**Translation of artificial intelligence terms: a study based on the manual   
“Make your own neural network” by Tariq Rashid**

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The issue of translating artificial intelligence terms is an integral part of modern translation studies. The subject field is developing at a rapid pace, and its terminological system is also expanding and changing dramatically.

The first step of the research was to examine the difference between terms and the general lexis, which was done on the basis of the criteria outlined by Akhmanova, Grinev-Grinevich, Leichik and other scholars. Moreover, a distinction was drawn between the concept of a nomenclature unit (nomen) and a terminological unit (term). According to prof. O.S. Akhmanova's dictionary, "terminology is a system of concepts of a given science, fixed in the appropriate verbal expression" while nomenclature is "a system of names for a given set of more or less specific objects that constitute the content of various parts of a given scientific field as a whole" [Ахманова: 6]. Nomenclature units in the subject field included, inter alia, the names of programming languages, functions (*shutdown, scipy, misc, numpy*), operating systems etc.

Then the terms in question were considered from the point of view of their origin. Research has shown that the field of artificial intelligence often includes terms related to the field of advanced mathematics, since artificial intelligence is directly related to programming, which in turn is based on mathematical calculations, as well as terms of biology, psychology, linguistics, philosophy and other adjacent fields. The terms of advanced mathematics included designations of mathematical processes (*multiplication*, *calculus*), as well as designations of functions (*logical function*, *activation function*, *sigmoid function*, *logistic function* etc.). The sphere of biology was the source of such terms as *neuron,* *neural network* etc., with a considerable change in the meaning assigned to these terms in the new field.

The purpose of the study was to conduct a comparative research of the English and Russian terminological systems of artificial intelligence, focusing on the difficulties that may arise when translating artificial intelligence terms from English into Russian, on the example of a manual on creating a neural network and its translation. In order to narrow down the range of terms under study, the popular science textbook “Make Your Own Neural Network” by Tariq Rashid was selected.

In the course of the study, the terms were broken down into several groups. The first one included terms that did not cause difficulties in translation, as they had only one equivalent (*recognition*, *code*, *neural networks, data*, *to test*, *layer*, *to train, separator, rearrange, node, database*, *dataset, hidden layer* etc.).

Then the terms were categorized according to the presence of few or no equivalents in the target language. In some cases two or more equivalents coexisted within the same translation (*calculus – дифференциальное исчисление, дифференцирование*, *plot – график, графически отобразить*, *notebook – ноутбук, блокнот*). Where lacunae existed, the translator most often resorted to the use of calquing: *machine intelligence – машинный интеллект, artificial intelligence – искусственный интеллект*; and transliteration, transcription or partial assimilation of transliterated and transcribed words: *iteration – итерация, notation – нотация, transcendental – трансцедентные, transpose – транспонировать*, *notebook – ноутбук, algorithm – алгоритм, gigabytes – гигабайты, terabytes – терабайты, machine – машина, robot – робот* etc. Within this group, two types of terms have been singled out: those that could be replaced by commonly used target terms (*notation*, *iteration, transpose*) and those that cannot be replaced by terms in the target language because they have no counterparts capable of conveying their meaning most accurately and concisely (*initialize, notebook, robot, distribution*).

Finally, there are a number of cases, where the scope of meaning of the suggested term in the target language does not quite correspond to the source one (*epoch – эпоха, shortcut – значки, fraction – выражение*). This paper proposes what we believe to be more appropriate translation equivalents (*epoch – период дискретизации, shortcut – клавиши быстрого доступа, fraction – дробь*).

It must be added that it is impossible to study the terminology of artificial intelligence in isolation from other fields, because the basis for the development of artificial intelligence is higher mathematics, programming and biology, from which the prototype of the neural network, i.e. the structure of the brain network of neurons, was borrowed. Therefore, the established equivalents of terms in those branches influence the translation of terms in the field of artificial intelligence, despite the fact that they denote new concepts in it.

As for the difficulties of translating that we have come across during the research, they were mostly connected with the absence of a proper equivalent and, as a result, the choice of the equivalents that did not fully render the meaning of the given term.

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