

HUMAN-LIKE AI

Papko K.A.

Belarusian State University of Informatics and Radioelectronics, Minsk, Republic of Belarus

Malikova I.G. - senior lecturer of the Department of Foreign Languages

Annotation. The analysis of the similarities between rapidly developing AI technologies and human brain is provided. Common features between humans and modern AI are revealed. Possible ways of using AI of different types in the future are predicted.

Keywords: artificial intelligence, deep learning, self-awareness, human-like.

Introduction. Artificial Intelligence (AI) is a very fast-growing area of IT one of the main tasks of which is to automate processes that require the collection, analysis and use of information. While some tasks require data processing by some algorithm, others need creativity. Advances in neuroscience and cognitive science could provide insight into how the human brain works and help develop new models for human-like AI. Studying brain-inspired computing and developing neuro-morphic chips that mimic the structure and function of the brain develop a field of machine learning called «deep learning». There is an approach to combining multiple AI systems to create hybrid AI. This approach involves integrating various AI techniques such as deep learning, reinforcement learning and evolutionary algorithms to create a more powerful and versatile AI system. Hybrid AI is often used in complex applications such as autonomous vehicles or medical diagnostics, an approach used in the most advanced AI.

The use of artificial neural networks allows computers to think in a very similar way to humans. The question arises whether a machine can become aware of itself and form a personality.

Main Part. The biggest challenge in creating AI that is closer to human intelligence is that the human brain is the most complex and least understood object in biology. The brain contains about 100 billion nerve cells, each of which is connected to other cells more than 1000 times, forming a network of complex interactions. Additionally, the brain has the unique ability to learn and adapt to new situations, making it a difficult object to study and model. Due to the difficulties in interpreting human thinking for computing, the researchers are divided into two groups with two opposing approaches in creating Artificial Intelligence «Neats and Scruffies» [1]. At the end of the 20th century the widespread use of a careful approach was adopted. To date there are chatbots whose messages are so similar to those written by a person that only a specialist will be able to find the difference. For example, Google's LaMDA AI passed the Turing test in the summer of 2022. It is worth mentioning that there are companies developing AI, the purpose of which is to coordinate the movements of several limbs. Boston Dynamics known for their dog-like robots and robotic arms are actively developing new robots capable of moving on more complex surfaces.

The emergence of the first human-like AI without self-awareness is a matter of time. There have already been attempts to create something similar, but such robots didn't have sufficient coordination of movements, and their speech wasn't similar to that of a human.

One of the most advanced technologies for AI at the moment is Tesla's Dojo Technology [2]. Dojo chips allow AI to process data extremely quickly, which results in an insane difference in speed between human thinking and AI thinking. On the one hand, this is good because this speed allows machine learning to work at a fast pace but this is also one of the main differences between a person and a machine.

If a century ago it was quite easy to separate intelligent life forms living on Earth from unreasonable ones, then the emergence of technologies that so well imitate people can cause conflicting conclusions. Probably the main criterion for the recognition of AI as an intelligent form of life will be self-awareness.

For convenience, AI types can be divided into 4 groups [3]:

- Reactive machines

- Limited memory
- Theory of mind
- Self-awareness

AI can also be divided into 3 other categories [4]:

- Narrow AI
- General AI
- Super AI

Narrow AI will not be able to imitate a person due to its limitations, so much attention should be paid to general AI. There are many things that are instinctively understandable to humans, but for AI they will be difficult to comprehend.

The technologies of our time are still not advanced to create a strong AI capable of interpreting such a complex concept as «common sense», but in the near future when the computing power of technology increases it will be possible. To train AI with the help of deep learning a huge amount of data is required. One of the possible sources of this data can be a human's brain. Connecting special chips to the human brain can allow AI to receive huge amounts of data that contribute to improving the accuracy of performing any human-like actions.

The idea is that the chips will be able to communicate with the brain's neurons, allowing for a seamless connection between the human brain and technology. This technology has the potential to revolutionize the way we interact with computers and other devices, as well as provide solutions for people with disabilities. The ultimate goal is to create a symbiotic relationship between humans and technology enhancing our cognitive abilities and improving our quality of life.

The development of chips for people is carried out in companies engaged in the development of electronic devices and technologies such as Intel, Qualcomm, Texas Instruments, NXP Semiconductors, Infineon Technologies, etc. It is very important to note that working with the brain is risky, no one human will be able to work with such small objects as dendrites. For instance, the company Neuralink uses a special robot for such operations [5]. At the moment there are no chips designed to be introduced into the human body that have been approved for medical use.

Conclusion. In general, the use of general AI has a huge potential. Such technology can not only help specialists in their work but it can also help to cope with stress, loneliness. When used correctly, AI can help raise children, so parents will have more free time. The most important thing is that the lack of self-awareness allows you to make robots safe. Also, AI that imitates the behavior of a balanced and friendly person will have a good impact on society, such technologies will contribute to the treatment of mental illnesses, strengthen mental health. On the other hand, a strong AI with self-awareness can become a new, artificially created form of intelligence which can further affect humanity as a whole.

References

1. Wikipedia [Electronic resource]. – Mode of access: https://en.wikipedia.org/wiki/Neats_and_scruffies. – Date of access : 20.03.2023.
2. Tesla [Electronic resource]. – Mode of access: https://tesla-cdn.thron.com/static/MXMU3S_tesla-dojo-technology_1WDVZN.pdf?xseo=&response-content-disposition=inline%3Bfilename%3D%22tesla-dojo-technology.pdf%22. – Date of access : 22.03.2023.
3. Coursera [Electronic resource]. – Mode of access: <https://www.coursera.org/articles/types-of-ai>. – Date of access : 20.03.2023.
4. Nextbridge [Electronic resource]. – Mode of access: <https://nextbridge.com/three-types-of-artificial-intelligence/>. – Date of access: 24.03.2023.
5. Neuralink [Electronic resource]. – Mode of access: <https://neuralink.com/robotics/>. – Date of access : 22.03.2023.