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Artificial Modeling of Human Thinking: Socio-Philosophical Orientation

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Abstract:

In the article, the nature of human intelligence, bionic, heuristic, evolutionary, cybernetic methods of artificial modeling of human intelligence, model, expert system of artificial modeling of human intelligence, and cyber-safe future are researched in socio-philosophical direction.

Keywords: intelligence, thinking, intelligence, artificial intelligence, modeling, bionic, heuristic, evolutionary, cybernetic modeling, law, expert system.

Intelligence is the ability of any organism (device) to achieve measurable success in pursuit of one of many possible goals in various environments. Knowledge should be distinguished from intelligence, which means that knowledge is useful information gathered by individuals. The function of the mind is to predict the external state of knowledge and to convert each prediction into a corresponding reaction. This is where the functions of artificial intelligence change with intelligence. When "intelligent machines" begin to solve problems beyond the capabilities of the human mind, artificial intelligence will fulfill its role. In artificial intelligence, human thinking is simulated into a computer process. In fact, research on artificial intelligence is a high-level view of human creative thinking, that is, an individual perception of generalized natural intelligence, so it is only comparable to specific results obtained by experts.

The same with the human mind has been the center of attention of scientists since ancient times. R. Lully, a scientist who lived in the 14th century, tried to create a smart machine based on the competence of concepts. G. Leibniz and R. Descartes, who lived in the 18th century, independently proposed a universal language for all disciplines. This proposal was the basis for the development of artificial intelligence, and it was realized with the emergence of electronic computing machines as a branch of artificial intelligence. In the 40s of the 20th century, N. Wiener founded the new science of cybernetics. The term artificial intelligence was proposed by scientists from Stanford University (USA) in 1956.

To create artificial intelligence, it is difficult to directly model the human brain, that is, to model each nerve cell and the connections between them. The human brain is the most complex structure that has not been fully explored until now, only partially studied in the aspect of some scientific fields. It is also worth noting that science has not given a complete solution to the interdependence of complex connections in the cerebral hemispheres. Science has determined the approximate location of the brain layers responsible for certain or specific functions.

Science has not been able to solve the principle of operation of the brain elements of neurons, whose numerous connections seem chaotic. There are eight and a half billion people on earth, and each of them has a unique brain function. No one person's brain is fully compatible with the

processes in another person's brain. Creativity, creativity, ingenuity, uniqueness in the human brain is evidence of our thinking.

Another important point is that some attempts to model the work of the brain by connecting many processors together like a neural network showed a slight increase in the speed and flow of processed data only up to the level of one or two dozen processors, after which the performance dropped sharply. In our opinion, the cause of this phenomenon is explained by the fact that the processors "get lost", so they cannot control the situation, spend a lot of time in the "sleep" state or switch to the automatic restart system.

Scientists have achieved success in experiments conducted only on devices that work in the "two-dimensional version", including processors that process data in parallel rather than serially, for example, in pattern recognition systems. In them, one information plane interacts with another at the same time, and the number of information units can reach several million. The processor has a feature of one-time illumination of the object being studied, rather than sequentially studying the data. It can be concluded from this that new results are achieved in the artificial modeling of human mind and thinking with the help of this method.

Heuristic modeling. Heuristic programming is a creative approach to problem solving. The practicality of this method appears to be that the changes required by trial and error through heuristic modeling are drastically reduced. The probability coefficient of this method is up, and there is always a high probability of missing the best solution. Therefore, this method offers solutions that are more likely to be correct.

Two methods are used in heuristic modeling: the means analysis method and the planning method. In the first method, the operations that continuously reduce the difference between the initial and final states of the problem are selected and modeled.

In the second method, a simplified formulation of the original problem is developed, and its solution is solved by means-ends analysis. One of the resulting options provides a solution to the original problem.

Evolutionary modeling. The idea of evolutionary modeling comes from an experimental attempt to replace the process of modeling the human mind with modeling the process of its evolution. Evolutionary modeling takes into account the combination of the ability of intelligent behavior to predict the state of the external environment and the ability to choose the response to each prediction that most effectively leads to the goal.

In a nutshell this approach is an attempt to model not what a particular phenomenon is, but what it might be if the evolutionary process were directed in the right direction and evaluated according to the proposed criteria. This method paves the way for automating intelligence and easing human labor or liberating humans from mundane tasks. This frees up time for the problem of selecting targets and determining environmental parameters worth investigating. This principle is successfully used for diagnostics, control of unknown objects and use in game situations. The next task is to determine the stages of the research, which we will consider in three stages.

The first step is to create high-performance devices capable of performing a large number of logical operations.

The second step is to develop problem languages for use in the devices created in the first step.

Since there is no need to clearly formulate the problem statement during the development of the third stage, that is, the formulation of the problem in terms of goals and acceptable costs is clearly manifested in evolutionary modeling, since the solution method requires independent clarification based on these two parameters.

It is worth noting that the philosophical problem of cybernetic modeling in terms of modeling artificial intelligence, including the construction of an exact copy of the human brain, we called

this approach "non-cybernetic". The features of the cybernetic way of thinking, the influence of cybernetics on human knowledge were revealed for the first time in B. Russell's "History of Western Philosophy". The thinker attributed the factors that enabled Westerners to create a culture dominated by science to two great intellectual inventions: the invention of the deductive method by the ancient Greeks (Euclid) and the invention of the experimental method during the Renaissance (Galileo). These two intellectual inventions - the deductive method and the experiment - made it possible to create classical science [1].

Later, the main intellectual tools deductive method and experiment were added to the development of modern perception, the third - mathematical model and mathematical modeling. The combination of the deductive constructions of mathematics with the data obtained by experimental methods creates natural science, in the center of which lies the concept of scientific law. If the set of laws is the main content of natural science, their organization is its main task.

The law is an expression of important, necessary, common, recurring connections, interactions and relationships of various objects, processes and events in the ordinary world, and the law requires the description of the course of events within the framework of a specific or known level of knowledge. There is no point in judging the law as "right" or "wrong", "good" or "bad". On the contrary, the model is the opposite of the law, that is, it is natural for the model to be bad or good. The model does not claim to accurately reproduce the complex system, but is limited to the description of individual aspects. It is noteworthy that models that have the right to exist at the same time, for example, sketches, abstract descriptions can be offered. At the same time, from the improvement of intellectual tools, new tools are born, for example, mathematical modeling, which has a newly formed and unique character. A new type of experiment, for example, a machine experiment, in which models are played and then compared with the real experiment, appears.

Artificial intelligence faced the problem that "since the only object that can think and think is the human brain, another thinking device to be created must reflect its structure". This issue was considered on the basis of the cybernetic principle.

Although the cybernetic way of modeling artificial intelligence covers the functions of thinking, the task of revealing the essence of "thinking" is not set. Through the cybernetic way, sketch models are created that allow describing the specific aspects of thinking, repeating individual functions, and creating systems specific to this direction. The explanation for this is that if two systems exhibit the same behavior in the field, they are behaviorally “similar”. Cybernetic modeling leads to a logical conclusion in this regard.

Is there a connection between cybernetic modeling and thinking? Modeling is based on the concepts of correspondences and isomorphism, whereas reasoning is a purely human ability. There is no difference between information modeling of information processes and information modeling of non-information processes. The information model of the device does not work, it only simulates the operation, but requires an explanation from the point of view of thinking. In relation to information processes, their modeling is functionally complete, that is, if the model gives the same result as the real object, there is no difference between them.

In the modern modeling of artificial intelligence, there are misunderstandings about the way "cybernetics and thinking". Acknowledging the existence of artificial intelligence is not demeaning to human dignity. At the same time, based on the fact that artificial intelligence is a product of human creative activity, it can be called a "high example of human genius". Of course, there is another side to the matter. Using artificial intelligence for inappropriate purposes can lead to dangerous consequences. But this is not a scientific problem, but a spiritual and moral problem closely related to the human factor. Just one example, if artificial intelligence is directed towards mass computerization or the use of machines in art, in some sense this (poet, writer, hobbyist, storyteller, painter, sculptor, teacher, singer, inventor artificial intelligence) is on the verge of being put into creative practice in most countries with advanced information

technology the issue of labor incentives will be a problem. If a person, who is completely freed from hard work, is deprived of the great gift of thinking and creativity, then a new problem of what to do next is faced by a person.

The introduction of an expert system of artificial modeling of human thinking is of positive importance. These expert systems are:

a) Turing test (the ability to test the abilities of artificial intelligence and demonstrate skill, to evaluate skills and bot quality);

b) conversational artificial intelligence;

c) artificial intelligence identifying characters;

d) interpretation of received data;

e) artificial intelligence interface design;

f) artificial intelligence to enhance learning;

g) ethics of artificial intelligence;

h) chatbot [2], mobile application, etc.

Artificial modeling of human thinking is the 'cyber-safe' future of artificial intelligence. Today, the potential of artificial intelligence to improve cyber security by detecting internet fraud, blocking malware, detecting intrusions, assessing network risk, and analyzing user machine behavior is huge. In our opinion, artificial intelligence is necessary to secure the perimeters of any economic or financial activity. It improves companies' ability to anticipate cybercrime, prevent risk, protect zero-trust devices, control password expiration, and provide cyber security by scanning systems in seconds [3].

An artificial intelligence computer with features such as advanced facial recognition, fingerprint scanning and computer security, created by Dell , a company [4] engaged in the development, production, sale and service of personal computers, laptops, servers, data storage devices. the new model of artificial intelligence protects and controls data in a hybrid environment, saves the trust and money of both customers and bankers, and prevents 99% of malicious software attacks [5].

In conclusion, it is worth noting that, along with such positive aspects, artificial growth accelerates social and civilizational development, the development of artificial intelligence creates new puzzling issues related to the emergence of the technocratic dimension of the principle of "anthropologism".

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