1. **Year:** 2017 г.
2. **Title:** Modeling of intelligent systems built on neural networks
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Relevance of the researched topic: As of now, significant technological growth is expected in the field of designing neural networks and neurocomputers. In recent years, many new opportunities for neural networks have been discovered, and work in this field is becoming an important contribution to industry, science and technology, and they are of great economic importance.

The aim of the study is to study the use of intelligent systems based on neural networks in the tasks of determining the part of speech by developing a software model of an artificial neural network and conducting an experiment with text data.

Tasks:

- determine the trends of development of the theory of artificial neural networks at the present stage;
- determine the characteristics and method of constructing a software model of an artificial neural network;
- explore the basics of application of artificial neural networks in the intelligent processing of text data;
- combine the knowledge acquired to create and use the artificial neural network software model for the intelligent analysis of text data;

- conduct experiments, determine the efficiency of the created artificial neural network;

- draw out conclusions about the usage of artificial neural network technologies and the implemented model for the analysis of text data in particular.

Practical significance of the research lies in the possibility of automating the process of determining the parts of speech during the processing of textual information and conducting various linguistic studies, the results of the work can be useful in studying the theory of neural networks as a learning example of modeling and software implementation.

Conclusions: Conclusions: The problem of automatic definition of parts of speech is quite relevant when implementing algorithms for processing textual information in natural language. Opportunities of using the project as a teaching material in the introduction to the practical course of designing and using ANN in difficult-to-formalize problems, as well as various linguistic studies related to the processing of textual arrays in natural language. The software implementation proposed in the work can become a module of information resources software that will automate the classification of parts of speech, and then apply it in the process of text generation based on intelligent system algorithms.

Recommendations :

- Expand the variety of inputs in order to increase the efficiency of neural network’s functionality;

- expand the variety of outputs in order to determine every part of speech there is in russian language;

- create an algorythm that automatically picks out input signals out of the array of text information.

- introduce the results of research into practical activity and educational process.