

## ABSTRACT

Thesis: 85 p., 20 fig., 14 tabl., 2 annexes, 28 sources

SPEECH RECOGNITION, DEEP NEURAL NETWORK, CONVOLUTION, VOICE RECOGNITION, VERIFICATION SYSTEM, IDENTIFICATION, VECTOR OF FEATURES, METHOD OF K-CLOSEST NEIGHBORS.

Object of research – discrete speaker acoustic wave.

Goal of research – find the best way to identify a person by voice and develop a software product based on it to demonstrate the capabilities of the chosen method.

Methods of research – checking the open data of existing methods used to solve the problem of voice recognition. Attention is paid to the well-established structure of recognition systems, brief descriptions of the most common methods for extracting attributes (such as MFCC and LPCC), as well as classification methods (vector quantization, model of Gaussian mixtures, the method of reference vectors and k near neighbors) are given. Also considered as a system for extracting vector signs are deep full-link neural networks and convolutional neural networks such as ResNet34 and ResNet50. Methods of evaluation of recognition systems and representation of the results of such evaluations are discussed.