

CLASSIFICATION OF PATIENTS IN MEDICAL MONITORING SYSTEMS WITH THE HELP OF TRAINED ARTIFICIAL NEURAL NETWORKS

*Rozhkova V.A., student of the group 365
National Aerospace University "Kharkiv Aviation Institute"*

Methods of machine learning give you the opportunity to have knowledge from complex clinical data sets and to model progression, treatment and disease outcomes. The use of machine learning in medical monitoring systems is aimed at improving the quality of diagnosing patients.

The algorithm of training the neural network with the reciprocal distribution of error finds the value of the error between the actual and desired initial data of the network. Reducing the error value can be achieved by modifying the network parameters. The process is repeated until the network reaches the ability to perform the desired type of "input-output" conversion. As a result of the training of the neural network there are finding the weight links of the layers, and initial parameters by input parameters and controlling variables.

Logistic regression or logit regression is a statistical model which is used to predict the probability of occurrence of some event by fitting the data to the logistic curve.

Logistic function looks like:

$$f(x) = \frac{1}{1+e^{-x}}$$

Using the algorithm of training a unidirectional multilayer neural network and a radial-basis neural network with reverse error distribution, a logistic function and a set of variables, which includes all the data, we obtain at the output the value of the probabilities of the ratio of each patient to a certain class.

Applying in practice the teaching methods in medical monitoring systems will reduce the material costs and timing of diagnosis of patients, as well as will provide better values of survival rates and quality of life criteria for patients.

*Scientific director – Doctor of Technical Sciences, professor
M. L. Ugryumov*