HISTORY OF ARTIFICIAL INTELLIGENCE, STAGES OF DEVELOPMENT AND ROLE IN HUMAN LIFE

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ABSTRACT

This article analyzes the concept of artificial intelligence (AI), its history of emergence, stages of development and role in modern society. The article highlights the importance of AI technologies in scientific and technical progress, their role in facilitating human activity and possible social problems. It also analyzes the historical stages of development - initial ideas, the period of scientific formation, stagnation ("winter of artificial intelligence") and the modern era. The results of the study show that artificial intelligence is entering all aspects of human life and its proper management is an important factor in future development..

In recent years, technology has developed rapidly and has penetrated almost all aspects of human life. One of the most important areas of this process is artificial intelligence (AI). Artificial intelligence is a technology that models the ability of computers and software systems to think, learn, solve problems, and make decisions that are characteristic of human thinking. It is actively used not only in industry, medicine, education, and economics, but also in our everyday lives. The idea of artificial intelligence was formed in ancient times. Man has always dreamed of creating a thinking machine similar to himself.

Initial ideas (until the beginning of the 20th century).

In the mythologies of antiquity, there were legends about "artificial people". For example, the ancient Greeks had stories about "automata". However, scientifically, the idea of AI began to take shape in the 20th century. In the 1940s, Alan Turing proposed the "Turing test", creating the first scientific basis for the ability of machines to think.

Formation as a scientific discipline (1950-1970s).

In 1956, the term "Artificial Intelligence" was first used at a conference held at Dartmouth University under the leadership of John McCarthy, Marvin Minsky and Claude Shannon. From that year, AI was recognized as an independent discipline.

During this period, the first artificial intelligence programs were created - projects such as Logic Theorist and ELIZA. They were programs that were able to partially model human logical thinking.

The “winter” period and revival (1970–2000).

In the 1970s and 1980s, there was a period of stagnation in the development of AI, called the "winter of artificial intelligence". The reason was that the computer technology of that time was not yet ready to execute complex algorithms.

However, in the 1990s, as a result of the increase in computer power, the expansion of the Internet and databases, AI entered a new stage of development. The defeat of the world chess champion Garry Kasparov by IBM's Deep Blue supercomputer in 1997 became a turning point in the history of technology.

Modern stage (2000 to present).

Today, artificial intelligence is actively developing on the basis of technologies such as deep learning, neural networks, big data, autonomous robots. Companies such as Google, Microsoft, OpenAI are achieving revolutionary achievements in this area. ChatGPT, DALL·E, Tesla cars and other systems are real examples of the possibilities of AI.

The process of artificial intelligence development is conventionally divided into three stages:

- Artificial Narrow Intelligence (ANI):
- At this stage, the system performs only one specific task (for example, speech recognition, chess playing, translation). All current practical AI systems fall into this category.
- Artificial General Intelligence (AGI):
- At this stage, the machine can think, learn and independently solve various problems at the human level. AGI currently exists at the theoretical level.
- Artificial Super Intelligence (ASI):

This is a type of intelligence that surpasses human intelligence in all areas and iscurrently at the level of fiction. However, scientists hope that this stage will also come true in the future. In the following years, symbolic logic, automated theorem proving, formal grammar, and algorithmic reasoning further enriched the theoretical foundations of AI. The Dartmouth Conference in 1956 established AI as an independent scientific discipline, and the idea of creating models that think like humans became a major task for researchers. The first AI systems were rule-based, making decisions through a knowledge base and logical inference. This approach led to the emergence of expert systems, but due to limitations such as low computer power and the inability to fullyrepresent complex knowledge, the development of AI has experienced periods of slowdown, known as "AI winters".

Since the 1990s, probabilistic models, statistical learning theory, and machine learning methods have taken AI to a new level. Now systems have the ability to learn not only from rules, but also from real data. By the 2000s, big data, the expansion of the Internet infrastructure, and the acceleration of computing based on graphics processors created unprecedented opportunities for artificial intelligence. In particular, the development of the concept of deep learning led to the emergence of network models that are close to the principles of the functioning of human brain neurons. Such models have achieved human-level or higher results in complex processes such as image recognition, speech processing, and natural language understanding.

Today, the theoretical landscape of artificial intelligence is extremely broad. It is not just a set of algorithms, but also a multidisciplinary scientific field - a unified field of computer science, mathematics, neurobiology, statistics, cognitive psychology, linguistics, and even

philosophy. Modern models of AI, in particular generative models, can reconstruct language, logical connections, and semantic structures through complex probabilistic-spatial representations. Also, approaches such as self-learning, transfer learning, and reinforcement learning enable autonomous adaptation of artificial systems. These processes are moving AI closer to being not just a computing tool, but a thinking, analyzing, and creative subject. The role of artificial intelligence in human life has become incomparably more important today. In the field of education, it allows analyzing student knowledge, creating individual learning paths, and automating assessment processes. In medicine, it increases efficiency by early detection of diseases, analyzing genetic data, and as a robotic assistant in surgical operations. In industry and the economy, AI has become the main driver of digital transformation, increasing efficiency several times by optimizing production processes, managing logistics systems, and anticipating risks. In everyday life, AI directly affects the activities of almost every person through smart home systems, voice assistants, translators, and electronic services.

However, along with the development of AI, ethical, social, and legal problems are also emerging. Issues such as data privacy, algorithmic injustice, technological unemployment, and intellectual security are being discussed globally. In particular, security theories related to the approach of AI to the human level (AGI and the concept of superintelligence) have become a topic of significant debate in the scientific community. Nevertheless, many experts emphasize that the development of AI creates enormous opportunities for all of humanity, but this process must be guided by strict ethical rules. Artificial intelligence is one of the highest peaks of human knowledge, its theoretical development covers a huge path from ancient logical systems to modern neural networks. Today, AI is deeply penetrating all areas of humanity, its influence is expected to expand further, and it is expected to become a scientific tool for solving complex global problems. Artificial intelligence not only makes human work easier, but also increases efficiency, saves time and resources. At the same time, it also raises ethical, legal and social issues - for example, job losses, the security of personal data and the reduction of human control.

Artificial intelligence (AI) is one of the fastest growing areas of modern science, and its theoretical foundations are formed from ancient attempts to model human thinking. The idea of reflecting the functioning of the human mind, decision-making processes, principles of logical thinking, and mechanisms of perception in artificial systems has its roots in mathematical and philosophical views that date back thousands of years. The system of logical rules of Aristotle, the deductive thinking model of Euclid, and later R. Descartes' theories of consciousness formed the first ideological foundation of artificial intelligence. However, the theoretical foundations of AI were formed in a truly scientific form at the beginning of the 20th century with the formalization of mathematical logic, the theory of algorithms, and computational processes. The Turing machine proposed by Alan Turing confirmed the principle of the universality of model computation and brought the fundamental question of "can machines think?" into the arena of scientific debate. Artificial intelligence is one of the most important achievements of human development. It is at the heart of the technological revolution and will make our lives more convenient, efficient and enriched with intelligent systems in the future. At the same time, it is important that its development is properly

directed, adheres to ethical standards and serves the interests of people. Cooperation between humans and artificial intelligence will become the basis of the society of the future.

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