Scientific and Technical Progress and Problems of Application of Artificial Intelligence

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Annotation: This article is devoted to the current topic of modern science, the problems of the relationship between artificial intelligence and scientific and technological progress. In the modern information society, the role of artificial intelligence is progressing and is applied in all branches of science and technology. The article, based on factual materials, thoroughly shows the role and place of artificial intelligence in the modern development of science and technology.

Key words: artificial intelligence, progress, phenomenon, engineering technology, object, subject, technology, information society, motivation.

Technology functions and develops only when it is combined with a person; in order to understand the functioning and development of technology, it is necessary to study and comprehend the system of relations between man and technology. This phenomenon is in fact inextricably linked with engineering activities and the system of engineering thinking. The "Man-Technology" system is the object of attention of most specialist scientists and sciences.

Technical Philosophy. Technical philosophy studies the "man-machine" system in a broad social context, taking into account political, economic, moral and many other social factors. At the same time, the philosophy of technology is interested in the nature of the logic of the relationship between man and machine, the social consequences of interaction and communication, and trends in technical development. The philosophy of technology deals with issues such as the integration of human-machine knowledge, coordination and the development of methodological foundations for the analysis of human-technology interactions.

In a certain sense, the relationship between man and technology is a traditional issue in the history of philosophy and culture. There is a history of technicism and anti-technicism. This unique scientific dialectical-metaphysical direction and trends in the development of technology constitute a unique difficult period in the history of the development of technology.

Technical philosophy not only creates a methodology for studying the man-machine system, but also studies the most general principles of the connection between man and machine.

1. **Honesty, principle of honesty.** . According to this principle, in the "man-technology" system, technology performs all the functions previously performed by humans - the target (primary) functions of natural human organs and technical means are proportional to each other: both adapt natural forces and objects (things) for needs of man is a recreating, shaping weapon.

2. **The principle of compensation and replenishment.** The essence of this principle is that technology is considered as an artificial continuation of natural human organs (arms, legs, eyes, ears, etc.) and complements them. The machine is a complement to the imperfections of natural human organs.

3. **Functional modeling function.**. Functional modeling is based on the two previous principles, since it is known that technology reproduces the natural human organs based on the law of technology, that is, it re-imposes on technology the functions of human organs, in the sense that the machine not only imitates the human structure, but also assigns everything to technology more and more functional tasks performed by humans.

If we look at the history of technological development, then in the early stages of human history, the relationship between technology and man, and man and technology, is not very noticeable. The technology of that period was based mainly on the anthropological principle, that is, technology was developed as an extension of the natural human organs. For example, hammer, hoe, hoe are an extension of the function of the hand, shovel, etc. extension of the function of the legs v.x. like

Structural similarity in the relationship between man and technology was a trend that characterized the era when more manual technologies were practiced. When a machine differs from a human in its structure, it can perform human functions in a technological process, even if they are not exactly the same.

Technical philosophy studies not only the most general forms of human-machine relations, but also the historical types of their manifestation. Today, man-machine relationships are viewed as a whole, functioning as a whole, and the role and task of leadership in this is necessarily assumed by or considered to belong to the individual. To do this, when creating new equipment, it is necessary to create working conditions suitable for it, taking into account the human factor. The principle of priority of human and technological capabilities has been developed. The essence of this principle is that technical means make up for, cover up (compensate for) shortcomings and shortcomings in human activity, the "human-technological" system must fully realize (realize) superiority, advantage, ingenuity in human activity. In other words, in the "man-technology" system, a person must perform those tasks that he can perform better than technology, and technology must perform tasks that are superior to humans. A person has priority in recognizing weak signals, in perceiving images and symbols, in inductive conclusions, in creating concepts and methods of cognition, in changing existence and reality.

The advantage of a machine over a person, its priority features are speed of response to signals, storage of information in a very compact form, speed of calculations, and the ability to simultaneously perform various operations and tasks. A person complicates operations by reducing the number of actions, a machine simplifies operations and increases their number.

The main question in organizing the interaction between man and machine is to distribute functions between them rationally, in accordance with reason, in the most beneficial way and, of course, while maintaining human activity and responsibility. System design of technical systems alternates with the task of creating human-machine systems. The opportunities that are used in practice in a priority area are most clearly visible in the automated project creation system. In the future, the physical and intellectual functions of a person in any production environment can ideally be transferred to a machine. But this situation does not negate the fact that a person is a subject of production. The development of automation will change the human functions and tasks that exist today.

Over its centuries-old history, technology in most cases performed physical labor functions not related to creative work, human creativity, but today it also performs mental work, and in a certain sense, performs creative-mental labor functions and human tasks. People. But now this issue should be taken into account when creating artificial intelligence.

According to most researchers, the intelligence (intelligence) of technical systems is based on the existence of a model of its private, unique internal world. The characteristic features of "artificial intelligence" are:

1) The presence of an internal model of the world in a technical system, the relative independence of the system in assessing the situation using this "model", the possibility of a semantic and pragmatic systemic assessment of the situation, the possibility of a semantic and pragmatic systemic assessment of the situation. interpretation (interpretation) of system needs and requirements;

2) The opportunity to supplement existing knowledge;

3) The ability to make deductive conclusions; i.e. collection and reproduction of information, that is, collection of information that is clearly not in the system; these qualities allow the system to construct new semantic and practical content of information (information structure);

4) Receptivity, ingenuity in correctly solving situations related to uncertainty in various aspects in connection with the understanding of natural language;

5) The ability to enter into a mutual discussion with a person (dialogue);

6) Skills, adaptability (the ability to adapt to existing conditions) and the ability to change and adapt under the influence of the external environment.

In short, although epistemological features and descriptions of thinking are embodied in a modern artificial intelligence system, it is not possible to use full-fledged human thinking as a complex epistemological apparatus and program. The path of transferring the function of abstract thinking in humans to artificial intelligence is very complex and long, since it is possible to create living matter, but it is difficult to create a living brain and intelligence.

The connection between natural and artificial intelligence

This issue is always on the agenda. Currently, there are two approaches to the study of natural and artificial intelligence:

1) Technocratic optimism: expresses the difference between artificial and natural intelligence with technical characteristics, that is, it puts forward the point of view that their difference is not qualitative, but quantitative. An attempt is made to prove that the rapid development of ES is the same as human thinking and mechanized artificial elements and actions of "thought".

2) Technocratic pessimism: the distinction between natural and artificial intelligence cannot be lost, since the model of the brain differs from natural intelligence in the same way as the model differs from its model, and the following arguments are given:

- difference in origin - natural evolution and the creation and formation of artificial intelligence artificially from pre-prepared parts of different origins;

- natural intelligence manifests itself as an active changing attitude of a person to objective and subjective reality, and in computer thinking, associated with the emotional aspects of mental activity, there are no such subtle mental states as feelings, a conscious attitude towards the world. , there is only behavior as an imitation of human intellectual activity, intelligence exists.

- a person can change his program of action in accordance with the goal, according to specific conditions, while the new program is not a strictly logical consequence of the old one; computational thinking cannot solve a particular question or problem, nor can it solve such questions on its own.

- human intelligence works with concepts and judgments of a dialectical nature, that is, it uses abstraction without emotions and color images, while a machine works with calculations based on the rules of formal logic;

- subconscious activity, intuition is of great importance in the functioning of the human brain, it cannot be formalized, so it can be expressed in the form of a computer program.

- the human intellect has a fundamentally unique structure, the psyche is a whole organic process in which there are no separate, free parts or content; and a computer is a discrete digital structure and can simulate only parts of complex and similar actions.

CONCLUSIONS

1. The purpose and function of technology is to transform the nature and world of man in accordance with the purpose formed by people on the basis of their needs and desires. Therefore, technology is a necessary part of human existence throughout human history.

2. Man has always been associated with technology, he produces and uses, consumes its products. At the same time, a person is a product of his technical activity in the broadest sense.

3. Having created a computer - a cybernetic system that simulates various types of mental activity, operating with false types of information, man produced his own intellectual-information analogue, created artificial intelligence, or pseudo-subjects.

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