

# Application of genetic algorithm for structure optimization of the artificial neural network.

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The goal of the dissertation was to propose and implement the genetic algorithm (GA), which enables finding the optimal structure of the artificial neural network (ANN) both for regression and classification problems. Building an ANN model is a complicated process; even though contemporary modules which implement ANN are significantly simplifying their usage, it is the user who needs to specify quite a few hyperparameters such as number and type of layers, activation functions, etc. In order to automate the process of choosing hyperparameters, modification of simple genetic algorithm were proposed - new coding of neural network and genetic operators. To realize the above goal, I have used `python` programming language together with two popular modules `numpy` and `tensorflow`. The implemented algorithm was tested on two datasets: **Fashion-Mnist** - task to recognize clothing category based on its picture and **Boston Housing** - predict the price of home depending on its's parameters.