

**THE MERGER OF NATURAL INTELLIGENCE WITH ARTIFICIAL INTELLIGENCE,
WITH A FOCUS ON NEURALINK COMPANY**

Julia Miśkiewicz

Abstract. Human development is connected with permanent action to be better, to overcome nature, to build something that has so far been able to occur without its participation. The emergence of concepts such as artificial infertification, artificial blood, artificial organs, artificial eye retina, artificial brain or artificial intelligence suggests the desire to take control of man, the control which has so far been attributed to nature, To God the Creator, fate or chance. The dynamic development of science, modern tools and research methods make the thought of artificial intelligence becoming more and more real. In recent years, artificial intelligence (AI) is increasingly being used by business people. Its development involves numerous groups of high-class specialists, using the most modern IT tools. Before the creation of the first "intelligent" machines, its idea lasted in the imagination of many people. The films and books of science fiction presented the future in which man was replaced by a machine, and the phenomenon of this reality were robots. Today, for the modern man, it is not a surprise robot, or a "smart" computer program. Thanks to the rapid development of electronics and computer science, we are able to create what was once only a topic of science fiction. AI is currently being used in various fields of science, such as medicine, economics and management. But it is also worth remembering that these processes are accompanied by numerous questions and doubts related to the ethics of its use. The aim of the articles is to inspire the discourse on the example of Neuralink – the search for answers to emerging doubts.

Keywords: Artificial Intelligence (AI), Neuralink chip, business ethics

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1. Introduction

The use of Artificial Intelligence (AI) and the ethical issues it raises are at the heart of much impassioned debate. To be sure, technology has greatly improved the economy in the countries which have applied it by increasing work efficiency across many sectors. This has led to an increase in the unemployment rate, especially among low-skilled workers (Kwilinski, 2018). Despite fears that technology will lead to accelerating job losses, several scientists have decided to go even further with AI and use it to increase the efficiency not of machines but of humans by merging natural with artificial intelligence. Experts are worried not only about the increasing unemployment caused by introducing more AI, but also about that people will become economically of no value (Space Insider, 2017). In fact, Stephen Hawking (2005) and other specialists have forecasted that AI will eventually acquire its own form of mental autonomy and therefore surpass humans in its ability to think (Vaughan, 2018). AI has arrived at a point at which it is assumed that it will become the most intelligent 'species' in the world. Historically, the most intelligent creatures on the planet have always taken power from others – in this case, AI seems destined to take over from humans and make them the "second-class citizens" (McKissen, 2017).

2. Literature review

Scientific literature provides several arguments relating to the essence of intelligence (Sternberg & Kaufman, 2002). For the first time, the notion of intelligence (Latin *Intelligentia*) was used by M.T. Cicero, who described the intellectual abilities (Wood, 1991). Intelligence is one of the determinants of man's accomplishments and constitutes one of the most precious features of J. Strelau (1987), while Spearman's intelligence is a general and non-differentiated factor, which consists of Reasoning processes. In addition to the general intelligence, it distinguishes special abilities, which allow to solve the tasks of a particular kind (Spearman, 1904). In turn, D. Hebb, talks about intelligence as the combined effect of biological equipment (potential) and environmental, learning and self-activity (Klein, 1999) effects. M. Tegmark wonders how artificial intelligence will affect the world-wars, law, employment, crime, social relations and our own sense of humanity? Should we be afraid of arms race in the field of autonomous weapons, and perhaps the fact that the machines will completely replace us in the labour market? (Tegmark, 2017). The influence of artificial intelligence on the lives of people wonders E. Musk. In his opinion, humanity should be exceptionally careful, because AI is "potentially more dangerous than nuclear weapons." He also believes that humanity should make sure that the results of the work on artificial intelligence will be good, not bad and most importantly, we should prepare ourselves for possible hazards (e.g. machines-terminators) and control the development of AI. In a similar tone, he also spoke of S. Hawking, who warns that artificial intelligence can be the "worst thing that can happen to humanity." Science can, of course, develop in this direction, but it is necessary to control that our work does not ever turn against us. Otherwise, the superintelligence that man will create can lead to the collapse of our species (Hawking, 2005). By contrast, R. Forsyth (1984), E.B. Hunt (1975), N.J. Nilsson (1980) analyzing the development of artificial intelligence assign its tasks to realize, among other things: Search

and analysis of information in large collections; The building and use of expert systems; Automatic command of mathematical assertions; Automatic computer programming; Solving combinatorial tasks and scheduling; Solving visual and audible signal reception tasks (Forsyth, 1984; Hunt, 1975; Nilsson, 1980).

The aim of the article is to analyse the literature of an object relating to artificial intelligence, and in the example of Neuralink, to inspire discourse – the search for answers to emerging ethical concerns and related to the development of modern society.

3. Methods

By writing this article, author has used a qualitative descriptive method that refers to a critical analysis of national and foreign Artificial Intelligence studies based on the gathered material of a brief review of the selected theoretical shots, which are challenges facing humanity, economic challenges and human-machine relationships.

4. Results and Discussion

The increasing use of AI, which may resemble things that until recently could have only happened in science fiction movies, worries many people. The predictions encouraged Elon Musk, an entrepreneur, “known for founding Tesla Motors and SpaceX,” to invest in, and eventually acquire, a company named Neuralink (Elon Musk Biography, 2014). According to *MIT Technology Review*, in the beginning, professors Pedram Mohseni and Randolph Nudo set the treatment of health problems as their primary goal, and finally invented a device to cure brain injuries. Yet, once Elon Musk stepped in, the company expanded its horizons. Musk wants to focus not only on sick but also on able-bodied and healthy people, according to Mohseni’s statement, to work on extending their minds by connecting their brain to a computer, by surgically implanting a chip into human’s brain (Marsh, 2018). Surprisingly, Elon Musk himself strongly recommends introducing laws to limit AI, which, he claims, is why he started working on his project, ostensibly to help the human species. He has already arranged several meetings, including with Barack Obama and 50 governors, to explain the dangers of AI, as he revealed in an interview with Joe Rogan (PowerfulJRE, 2019). To date, no one has actively responded to. AI needs to be restricted by law because it poses a danger and raises several ethical concerns which demand our attention, such as the question of access and fair distribution of Neuralink technology, and its potential threat to “humanness.”

Communicating through thoughts, having access to all of existing information just by thinking about something, writing an email without using a keyboard, and using a computer or a smartphone without even touching them are just some of the things Neuralink “product” will make possible. The company wants to make the product as accessible as possible. People are free to choose whether or not to take advantage of neurotechnology, but should be given the chance to use it if necessary for survival. The brain-computer interface is expected to help cure life-altering diseases. Indeed, neurotechnology might be the only solution to help paralyzed people, or people suffering from memory loss illnesses,

such as Alzheimer's. For example, in 2017, Bill Kochevar, eight years after an accident that had paralyzed him, finally gained enough autonomy to drink and eat without any assistance. Neurotechnology enables him to move by the power of thought: "I think about what I want to do and the system does it for me." (Boseley, 2017). The implanted electrodes recognize his thoughts and send impulses to specific parts of his body to trigger the movement (Boseley, 2017).

Yet people are not willing to invest in companies that do not give them sufficient profits, even if the companies work in the medical sector. As Professor Nudo observes, "paralysis is a terrible condition," but "it's not that many people," so it will not give satisfactory profits to financially allow the specialists to work on it (Regalado, 2017). General lack of willingness to financially support medical research stunts medical progress. Thanks to brain-computer interface people would be able to remember everything perfectly, exactly as their smartphones keep all of the photos and videos in their memory, which would cure memory loss-related illnesses. Additionally, according to E. Strickland (2017), part of neurotechnology which is already in use, helps to alleviate the symptoms of diseases like epilepsy or Parkinson. Even though it remains unknown who will legally obtain the rights to use Neuralink brain-computer interface; perhaps sick people will be a priority in order to have access.

However, what if everyone obtains access to the Neuralink product? Of course, it would need a regulatory agreement, but general accessibility is the company's ultimate goal. As stated by Dustin McKissen (2017), supposing that "neural lace" technology (a merger of natural and artificial intelligence) becomes legally allowed and widely available, people from deprived backgrounds will not be able to equalize their chances with their wealthier peers any longer. They will not be able to get into certain universities, or afford them without getting a scholarship, and then to get a well-paid job with high-level positions. Depending on which families people were born into, they have either more or less difficult path to achieve their longed-for successes. Yet whether people achieve their goal or not is determined after all by their self-motivation and hard work. Once the Neuralink "product" is introduced to the market, as every new product in the market, will be extremely expensive and perhaps not refundable. Thus, only the wealthiest will may be able to afford it, and it will remarkably decrease chances of the less wealthy people to compete with their technologically upgraded peers, which would contribute to the increase of income inequality. Nevertheless, in the interview with Joe Rogan (PowerfulJRE, 2019), Musk said that the chip will be available for everyone. Because even if it is very expensive, once it is implanted, it will benefit people sufficiently to get a well-paid job and recompensate the cost of the procedure. It is still uncertain though if that many people will be ready to invest in it, expecting to earn enough money afterwards to pay off their liabilities. There is already noticeable income inequality and making this technology widely accessible may make it worse, but also it might contribute to the ultimate intellectual progress of our species which can be necessary for the future.

Despite the financial obstacles which can be overcome, applying the Neuralink chip requires going to a hospital and having brain surgery. This might be one of the reasons which would make people hesitate to commit themselves to enhance their brain. Another one would be losing their humanness. Elon Musk aims to enhance humans to decrease negative AI impact which can quickly transition to a real danger to humans in the future. Nevertheless, many think that this chip will infringe the nature of human, not only in ethical but also in the religious aspect. It is inconsistent with the three most common world religions: Judaism, Christianity, and Islam. All three of them have the common origin of human and come down to one thing - freedom to choose, even if it means to choose wrong, in this case not to prevent the possible "annihilation" caused by AI (Greenblatt, 2018). Yet, it raises concerns not only about the conflict with these religions, but also about general ethics regarding losing humanness and intrinsically associated with it privacy. According to Sierra Simmerman (2018), "individuals," who got BCI electrodes implanted, "have experienced personality changes or identity shifts." When a human's brain is connected to these electrodes, people start thinking differently (faster and more directly) so that it influences their behavior and feelings.

Regardless of direct influence on people's mentality, the implementation of the chip would also result in a lack of privacy, which eventually may also influence people's lifestyle and behavior. Musk claims that the majority of people is already cyborgs, because of the digital extension of themselves, for example, phones, computers, applications (Fourtané, 2018). So he suggests to take a step further. All of current "digital extensions" expose private information; however, there is a significant difference between exposing private information through the phone and exposing private information through the chip implanted to the human's brain. Phone and computer only record the users' data when they are in use. However, the implanted chip would have access to and would record the raw data all the time (Simmerman, 2018). People would stop exposing only "filtered" information about themselves and start exposing every single thought. Therefore, the chip procedure would demand specific regulations or privacy policy, because otherwise people might be completely deprived of intimacy. Registering raw data means exposing all of the experiences including, for example, "engaging in sexual relationship." What would happen, "if your BCI registered neural data that demonstrated your silent homophobic or racist ideals? What if your data registered homicidal thoughts?" (Simmerman, 2018). Would the government have a right to punish people for their thoughts? Maybe implementation of the chip would be useful in preventing from some dangerous situations, for instance, from terrorist attacks, but it would be serious invasion of privacy, which demands specific regulations enforced by law.

5. Conclusions

There are still many questions to be asked, for which answers might vary from one person to another. Artificial technology evolves at an incredibly fast pace, but its outcome cannot be clearly defined as "evil or good" (Miśkiewicz, 2018). There will be increasing unemployment due to replacing workers with AI, because there are not many tasks which people can do better or even equally well as AI does. It not only worries people in terms of economy, but in

terms of ethics too. Merging natural and artificial intelligence may worsen the already existing global problems, for instance, inequality. However, it gives much hope to incurably ill people. People should not object the medical research if there exists a chance that scientists can find a cure for certain diseases and improve people's conditions who currently suffer from severe physical and mental disorders. If implanting a chip into people's brain means losing their humanness, why being in such a terrible physical condition as, for instance, paralysis is not considered an infringement of the humanness? It is difficult to decide if access to this technology should be allowed or not. For sure certain governmental institutions should be tasked with keeping privacy policy under control, and maybe it should not be widely accessible, but people should give it a chance in the medical sector.

The idea of implanting a chip into people's brain sounds terrifying, perhaps simply because it is new, but ethics keep changing with human progress. In the past, slavery was acceptable whereas it is now strongly prohibited by law. The ethical disagreements are even noticeable between the nineteenth and twentieth centuries, when people changed their opinions about women's and blacks' right to vote. Each generation blames the previous one for being unethical, and even the current generation might be blamed so for issues people not recognize as a problem yet: "Perhaps someday the act of subjecting children to involuntarily schooling will be seen as child abuse—or maybe allowing children to leave school at age 18 will be seen as child abuse." (Bostrom & Yudkowsky, 2014). That is why ethics not only of this concept but of each big issue is extremely hard to define, because along with the development of societies ethics change. So, it may turn out that today's generation will be thought of as unethical in its perception of AI by future generations (Dźwigoł & Dźwigoł-Barosz, 2018).

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