COMPUTER MODEL OF THE EMERGENCE
OF COLLECTIVE ROBOT BEHAVIOR

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The object of research is the collective behavior of robots. The subject of the research is the process of the emergence of collective behavior of robots based on messaging.

The paper presents a description of a computer model in which teams of robots can solve the problem of search behavior, using the possibilities of communication among themselves. Robots solve the problem of finding energy sources in a two-dimensional flat world with integer coordinates. A computer experiment suggests two populations of robots. The first population of robots has the ability to communicate with each other, the second one does not. In the process of functioning, robots must learn to form text messages that will describe the location of energy sources. Since robots operate in a partially observable environment, information about the location of energy sources received from other robots will allow more efficient solution of the problem of search behavior. The success of solving the problem will be evaluated by the amount of energy that each of the populations possesses.

Keywords: multiagent neural network, multiagent system, robotic systems, collective behavior.

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