

ABSTRACT

The thesis is presented in 70 pages. It contains 2 appendixes and bibliography of 13 references. Thirty seven figures and 2 tables are given in the thesis.

The goal of this thesis is to modify the SIFT method and create a software which implements image processing and recognizes objects on images.

In the thesis the issues of working with digital images are analyzed. Furthermore, the comparative analysis of existing systems, algorithms and mathematical methods for object recognition in digital images was made. In particular, there were analyzed such methods as SIFT (scale-invariant feature transform), SURF (Speeded Up Robust Features) and BRIEF (Binary Robust Independent Elementary Features). In addition, it was suggested to modify method SIFT by replacement the using of Gaussian with the using of splines. Such changings speeded up the system in all. Basing to defined criteria, the SIFT method with the using of splines was chosen for the further creation of software tools. An automated system was developed which implements the chosen goal of the thesis. Moreover, the developed system was tested.

Keywords: image processing, object recognition, digital image, SIFT method, splines.