

ABSTRACT

The thesis is presented in 51 pages. It contains 2 appendixes and bibliography of 15 references. 17 figures and 3 tables are given in the thesis.

The purpose of this work is to increase the efficiency of compression of data, in particular images, by decoding them into binary format and compressing using a specially designed neural network.

The paper describes classical methods for image compression — JPEG, RLE, LZW algorithms, Huffman's trees, and artificial neural networks. Already implemented software was considered. Regarding the developed criteria, the method of compressing images using neural networks was selected. The training of the neural network was conducted using the method of backpropagation with the genetic algorithm for choosing the optimal network architecture.

During the implementation of this work, a system of compression of images is implemented, using which, it is possible to significantly reduce the amount of memory necessary for their storage, while experiencing minimal losses in quality.

Keywords: image compression, neural networks, genetic algorithms, deep learning.