

## ABSTRACT

The thesis is presented in 70 pages. It contains 2 appendixes and bibliography of 9 references. 26 figures and 4 tables are given in the thesis.

The goal of the thesis is to develop mathematical and software tools for solving the problem of object trajectory prediction by analysis known part of trajectory.

In the thesis, existing solutions are analyzed, such as linear regression, decisions forest, artificial neural networks. They are compared in terms of the accuracy of obtained results, algorithm efficiency and method adaptation to fuzzy data. Artificial neural networks satisfy mentioned conditions, it has high precision and quite low training time. In the thesis, artificial neural networks approach is used to solve the task.

Fuzzy production rules are formulated for each discussed emotion. The automated system implementing the chosen method is developed. The developed system is tested.

Keywords: predicting trajectory, force fields, artificial neural network.