



Received: 6.04.2020  
Accepted for printing: 3.08.2020  
Published: 05.11.2020  
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DOI: 10.15584/jetacomps.2020.1.9

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## Artificial (un)Intelligence – an Opportunity or a Threat?

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### Abstract

The article contains considerations relating to the dynamic development of artificial intelligence, which is the fastest growing technology in the world. The article attempts to define concepts that state what intelligence and artificial intelligence is (1). It also draws attention to the development of artificial intelligence (2). All of them are closing arguments seeking answers to the question: Artificial intelligence – an opportunity or a threat? (3). It should be borne in mind that the continuous improvement of the possibilities of artificial intelligence means that it will be able to surpass human intellectually.

**Keywords:** artificial intelligence, human intelligence, chatbots, bots, intelligent virtual assistant, robots, dissemination of robots

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### Intelligence and artificial intelligence – what is it?

The concept of artificial intelligence (artificialintelligence, AI) is not easy to define. The reason for this obstacle is the lack of proper understanding of what intelligence is and what it means “to understand something” (Hawkins, Blakeslee, 2005, p. 17). The issue of intelligence is a great mystery of modern science, and it is fortunate that we live in times when this mystery can be solved. However, there is still no consistent theory explaining how the brain works and what intelligence is (Hawkins, Blakeslee, 2005, p. 5–6). Intelligence has many different definitions and, for example, according to Strelau (1997, p. 19) it is a “theoretical construct relating to the relatively constant internal conditions of man, determining the effectiveness of action requiring the participation of typically human cognitive processes. These conditions are shaped by the interaction of genotype, environment and own activity”. A prominent German scholar Stern (1997, p.15) understood “intelligence as a general ability to adapt to new conditions and to carry out new tasks”. By contrast, G. Ferguson

suggested that intelligence should be understood as the ability of learning, whereas Spearman believed that intelligence is an ability to see the dependencies, relations and reasoning. At the end of the last century, this concept was compared only with intellectual capacity. The modern perception of intelligence is understood to be a bit broader as the ability to interact with the abilities created in the motivational, emotional and interpersonal human mind (Rózanowski, 2007, p. 110).

Artificial intelligence (AI) was born together with digital computers. The fundamental figure in the early stage of the development of AI was a mathematician A.Turing, who was one of the computer-creators. Within 1939–1940 he started wondering of building intelligent machines and offered a test for intelligence – the Turing test. The basic dogma of this statement says that the brain is a kind of a computer. It is not important what the artificial intelligent system is designed like providing that it behaves as a human (Hawkins, Blakeslee, 2005, p. 17–19).

The reverse form of the Turing test is used on the Internet as a CAPTCHA, while A.Turing is considered to be the father of artificial intelligence and information technology (Alan Turing). The term “artificial intelligence” was introduced and defined by McCarthy in 1956. According to the researcher, artificial intelligence is a science that includes engineering for the development of intelligent machines, in particular intelligent computer programs. It is seen as a method for solving complicated and complex problems, reasoning and drawing conclusions identical to those taking place in human brains (McCarthy, 2007, p. 2). Whereas Nilsson (2014, p. 2), one of the leading scientists studying artificial intelligence, believes that AI is structured and gives direction to the design of „smart machines” to behave in a way that mimics the intelligence of people. In Furmanek’s work (2018, p. 277) we can find the following definition of artificial intelligence: “This is a field of science dealing efficiently with non-algorithmic issues on the basis of knowledge modelling (...) it is a function of human intelligence; it is learning to teach machinery like humans; it is learning how to teach machinery to do things that people are doing better; it is learning about computer models of understanding, reasoning and action”. Looking at the definitions of artificial intelligence, it can be noted that many of them, to a greater or lesser extent, are similar and relate to the same issues and problems. It is important to unify and summarise this knowledge. Generally speaking, artificial intelligence is a branch of information technology involved in the construction of machines and algorithms that have signs of intelligence. Artificial intelligence is the use of intelligent human behaviour in algorithms and computer programs that can be used and mapped. Word and text recognition programs, translators and simulation games are the examples of such solutions (Rózanowski, 2007, p. 111).

## Development of artificial intelligence

The dynamic development of information and computer technologies makes artificial intelligence applicable in everyday life, and the devices that use it surround us. These are precisely the solutions based on intelligent algorithms in recent years that have influenced the economic development of the countries. The prospect of intelligent machines capable of thinking and decision-making, introduces many concerns and worries among people. They are concerned about significant technological progress and limitations of the importance of the human factor by creating a smart machine, but also having a consciousness and personality (Rózanowski, 2007, p. 109). According to the NASK study, artificial intelligence has an impact on the everyday life of society. The Polish are mainly afraid in the context of the invasion on privacy – more than half of the surveyed (60%), of cyberattacks (37%) and job loss (22%) – the replacement of jobs with intelligent robots. Only one out of six people would benefit from the help of an artificial intelligence device instead of a doctor's specialist, according to the NASK report "An artificial Intelligence in Society and Economy" (Matura, 2019). W Microsoft visionary Coplin announced at the London conference artificial intelligence to be the most important of the world's technology. An artificial intelligence was created while The Olympic Games and it was to write short articles on the basis of the results of the event on its own. D. Coplin believes that artificial intelligence will change the approach to technology as well as the perception of the essence of humanity (Shead, 2016). International IT sector companies have been successfully using artificial intelligence targeting consumers for many years, e.g. **Cortana (Microsoft), Alexa (Amazon) or Siri (Apple)** (Styles-Snapmek, 2018, p. 502–503).

Cortana, Alex, Siri, and Google Assistant, is an intelligent virtual assistant (intelligentvirtualassistant), which is based on artificial intelligence algorithms. Virtual assistants can provide a wide range of services such as information about the weather, news, can set alarms, create a list of things to do and shopping lists, can play music from the streaming services, play radio stations, read audiobooks, play films, operate conversations like ordering food, shopping via Facebook, Messenger, WhatsApp using a chatbot. The reports estimate that an online automatic assistant has reduced the workload by 30% in the case of a customer call service (Virtual assistant, 2020).

Facebook, among others, conducted the study and was forced to close one of the AI systems after the chatbots started objecting the internal codes and speak their own language. Musk, Tesla Chairman, said that artificial intelligence is the greatest threat to mankind. At first the AI bots would communicate with each other using English, but later they created a new language understood only by the AI systems. Facebook AI Reserach Lab (FAIR) scientists notices that the

chatbots created their own language without human help and bots started to communicate in a completely new language (Kunat, 2017).

**The Internet bot** is an application that triggers automatic scripts in the Internet. As a rule, bots carry out tasks that are simple and reproducible to replace man but at a rate that is much higher than it would have been possible for him. Every now and then, their function is to pretend to be a human behaviour. There are also „politically-oriented” bots – these tools can and often are used to control the society in order to control the interaction and can be unpredictable even for their creators (Baron-Polańczyk, 2019, p. 220–221).

Looking at the transformations of the information society, which are rooted in the projects of Japanese scholars and visioners – Umesao and Masudy, there is no way to see that there is another information revolution going on before our very eyes. As a part of this resolution, learning computers are changing human life. The coming era in civilization development will undoubtedly belong to artificial intelligence. Researchers working on the AI are aware that computer can achieve capabilities that can make the AI overgrow human intelligence. Current reports of AI research show that this breakthrough can occur between 2045 and 2060. If this happens, we will face huge changes of unpredictable consequences (Fehler, 2017, p. 69–70).

### **Artificial intelligence – an opportunity or a threat?**

The main threat connected with the development of artificial intelligence is the emergence of supermachines, smarter than people, with strong artificial intelligence (artificial general intelligence AGI), which will be able to develop and improve themselves. In this way the AI will achieve the level of uncontrolled growth, a higher level of human intelligence. Scientists like Gates, Fly or Hawking fear that when we build artificial intelligence smarter than us, the day of annihilation of mankind may come. Warning of unbridled development of AI systems, Hawking points out that thinking machines can create dangerous weapons and the emergence of full artificial intelligence can mean the end of the human kind. The threat may occur at the time when the systems themselves modify their own algorithms and algorithms that would not be possible at the time of self-awareness (Fehler, 2017, p. 79–80). Media reports of not only the benefits, but also the risks associated with the creation of AGI, run smoothly. Kurzweil predicted the moment of development of the civilization where technological progress rapidly accelerated the so-called imminent advent of Singularity (Singularity). According to Kurzweil’s calculations, the singularity will revolutionise the world in about 2045. The researcher believes that an AI, capable of self-perfecting of itself-the supermind will solve the problems that our brains cannot handle. The black scenario seems to be the fact that an AI more powerful than human AI, gets out of human control and becomes the controller of human world

(Fehler, 2017, p. 81). Within the next 100 years AI will be able to do the same as human but more effectively. Many scientists believe that by 2053 a computer will be able to perform a surgeon's work. Thanks to the development of AI it is possible to identify early signs of disease and diagnose cancer. Computers are fluent at translating the speech, and Yahoo language processing system even detects sarcasm. The algorithms write music, make jokes, draw pictures and even create scripts for movies. Artificial intelligence helps to control ground and air traffic. Deep neural networks, looking at faces, can identify people's sexual orientation as it is stated in the result of study at Stanford University (in 2047..., 2020).

Thanks to artificial intelligence everything is the fastest, the easiest, the simplest and the cheapest. An intelligent fridge is able to predict the need of ordering the products which are to run out, on the basis of the conversation with its user. Internet shops create individual shopping profiles on the basis of previous purchases or searching analysis, thanks to which the customer gets the offer he expects and does the shopping willingly (Suwart, 2028). Artificial intelligence may soon replace many lawyers involved in control of confidentiality agreements. LawGeex is a programme established in 2014 by an AI specialist. There were twenty lawyers in two-month trials with the programme. The accuracy of the programme was 94% and of people only 85%. The most shocking is the time at which the task was done. While the workers needed about 92 minutes, artificial intelligence needed only 26 seconds (Mazurek, 2018). A real artificial general intelligence could fool people in such a way that they wouldn't know if they were talking to a robot or a human being. A Turing Test 2014, a chatbot pretending to be a 13-year-old child deceived a third of the judges. E. Musk predicts that AGI will be similar to an immortal dictator that we will never be able to escape.

## **Conclusion**

Today, the impact of AI development is dominated by the voices of doubt and disbelief. We are afraid of the progress, and we suspect technologies of false intent, the vision of artificial intelligence itself contributed to a vision of brains trapped in vessels that are looked after by infirm constructors (Kutk, 2018, p. 188). The best solution is to construct the algorithms that can be checked at every stage of their creation. Let's imagine that they are built to support people in decision-making, not to think and instruct people what they should do (Fry, 2018, p. 258). Artificial intelligence is a technology that offers great opportunities. However, its development involves huge dilemmas and threats. With the development of robotics and artificial intelligence, it will be necessary to define android rights. In the near future, we also need to be aware of their rebellion. It is becoming increasingly common that a change May come that the world has never experienced before and is not ready for.

## Literature

- Alan Turing. Retrieved from: [https://www.encyklopedia.edu.pl/wiki/Alan\\_Turing](https://www.encyklopedia.edu.pl/wiki/Alan_Turing) (30.01.2020).
- Baron-Polańczyk, E. (2019). Boty, trolle i fake news – uważaj, kto cię uczy! *Edukacja – Technika – Informatyka*, 2(28), 218–225. DOI: 10.15584/eti.2019.2.32.
- Blakeslee, S., Hawkins, J. (2005). *Istota inteligencji*. Gliwice: Onepress.
- Czy w 2047 roku sztuczna inteligencja będzie inteligentniejsza niż ludzie? Retrieved from: <https://brandsit.pl/czy-w-2047-roku-sztuczna-inteligencja-bedzie-inteligentniejsza-niz-ludzie> (2.02.2020).
- Fehler, W. (2017). *Sztuczna inteligencja – szansa czy zagrożenie?* Retrieved from: [http://bobolanum.pl/images/studia-bobolanum/2017/03/StBob\\_2017\\_3\\_Fehler.pdf](http://bobolanum.pl/images/studia-bobolanum/2017/03/StBob_2017_3_Fehler.pdf) (2.02.2020).
- Fry, H. (2018). *Hello word. Jak być człowiekiem w epoce maszyn*. Warszawa: Wyd. Literackie.
- Furmanek, W. (2018). Piąta rewolucja przemysłowa. Eksplikacja pojęcia. *Edukacja – Technika – Informatyka*, 2(24), 275–283. DOI: 10.15584/eti.2018.2.38.
- Knapik, R. (2018). *Sztuczny Bóg. Wizerunki Technologicznej osobliwości w (pop)kulturze*. Poznań: IKP.
- Kunat, K. (2017). *Bunt maszyn: Facebook wylacza jeden z systemów sztucznej inteligencji, bo... stworzyła ona swój własny język*. Retrieved from: <https://www.tabletowo.pl/bunt-maszyn-sky-net-facebook-boty> (2.02.2020).
- Matura, J. (2019). *Polacy obawiają się Sztucznej Inteligencji*. Retrieved from: <https://www.wprost.pl/nauka/10262094/polacy-obawiaja-sie-sztucznej-inteligencji.html> (29.01.2020).
- Mazurek, A. (2018). *Najnowsze badania pokazują jak sztuczna inteligencja pokonuje prawników*. Retrieved from: <https://generacjasmart.pl/2018/05/21/sztuczna-inteligencja-pokonuje-prawnikow> (2.02.2020).
- McCarthy, J. (2007). *What is Artificial Intelligence?* Retrieved from: <http://jmc.stanford.edu/articles/whatisai/whatisai.pdf> (30.01.2020).
- Nilsson, J. (2014). *Principles of Artificial Intelligence*. Palo Alto: Morgan Kaufmann.
- Różanowski, K. (2007). Sztuczna inteligencja rozwój, szanse i zagrożenia. *Zeszyty Naukowe Warszawskiej Wyższej Szkoły Informatyki*, 2, 09–135.
- Shead, S. (2016). *Sztuczna inteligencja to najważniejsza z obecnie rozwijanych na świecie technologii*. Retrieved from: <https://businessinsider.com.pl/technologie/nowe-technologie/sztuczna-inteligencja-to-najwazniejsza-rozwijana-obecnie-technologie/qscny5j> (2.02.2020).
- Strelau, J. (1997). *Inteligencja człowieka*. Warszawa: Żak.
- Stylec-Szromek, P. (2018). Sztuczna inteligencja – prawo, odpowiedzialność, etyka. *Zeszyty Naukowe Politechniki Śląskiej*, 123, 501–509.
- Suwart, K. (2018). *Czym kupi nas sztuczna inteligencja?* Retrieved from: <https://www.money.pl/impact18/czym-kupi-nas-sztuczna-inteligencja,105,0,2407785.html> (2.02.2020).
- Virtual Assistant*. Retrieved from: [https://en.wikipedia.org/wiki/Virtual\\_assistant](https://en.wikipedia.org/wiki/Virtual_assistant) (2.01.2020).