ABSTRACT

Diploma thesis involves: 100p., 7 tables, 49 fig., 2 add. and 22 references.

MACHINE LEARNING, ARTIFICIAL CONVOLUTIONAL NEURAL NETWORK, CLASSIFICATION, COMPUTER HEARING, CROSS-PLATFORM MODULE, PYTHON.

The object of the research are algorithms in the field of machine learning, especially algorithms and methods of the analysis of sounds for their presentation textually, for using by people with hearing problems as well as in automatized systems of quick response to emergency situations in cities.

The subject of the research – machine learning models, especially neural networks.

The purpose of the research – the analysis of existing methods of machine learning as well as creation of own model of recognition of sounds that will be presented in a user-friendly format.

In the course of the research, the analysis of popular today models for the solution of the problem of the classification of sounds was carried out; comparative analysis of these models was made, the process of creation of own model was described and also its integration into the programing module for cross-platform application.

Within the further research, it is expedient to work on the enhancement of the accuracy of the model in the work with a more noisy data, the improving of the model, the modification of its architecture, by increasing the quantity of classes for recognition. The other possible way is the development of IoT solutions for the analysis of sound situation in the city in real time.