

Nazar Litvin

A.T. Khar', research supervisor

N.M. Nechay, language adviser

SHEI "National Mining University", Dnipropetrovsk

Problems of Robotics and Artificial Intelligence

Since ancient times, mankind has sought to create mechanical friends for itself. Only at the end of the last century we managed to get closer to that dream. However, there still remains the problem of artificial intelligence. The difficulty in creating intelligent machine is the lack of clear understanding of the nature and objective of the thinking process.

What are consciousness, thinking and intelligence? To create the AI, it is important to define these terms, because they define the very essence of AI. The process of building the AI should begin with a clear definition of these concepts, and the need for their presence at AI.

Consciousness is reflecting in the positioning of AI owner in the environment, i.e. the definition of itself as an object with the specific properties relative to the objects of the world. The AI owner identifies itself as some object capable to perform certain actions. Consciousness is directly dependent on the knowledge of the world and its objects properties, i.e. the knowledge databases filling about the environment. This is all reflected in the processing of the events from the outer world and the self, and a report on these events.

The thinking is the process of problems solving, posed before AI, on the basis of native algorithms. Intelligence – decision-making mechanism based on the analysis of some objects properties involved in the task.

Which of these properties are necessary for AI? The concept of "intelligence" and "thinking" are interrelated and necessary for AI. But does it need "consciousness"? It all depends on the assigned tasks. The expert system does not need to be conscious, but for a robot, which interacts with human, is required consciousness. Developers seek to create an AI similar to the human mind. However, besides the real problems, there are a number of philosophical and ethical problems that cannot be avoided. As in every idea, the AI with consciousness has many supporters and opponents. The main problem here is the problem of further evolutionary development of mankind. Creating a robot that can think and act like a human, would lead to a logical evolutionary deadlock, and possibly collapse of human civilization. Why do need people, if they can be successfully replaced with machines? The main difficulty of creating full AI is impossibility of describing the operation only with using mathematical algorithms, we also need fuzzy logic and neural networks, which are difficult to implement. Great difficulties arise in the organization of storing and processing large amounts of information in the database for AI. Thus, even after a substantial period of time, mankind will learn to create only a powerful machine, which is not even looking at the possibility of emulating mind, to be far removed from human thinking. In any case, the creating algorithms for logical thinking is very important, because this is our future.