

Artificial Intelligence Today

Salihova Venera Karimjanovna

Teacher Of the Department of Mathematics And General Economics In Tsuos

Abstract. This article describes the history of developments in the field of artificial intelligence, determines the course of development of the science of artificial intelligence, reviews the status of various research and development systems at the current time, lists the main areas of research work in the field of artificial intelligence, presents the possibilities of using AI in various fields of human activities.

Keywords: Artificial intelligence, technology, neural systems, machine learning.

Artificial intelligence provides huge benefits in the digital age, but it can also significantly undermine the security and freedom of choice of users around the world. Multi-stakeholder efforts need to be intensified to build global collaboration on artificial intelligence to help build global capacity to develop and use artificial intelligence in a way that is credible, human rights-based, safe and sustainable, and promotes peace.

The human mind is a complex and complex system. The question of studying and reproducing this mechanism has always been acute. And in today's time - it is very important. The formation of modern computer technology has created a large number of cases that are related to:

- human speech, the ability to learn to recognize and synthesize it;
- development of technical vision mechanisms that will be able to recognize people's faces;
- the ability to teach cars to drive independently without human intervention, etc.

Such systems that demonstrate and follow human behavior are called artificial intelligence, or "AI" for short. The study of artificial intelligence is an important direction in modern science.

What is artificial intelligence? One of the definitions says that artificial intelligence is a technology that contains a set of tools that help a computer, based on the data studied, give answers to questions, and also draw conclusions based on this, i.e. study that information that was not added to it by the creators of this very computer. The section of science called "artificial intelligence" is part of the complex of computer science, and the technologies developed on its basis belong to the IT-sphere.

Accordingly, under the artificial intelligence system, various devices or a set of devices that use AI technologies in their work are considered. At the same time, in many cases, before obtaining the result, the algorithm for solving the problem is unknown.

Modern artificial intelligence searches for information on the Internet, can identify certain diseases, etc. The participation of such artificial intelligence can improve life, make it more comfortable, and work much more efficient. This kind of AI will become much more developed over time; at present, artificial intelligence performs some types of work better than humans. It should be noted that during the development of AI systems, a lot of preparatory work is carried out. The machine must be taught such things as information retrieval, speech detection and recognition, human language

processing, face recognition, and so on. Now artificial intelligence cannot do many things at the same time, but these technologies are actively progressing, and over time, AI will be able to become advanced enough to compare in terms of development with a person.

To provide artificial intelligence, scientists began to study the issue of knowledge representation - this made it possible to develop expert systems (ES, systems that help make a decision by extracting knowledge from a database); an important goal was the development of methods for self-learning machines; as well as experiments with copying the work of the human nervous system. This made it possible to create artificial neural systems (ANS). As a result, the basis of all research and development in artificial intelligence is the principle of simulating the processes of the human mind using a computer. Artificial intelligence as a discipline relates to the cognitive sciences, i.e. to those teachings that are associated with the assimilation of knowledge.

It is expected that artificial intelligence, which will be comparable to human, will have a wide scope and will fundamentally change people's lives.

In turn, systems that were created at the first stage of the development of artificial intelligence are being developed on the basis of modern technologies - machine translation systems, which now show decent results, expert systems, etc. For example, in 2006, Google* released its Google* Translator machine translation system. A database of a trillion words that were in scattered pieces of Internet content. This base became a "training set" with which the system calculated which word would follow which word. The Google* translation of the system is quite accurate, but not perfect. In 2012, it had a database of 60 languages, and is even capable of accepting voice input in 14 languages.

What is happening in the field of artificial intelligence now?

1. A large number of scientific works on artificial intelligence are devoted to computer vision. This direction is connected with the formation of deep learning. For the first time, machines have learned to perform certain visual tasks better than humans. For example: the accuracy of prescribing cancer treatment, which demonstrates the IBM Watson computer, is 90%, i.e. 40% more accurate than the quality of diagnostics performed by doctors.
2. One of the main concepts in the field of artificial intelligence is "machine learning", or in other words "statistical learning". The basis of this technology was laid by Arthur Samuel in the late 50s of the last century, when he proposed to train machines without the use of specifically programmed algorithms. In other words, a program learns by making changes that take place in it that allow the computer to perform a particular task better next time.

Machine learning is a technology when a database of training examples is first formed, according to which the machine then learns and can correctly identify and systematize the incoming information. In other words, machine learning is a combination of algorithms and methods that allow machines to be taught to make decisions based on the information they have. As a result, the program is self-learning. Thanks to this technology, based on a huge number of photographs, the machine is able to recognize faces, while it does it more correctly than a person. The really big breakthrough in computer learning came in 2016, when Google*'s "AlphaGo" program beat the overall champion, Lee Sedol, in the game of Go. The program won the go thanks to the technology of "deep machine learning" or "deep learning". This technology is currently the most relevant direction of AI evolution. Usually the term

"deep learning" refers to artificial neural networks where more than one hidden layer is applied, thus the term "deep" also means a multi-layer neural network architecture. An exceptional feature of deep learning is that the computer itself looks for features of something that are easiest to separate one class of objects from another, and also organizes them in a hierarchy: more complex ones consist of simpler ones. As a result, the machine learns from examples and from its own experience. The AlphaGo program reviewed and analyzed 29 million moves in 160,000 games of professionals, after which two copies of AlphaGo began to play with each other, including the played games in the base of the training set. Having played millions of games, AlphaGo has learned to calculate the most advantageous positions of the stones on the board to win.

The widespread use of smartphones has led to a large number of applications of speech assistants that use elements of artificial intelligence. Such applications help a person in his everyday life. Their group includes well-known programs such as Apple's Siri, Microsoft's Cortana, Google* Now by Google*, Amazon's Echo, Yandex's Alice, etc. The number of people using these assistants more than ten million. In addition, these programs are also used on tablets, laptops and PCs. Over time, these applications will become more intelligent.

An important direction in the field of artificial intelligence is the disclosure of the structure of the human brain. Brain research is the so-called reverse engineering, when first of all it is necessary to study the human brain to the smallest detail, and only then to present how the brain works in the form of hardware and software. As a result, researchers want to develop a machine with human-level intelligence. Now there are several large projects that have planned to achieve this result. The imitation of the human brain is devoted to the international project "Human Brain Project". This project is being led by a team from the Swiss Federal Polytechnic School, which is attended by more than 100 scientific groups. The aim of the project is to combine all the information about the human brain into a single prototype of the machine brain. The project is expected to be completed in 2023.

Previously, it was assumed that one of the main issues in the field of artificial intelligence is the reality or unreality of modeling the human mind, otherwise, whether AI can gain consciousness. Now this task no longer seems hypothetical and most likely has great value for predicting the near future world. The history of the development of artificial intelligence, stretching for more than half a century, proves to people that there are no significant and serious obstacles to achieving this fact. Apparently, artificial intelligence can be created not on the basis of artificial neural networks. However, neural networks are the most obvious and affordable solution created by nature

Bibliography:

1. Azimbaev, D.Zh. Artificial intelligence and machine learning / D.Zh. Azimbaev, I.A. Kuan, I.V. Gulida // Bulletin of Modern Research. - 2019. - No. 1.3 (28). - S. 6-7. - <https://elibrary.ru/item.asp?id=36885190>
2. Babich, N.A. Analysis of the effectiveness of the use of an interference neural network for solving the problem of pattern recognition / N.A. Babich // Bulletin of Modern Research. - 2019. - No. 2.3 (29). - S. 5-8. - <https://elibrary.ru/item.asp?id=37037590>

3. Baynov, A.M. The role and place of robotics in the modern world / A.M. Bainov, R.S. Zaripova // Science and education: new time. - 2019. - No. 1 (30). - S. 93-95. - <https://elibrary.ru/item.asp?id=37106314>
4. Barratt, D. Mankind's Last Invention: Artificial Intelligence and the End of the Homo Sapiens Era / James Barratt; [per. from English. Natalya Lisova]. - 2nd edition. - Moscow: ANF, 2019. - 396 p. 6. Vasilyeva D. Trends in the development of artificial intelligence. - Access mode: http://robotoved.ru/iskusstvennii_intellket_development/
5. Blanutsa, V.I. Prospects for economic and geographical research in the field of artificial intelligence / V.I. Blanuts // Proceedings of the Saratov University. New episode. Series: Earth Sciences. - 2019. - V. 19, No. 1. -C. 4-11. - <https://elibrary.ru/item.asp?id=37136540>