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ARTIFICIAL INTELLIGENCE AND AR/VR TECHNOLOGIES

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Abstract

The article provides extensive information about artificial intelligence, its history, types, augmented reality, virtual reality, the role of artificial intelligence in human life, and its importance in the field of education. and they are scientifically based.

Introduction: Intellect (Latin intellectus - sense, perception, awareness, understanding) or mind is the quality of the psyche consisting of the ability to adapt to new situations, learn and remember based on experience. Both understand and apply abstract concepts and use their knowledge to manage their environment.

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Artificial intelligence is a special branch of computer science that deals with the creation of computer systems with the capabilities usually associated with the human mind: language understanding, teaching, discussion, problem solving, translation, and similar capabilities. Artificial intelligence (AI) allows computers to learn from their experiences, adapt to given parameters, and perform tasks previously only possible for humans.

In many AI implementations—from computer chess players to unmanned vehicles—deep learning and natural language processing capabilities are critical. Thanks to these technologies, computers can be "taught" to perform certain tasks by processing large amounts of data and identifying patterns in them.

In the early 1980s, computational scientists Barr and Feigenbaum proposed the following definition of artificial intelligence (AI):

"Artificial intelligence is the field of computer science that deals with the development of intelligent computer systems, systems that have the capabilities we traditionally associate with the human mind and the ability to understand language, learn, reason, is to solve problems and to be able to solve other problems".

Later, a number of algorithms and software systems began to be called artificial intelligence, their distinguishing feature is that they can solve some problems like a person thinking about solving them.

The main characteristics of SI are the ability to understand language, learn, think, and most importantly, act.

SI is a set of related technologies and processes of high quality and rapid development, such as:

- natural language text processing machine learning expert systems;
- virtual agents (chatbots and virtual assistants).

As of 2021, researchers have used the following classification of types of SI: Artificial Super Intelligence (SSI) is a hypothetical artificial intelligence that can not only replicate, but also exceed, the maximum capabilities of humans. Believers in SSI believe that it has the power to penetrate a person's thoughts and emotions in order to bend them to their will. Here, for example: futuristic horror stories or the real future of artificial intelligence

Also, hypothetically strong or general SI (Artificial General Intelligence, SUI) is one step lower than SSI in terms of rationality, and proponents of this type of SI are at least able to function in their beliefs. limited by the ability to create machines.

Outdated general definitions of artificial intelligence:

SI develops machines with intelligent behavior. (J. McCarthy). SI is the ability of digital computers to solve problems involving highly intelligent humans. (Britannica)

SI is developing intelligent computer systems with abilities that we traditionally associate with the human mind: understanding language, learning, reasoning, problem solving, etc. (Feigenbaum)

SI is the science of how to train computers to do what humans are currently better at. (Elaine Rich)

The rapid development of information and communication technologies has created new problems for the "rapid development of the virtual sphere".[1]

Artificial intelligence is one of the important components of modernity. Digital economy paradigms, data processing and analysis are accelerating due to the creation of new systems due to the functionality and execution speed of SI.

SI works by combining large amounts of data with fast, iterative processing capabilities and intelligent algorithms that allow programs to automatically learn from patterns and features in the data. SI is a complex discipline with many theories, methodologies and technologies. Its main directions are:

Machine learning is a field of study that studies algorithms trained on data to find patterns. It uses neural networks, statistics, operations learning, and more. uncover useful information hidden in data;

there are no clear programmed instructions telling where to look for information and what conclusions to draw.

Neural network is one of the methods of machine learning. This is a mathematical model built on the principle of organization and operation of biological neural networks - networks of nerve cells of a living organism, as well as its software or hardware support.

Deep learning uses complex neural networks with many neurons and layers. Increasing computing power and improved techniques are used to train these deep neural networks as well as to detect complex patterns in huge data sets.

Cognitive computing is a branch of artificial intelligence whose task is to provide a natural interaction process between a person and a computer similar to the interaction between people. The ultimate goal

of SI and cognitive computing is to emulate human cognitive processes through a computer by interpreting images and speech by providing appropriate responses.

Computer vision relies on deep learning for pattern recognition and image and video recognition. Machines already know how to process, analyze and understand images, as well as take photos or videos and interpret the environment.

The result of research on "artificial intelligence" is the challenge of trying to understand the workings of the brain, unlocking the secrets of the human mind, and creating machines with a certain level of human intelligence. The main possibility of modeling intellectual processes comes from the fact that any function of the brain, any mental activity described in a language with strict unambiguous semantics using a limited number of words, can in principle be transferred to an electronic digital computer.[2]

Let us summarize some results. First, it should be noted that in recent years there has been an increasing trend in the number of publications on AI and politics. However, most of them are only indirectly related to the central problems of political science. Publications on this topic are often found in journals in technical sciences, philosophy of science and technology, digital communication journals, etc. There is every reason to believe that in the near future we will witness a significant increase in the interest of political scientists in artificial intelligence technologies.

Currently, artificial intelligence consists of algorithms and software systems designed to perform various actions, and it can handle several tasks that the human mind can perform.

In the 1990s, a new chapter was opened in the development of artificial intelligence. In 1997, an IBM computer named Deep Blue became the first computer in history to beat world chess champion Harry Kasparov.

Another bright example of artificial intelligence is the IBM Watson supercomputer, which, based on its database, answers questions in a specific language. Also, programs such as Siri, a mobile assistant that has become a constant companion of many people, and Prisma, a photo processor, can be noted as one of the achievements of Artificial Intelligence. By now, artificial intelligence has become widely popular and covers almost all aspects of our daily life. For example, residents of Inchuan in China do not need bank cards. All processes related to calculations are carried out by artificial intelligence by clarifying the image of a person's face.

Benefit or harm?

The debate about artificial intelligence has been going on for nearly 50 years. Experts have not yet come to a conclusion. Some worry that mass unemployment could rise as a result of their increasing popularity. Another group of experts advocates a positive attitude towards Artificial Intelligence. Even among IT billionaires, there are different views.

In particular, the founder of SpaceX, Elon Musk, is convinced that artificial intelligence will destroy the entire civilization.

According to Musk, "Artificial intelligence is the main threat to human civilization. Artificial intelligence will cause massive labor problems. The reason is that robots can do everything better than us. As a result of the pursuit of advanced technologies, companies they may be blind to the dangers posed by artificial intelligence."

Also, the head of Microsoft, Bill Gates, will touch on its damage.

"In a few decades, when robots start doing most of the work, AI will become so powerful that it will eventually start to worry us. I agree with Elon Musk on this point. But why does this question not worry others?" I don't understand," says Gates.

Not surprisingly, by "others," Gates meant Facebook owner Mark Zuckerberg. Because Mark expressed his positive attitude towards Artificial Intelligence: "New technologies can always be created for good or evil purposes. We will see the positive result of the wide spread of Artificial Intelligence in the next 5-10 years. ", he objected to Elon Musk's opinion.

Today, in some countries, the use of robot nurses, driverless vehicles, order delivery drones placed Even some tasks of police officers are being performed by special robots. Scientists are trying to make their appearance as similar as possible to humans.

In addition, artificial intelligence has already become a constant assistant of journalists. For example, robots "working" at the Associated Press write financial reports. The use of artificial intelligence has increased the number of news stories in this publication from 300 to 4,400 each quarter.

According to Swiss Re insurance company, 4.7 million people may be unemployed by 2020. It also said that unemployment could threaten cashiers, postal workers, accountants and office workers. Artificial intelligence can easily perform their task.

Artificial Intelligence - In Medicine

In addition to the above, the lack of trust of the majority of consumers in robots is one of the obstacles to the popularization of artificial intelligence. It will take some time for people to accept self-driving cars or airplanes, of course. However, the opposite is true for the younger generation, who are growing up surrounded by modern technologies, and they are not so worried about this process.

Despite all the objections and criticisms, artificial intelligence continues to develop and help people. Its importance is increasing, especially in medicine. Now robots are able to perform relatively complex surgical procedures. The unique collaboration of robot-doctors with medical personnel has greatly increased efficiency.

Medtronis, in cooperation with IBM, is developing a special program for patients with diabetes. This software will be able to detect an emergency drop in blood sugar 3 hours before. For this, medical data of 600 anonymous patients with this disease were studied. This means that now people will have the opportunity to regularly monitor their health through special programs on mobile devices.

As you can see, the role of artificial intelligence in our life is deepening day by day. The debate over whether they are a victory or a defeat for mankind will continue for a long time. Most importantly, in the words of the fictional writer Ishaq Azimov, the motto of creating robots should be to avoid harming people.

8 facts about artificial intelligence

Artificial intelligence is a special branch of computer science that deals with the creation of computer systems with the capabilities usually associated with the human mind: language understanding, teaching, discussion, problem solving, translation, and similar capabilities.

Although scientists are eager to experiment with artificial intelligence (AI), many people are wary of the phenomenon. Even Tesla CEO Elon Musk has called it a "major threat" to humanity and a possible source of war and unemployment.

Let's take a look at 8 interesting facts about artificial intelligence.

Fact 1. The satisfaction and time limits of the service of artificial intelligence.

Fact 2. It can adapt to disturbances

American scientists experimented with a robot equipped with artificial intelligence. They found that it will continue to work even if it is seriously damaged. During the experiment, the "injured" robot was able to adapt to at least six different injuries, including the complete loss of two lower limbs, and the

robot "arm" was able to adapt to at least 14 types of injuries, including the failure of two of its engines took

Fact 3: By inheriting the beliefs and stereotypes of the creators of artificial intelligence takes

The artificial brain draws its conclusions based on the data that is initially fed into it, so it is characterized by racial and gender prejudices. Studies have shown that some computer facial recognition systems have confused the gender of black women 35% of the time and only 0.8% of white men. This is due to the fact that 75% of the photos in the databases used by artificial intelligence are men, and 80% of them are white.

Fact 4. Artificial intelligence can answer questions

The most powerful AI-powered text generator to date, GPT-2 from OpenAI can write entire paragraphs without making mistakes. At the same time, the system will answer questions correctly if they are related to general knowledge.

Fact 5. Artificial intelligence is capable of learning everything a human can do.

Researchers hope that by 2060, artificial intelligence will be able to perform almost all human tasks independently. For example, Oxford University scientists, in collaboration with Google's DeepMind Artificial Intelligence Unit, taught the system to read lips better than humans. Watch, Attend and Spell detects the difference between words with similar lip movements and analyzes up to 50% silent speech. For lip readers, the same figure is only 12%. The system was trained by watching BBC news programs. Watch, participate, and spell over 17,500 words after learning 118,000 sentences from the video.

Fact 6. Robots with artificial intelligence already work as announcers, fly into space, patrol ships and play football

A robotic announcer reads the news at China's state news agency Xinhua. It is based on the life-like prototype of Zhang Wanwei. The robot can not only read news texts, but also learn from its human counterparts by imitating their facial expressions and speech patterns.

The CIMON 2 robot communicates with astronauts on the ISS: it uses the Watson IBM system as its artificial intelligence. An update with the Watson Tone Analyzer service allows CIMON 2 to understand and respond to people's emotions. The CIMON project was developed by the German Aerospace Center in cooperation with Airbus and IBM.

Norway's Aker BP uses a robot dog called Spot (developed by Boston Dynamics) to guard one of its vessels. Modern robots even know how to play football: such models were created in the artificial intelligence group at the Free University of Berlin.

Fact 7: Artificial intelligence will help fight the coronavirus

Around the world, artificial intelligence-based systems help track infected people, collect information about the virus and search for a vaccine. For example, the Israeli company Vocalis Health, in cooperation with the Israeli government, has developed a technology for detecting the disease of COVID-19 based on sound spectrum analysis. In addition, artificial intelligence robots are used to patrol public spaces (Singapore). Using the Megvii ReID technology, a system has been developed in China to identify people with high fever in the human stream.

Fact 8: Artificial intelligence is saving the planet and providing people with food

NatureServe, a non-profit organization dedicated to raising awareness of biodiversity conservation in the United States, Canada and Latin America, has partnered with analytics company SAS as part of the global Data for Good initiative. Artificial intelligence is used to collect information about plant and animal species, to determine their location and concentration of populations.

The Food and Agriculture Organization of the United Nations (FAO) also recognizes the advantages of artificial intelligence: they "intelligence" information about weather conditions, pests, soil moisture and other important indicators taking into account, they believe that it will allow farmers to plan work more effectively.

It is no exaggeration to say that the above-mentioned fields of artificial intelligence are important areas of human activity today. Artificial intelligence is widely used not only in the listed fields, but also in other areas and fields. In conclusion, artificial intelligence has a great role in society, industry, science and human life.

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