



Figure 1 – The recurrent neural networks

The input vector of the signal goes to the group of neurons INPUT, on the group of neurons CONTEXT the zero signal. Then the signal spreads to the group of neurons of the hidden layer HIDDEN, and then it is converted by them and hits the neurons of the output layer OUTPUT. At the next iteration along with the signal vector INPUT, the context group of neurons receives copies of the signals from the OUTPUT layer of the last iteration.

To use an artificial neural network, you need a knowledge base. The CONTEXT, INPUT, and OUTPUT layers have one neuron each, the output value of which is set according to the word index in the word set. ANN is consistently trained in the following sentences: "Hello. How are you? _end_ Hello. Fine. _end_" (_end_ is entered corresponding to the end of the sentence).

To mark the knowledge base, the markup language AIML (Artificial Intelligence Markup Language) is used. The keywords in the language are category, pattern and template.

The category tag is the parent of the pattern and template tags that store the question and answer templates. The random tag allows you to specify multiple answers to a question that the interpreter selects randomly. It is proposed to introduce additional tags corresponding to the history and theme of the dialogue.

The algorithm for building a chat bot based on the extended markup of AIML and a recurrent neural network facilitates the creation of a chat-bot with the ability to communicate. A recurrent neural network allows you to get answers to questions that were not in the knowledge base, with the help of the network's ability to generalize.

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FORMATION OF AESTHETIC EDUCATION BY MEANS OF PROJECT ACTIVITY

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The role of project activity of students in the formation of their aesthetic education is defined. The types and forms of project activities that can be used to improve the aesthetic culture of students are analyzed.

Keywords: aesthetic education, aesthetic culture, personality, project activity, project.

At the present stage of the society development, the Belarusian education system faces the task of preparing highly educated citizens, capable of active, creative activity for the benefit of society. In its solution, the development of creative principles in man, the ability to transform the surrounding life, is of increasing importance. In connection with this, the role of aesthetic education and upbringing, which involves the formation of aesthetic judgments, tastes, improvement of the inner emotional world of a young person, serves to strengthen consciousness, ideological conviction, and the development of the entire spiritual image of a person.

Aesthetic culture is a complex and multifaceted phenomenon, representing one of the main components of the general culture of the society and, simultaneously, an aspect of each of these components. It explains the many approaches to the scientific interpretation of this concept.

The leading task of the aesthetic education formation and training of students is the formation of the need-motivational component of aesthetic culture, expressed in the interests and needs for the acquisition of artistic and aesthetic knowledge and a variety of activities on the aesthetic transformation of the surrounding reality. As noted earlier, all the components of the aesthetic culture of the individual, including interests and needs, are formed mainly in aesthetic activity. Hence the need to actively include students in it.

Any aesthetic activity is inherently creative and transformative. One of the forms of transformative activity is creative project activity. It is defined as "an integrative type of activity for the creation of products and services that have objective or subjective novelty and that have a personal or social significance" [5, p. 123].

The youthful age is a period of the person's increased desire for beauty, the formation of his moral and aesthetic views, ideals and tastes. Aesthetic interests of the student are quite diverse and rich in content. As a rule, a modern young man reads a lot, loves art, seeks to try his abilities and abilities in various areas of creativity.

A feature of the aesthetic interests of students is that they are of a selective nature. I believe that aesthetic education will be more effective if students are given the opportunity to "discover" the laws of beauty and harmony themselves and apply them in the process of their own creative activity. Thus, more qualitative acquisition and assimilation of knowledge is conducted, as well as the development of the outlook of students and the education of feelings.

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USE OF DNA ANALYSIS IN PALEOANTHROPOLOGICAL RESEARCH. HISTORY AND STATE OF THE PROBLEM

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The work is devoted to the review of the history of DNA analysis use in paleoanthropology and the possibilities of applying the results of such studies.

Keywords: DNA, paleoanthropology.

For many years, paleoanthropologists have used and are using methods of craniometry, somatometry, anthroposcopy, etc. In the early 1980s molecular genetic studies of DNA have been developed; they are used today in medicine, forensic science, archeology, paleoecology, population genetics, paleopathology, paleoanthropology itself, and so on. Due to this, a new perspective direction of complex studies in paleoanthropology – paleogenetics appeared.

Due to the modern methods of molecular biology, it became possible to isolate and study ancient DNA. This method is used to study the ways of settling and migrating peoples, the sexual structure of the population, to test the concepts of the origin of certain peoples that previously remained contentious. The analysis of DNA stored in bone remains can help reconstruct the history of the occurrence of Homo sapiens, identify diseases, identify genetic predisposition to diseases or identify their pathogen in the remains of people who died during the mass epidemics. For example, in 2003, the bone remains of Napoleon's army soldiers who died in Vilnius during the retreat of the French army were studied. Paleontologists found in the soil at the burial site the remains of lice, and from them the DNA of rickettsia was obtained, the causative agent of typhus. This allowed biologists and physicians to analyze the spread of typhus among soldiers of the army of Napoleon. DNA is extracted from the remains of bones, hair,