate performance in only few highly specialized functions. If we want to defend ourselves against the danger of unpredictable consequences resulting from the further development of artificial intelligence (whatever is meant by it) and if we want to find the optimal mode for coexistence of artificial and natural intelligences, it is necessary to understand the problems involved in such coexistence.

2. Philosophy of Information as a Witness

The prediction of the problems arising with technological progress goes back at least to reflections of John von Neumann reported by Stanislaw Ulam in his friend's obituary: "One conversation centered on the ever accelerating progress of technology and changes in the mode of human life, which gives the appearance of approaching some essential singularity in the history of the race beyond which human affairs, as we know them, could not continue" [5]. Apparently this was the origin of the use of the word "singularity" by later authors who sometimes explicitly referred to this quotation. But von Neumann, whose work on self-reproducing automata stimulated visions of the machine domination in the works of more recent authors did not speculate on ultraintelligence [6]. His concerns were more about the impact of technological progress on humanity and potential threats of dehumanization. These concerns were quite wide spread at those times very likely under the influence of the threat of the development of nuclear arms and the possibility of global catastrophe of their use. Martin Heidegger was one of the prominent philosophers addressing the issue of dehumanization caused by technological progress [7]. His

message was weakened by the frequently voiced interpretations of his concerns as an attempt to avoid taking responsibility for his earlier support for fascism, but this does not diminish the role of the problems in the collective consciousness.

If the concerns about the detrimental impact of technology on humanity appeared so early, why are we so unprepared for changes today? The answer can be only speculative, but we can guess that the main reason was the recognition of the universal, ever present anxiety accompanying technological progress. Historical record from many centuries brings many examples of unjustified suspicions regarding technological news. We can consider just one randomly selected example from the remote past in order to illustrate how irrational were sometimes negative reactions to innovations. H. Spaichel of Nuremberg invented in 1561 a new type of lathe with a tool rest. Because of the opposition of other master metal turners and in order to prevent the invention to leak out from the local control the Municipal Council of Nuremberg decided in 1569 to destroy its model [8].

There is a legitimate question whether the current anxiety is just another example of hysteria brought by the fear of innovation. Economic analyses show that the phenomenon of disappearing need for low skill labor force is not just an expression of anxiety. Michael J. Hicks and Srikant Devaraj provides analysis that shows that 88% of lost jobs in American manufacturing is the result of the increased productivity brought by technological innovation, mainly automation of the work requiring low skills [4]. Similar reasons for concerns can be found in the special report published by The Economist in June 2016, but in this case in a much wider range of occupations [9]. The report is quoting the results of research from 2013 on 702 occupations, putting in risk of elimination 47% jobs by automation in America, 35% in Britain and 49% in Japan.

The reports on the increasingly common “deaths of despair” among blue-collar whites in their fifties for whom the mortality rate is more than three times higher than for those who attained a bachelor degree in the US show the scale of social response to the situation [10].

Silicon Valley executives experiment in Kenya through an American NPO called GiveDirectly on the solution called “universal income” providing everyone (thus far in relatively small remote communities) some modest, but sufficient for relatively comfortable survival income without any work done [11]. The enthusiast of “universal income” claim positive results, but there are many fundamental methodological questions regarding any form of generalization to large scale societies.

3. Philosophy of Information as a Prosecutor and as an Attorney

(These two roles of the philosophy of information are omitted in this short version of the paper).

4. Philosophy of Information as a Judge

It is not a surprise that the role for philosophy of information is to become a judge. The judgment should be made based on factual analysis of economists and sociologists as witnesses, on the analyses of the respective roles and characteristics of artificial and natural forms of intelligence as voices of an attorney and prosecutor. The judgment unavoidably points at education as the only solution to the problems. There is no doubt that the problems are results of faulty educational systems, in particular educational systems of developed countries where education was allowed to stay way behind the technological progress.

This judgment requires an extensive explanation. It does not mean that we should introduce massive computer science or engineering components into entire process of education. We can predict that the process of computer programming will soon be automated. Appropriate human-machine interfaces will translate the objectives of human demands into tasks comprehensible for machines. The role of human intelligence which will be the last to be replaced by the artificial forms involves creativity, emotions, values, aesthetics, versatility. Thus, the most important missing element of education is on the side of the humanities, but we have to remember that mathematics and scientific exploration of the world are equally fundamental components of the human condition.

Is this prescription or court ruling new? Of course not. The liberal arts education has promoted this approach to education since Mediterranean Classical Antiquity. Similar goals can be found in

Confucian philosophy. Therefore it is not a call for completely new forms of education, but for the implementation of the ideas of education which for centuries were prized, but never given sufficient support from those who are responsible for providing sufficient resources.

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