Автор: Zaripova Z.O.,Qodirov F.E.
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APPLICATION OF ARTIFICIAL INTELLIGENCE IN MEDICINE

Zaripova Ziyoda Odiljon qizi

Shahrisabz city of Kashkadarya regionSchool 10 English teacher

Qodirov Farrux Ergash o'g'li

Student of Master degree, e-mail: Farruxbek0209@mail.ru

Karshi branch of Tashkent University of Information Technologies named after Mohammed al-Khwarizmi

Annotation: The article discusses the concept of artificial intelligence, its relevance and

prospects of application in the field of medicine. The main capabilities of artificial intelligence are briefly described, as well as aspects that constitute a barrier to the further spread and development of artificial intelligence. The practical results of the use of artificial intelligence in medicine are analyzed.

Keywords: Artificial Intelligence, medical research, expert systems, neural networks, medical data.

Currently, artificial neural networks and problems theoretical research and practical applications for parallel work are developing rapidly. Neural networks can solve large-scale practical problems that do not have an analytical description and are given only on the basis of experimental data. The subtlety of the algorithms in the synthesis of neural networks is the explanation for this decision. Most researchers are working on a solution to this problem. Since the methods used for this purpose are heuristic, the user must make the right decision based on them.

Medicine is a field of science where information is presented on a massive scale. Every day there is new knowledge generated by specialists in this industry. Today, artificial intelligence is one of the fastest growing segments of the global healthcare market. Artificial intelligence is the ability of a machine to model, imitate the rational behavior of a real person.

Based on perceived information that undergoes various changes, a machine must perceive changing information and make optimal decisions. In matters of diagnosis, choosing the right method of treating patients, artificial intelligence based on all medical information can be of

help to the doctor. Today, two technologies of artificial intelligence are most widely used, namely expert systems (ES) and neural networks (NS). The use of expert systems is gradually disappearing, while neural networks have established themselves in the market due to their ability to learn. The mechanism of NS operation is based on the principle of biological neural networks. If we computerize the NS, we get a graph that has three or more layers of neurons connected in layers in one way or another. All compounds have weights, which in turn are of great importance in the process of learning NS. In the learning process, input neurons are fed data that is processed by neurons located on the inner layer. Specific new values □□ are obtained on the neurons of the output layer. The reliability of the NS response depends on the amount of data received at the input, based on which the doctor can make one or another decision. The work of artificial intelligence consists in learning from an array of reliable data and in finding formulas and dependencies that a person is not able to determine.

The use of artificial intelligence today is quite versatile, with its help, medical diagnostics are carried out. An example is the possibility of analyzing an ultrasound examination of the fetus during pregnancy or tracking the symptoms of autism and Parkinson's disease. Based on the use of artificial intelligence, it became possible to conduct remote medical consultations. The advent of artificial intelligence-based services made it possible to predict and identify patients who are at high risk of re-visiting the hospital within a certain period from the time of discharge. With the help of systems based on artificial intelligence, operations are carried out. One of the "hands" of the robot holds a video camera, which provides the image transmission of the operated area. The other two in real time reproduce the movements made by the surgeon, and the fourth “hand” acts as an assistant to the surgeon. There is the possibility of minimally invasive surgery. The use of artificial intelligence in medicine allows you to most accurately model their composition when creating drugs. When storing the results of millions of molecular interactions, the formula for the most effective drug is created.

Regardless of all the advantages of using artificial intelligence in medicine and great prospects, there is a range of factors constraining the development. Such factors include a lack of qualified specialists, a lack of structured data, a low level of trust on the part of patients and medical personnel, and the need for enhanced data protection. With the joint work of technology companies and medical organizations, minimizing the above factors can

dramatically increase the possibilities of using this technology in the healthcare sector.

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