

## ABSTRACT

Master's thesis: 111 pp., 8 fig., 10 tab., 1 app., 117 sources.

**The relevance.** The main line of research related to the theory of conflict-driven processes, which includes tasks management dynamic systems that operate in the conditions of the game or conflict. Gaming interaction problems are aimed at the application of the traditional theory of conflict-driven processes - military, robotics and more. Considering the events that occur in our country, the military is a priority for development right now.

The rapid development of information technologies, which we have seen over the past 20 years, poses new challenges to researchers for conflict management, at which classical approaches can not be applied because of the special nature of the players interact information in these systems and the complexity and dynamic environment. In this regard, the actual scientific task is to create new modeling approaches that take into account the game problem and its informative nature and developing of appropriate effective software.

**Relationship with academic programs, plans, themes.** Master's thesis are executed according to plan in processes managed optimization department at Institute of Cybernetics of V.M. Glushkov NAS of Ukraine within the research theme «The develop's movement management algorithms for decision-making support in terms of gaming interaction» (code VP.165.14, state registration number 0115U000159, 2015-2017).

**The purpose and objectives of the study.** The goal is reducing the execution time of the method of resolving functions through its generalization for complex dynamic, functional differential systems.

To achieve this goal must to solve the following tasks:

- to perform a review of the existing methods of resolving functions and determining its field of application;
- to analyze existing method using the examples of "simple movement", "boy and crocodile" Pontryagin's test case;
- to perform modification method of resolving functions;

- to make a comparison of execution times of the method according to the applicable policies;
- to design and develop GUI for the application;
- to develop a module for generating initial conditions for "evader" and "pursuer";
- to perform software implementation for method of resolving functions in a example of simple motion;
- to test the results of software application;
- to analyze the effectiveness of the method.

**The object of study** is the conflict-driven processes.

**The subject of the study** is a method of resolving functions.

**Methods** used in the paper are based on the simulation methods, dynamic programming.

**The scientific novelty of the results** is the formation of the modified method of resolving functions through its generalization for complex dynamic, functional differential systems in theoretical component and the development and using of new modified method for problems in the theory of conflict-driven processes.

**Publications.** Work results are published in conference abstracts of International Scientific Conference «Modern Scientific Trends» [110], in the scientific journal «Young Scientist» [111] and in abstracts of scientific conference of students, masters and postgraduates [112].

CONFLICT-DRIVEN PROCESSES, GAME PROBLEM, METHOD OF RESOLVING FUNCTIONS, SIMPLE MOVEMENT, THE PARALLEL PURSUIT, PONTRYAGIN'S METHOD, EVADER, PURSUER, THE ENEMY, TERMINAL SET, DYNAMIC GAME.