

## ABSTRACT

The thesis is presented in 148 pages. It contains 2 appendixes and bibliography of 29 references. 132 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 fractal-based image segmentation.

The paper analyzes existing solutions specified application field: statistical, structural, spectral, fractal texture segmentation methods, and methods for removing noise from the input image and methods of image edge detection. Comparison of them is done in terms of the accuracy of the resulting solutions, the efficiency of algorithms and methods for use of videos and pictures of highways. To solve the problem selected methods are median filtering to remove noise, Roberts edge detection method and fractal texture segmentation method using Hausdorff measure and Minkowski measure.

The program implementing the chosen method is developed. The developed program is triald.

Key words: digital image, pattern, texture filtering, segmentation, fractal dimension, fractal segmentation.