

ABSTRACT

Thesis: 94 p., 16 rice, 1 table, 18 sources, 2 applications.

The paper investigates the problem of the reliability of the functioning of objects with the help of artificial immune systems. Theoretical data on artificial immune systems, optimization problems and basic algorithms for their solution are given. The work of the artificial immune network written (in the future) in the Java programming language is analyzed, a software application is developed that implements its work. Object of research: Reliability of the functioning of objects.

Subject of research: Artificial immune systems.

Purpose: The work is devoted to the actual topics of application of immune networks for solving computer security problems.

Research methods and equipment: Optimization problems are solved using an artificial immune network. Java programming language was used to write the program.

Results and their novelty: The work of artificial immune networks in the tasks of ensuring the stability of the functioning of objects. Results compared to gradient descent methods and genetic algorithm.

Field of use: Any information technology.

ARTIFICIAL IMMUNE SYSTEMS, ARTIFICIAL IMMUNE NETWORKS, OPT-AINET, CLONAL ALGORITHM, ALGORITHM OF NEGATIVE SELECTION, RELIABILITY OF FUNCTIONING, COMPUTER SECURITY.