APPLYING PROBABILITY THEORY TO NEURAL NETWORKS

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УДК 004.032.26

DOI: 10.33184/mnkuomsh2t-2021-10-06.56.

Using mathematical models to create an image of the human brain reproduction of machines by artificial intelligence. An artificial neural network consists of three components: input layer, hidden layers, output layer. Also, in the center of the neural network is the loss function. Which minimizes errors known as: quadratic, cross-entropy, AdaBoost, Kullback distance. Loss function should not depend on the activation values of the neural network.

Keywords: artificial intelligence, neural networks, automation of intelligence.

Artificial intelligence worked at a high level required to use deep neural networks. It is a class of machine learning algorithms for creating efficient and multilayer neural networks. With this method, we can achieve great results in machine learning. As the data grows, noise appears that interferes with the accuracy of the results. In many problems it uses the Bayesian method to solve. However, this method cannot guarantee the accuracy of the results. Also, the maximum a posteriori is used for the accuracy of the results. All methods suffer from overfitting. For this we will use probability theory to train neural networks. As a result, we will use batch size data that will not lead to overfitting. This will greatly reduce the resources and time used. In practice, with data processing in a Python program, we got 98 percentage efficiency. Using this technique, you do not need to guess the layers of neural networks and training steps. In this practice, the system automatically selects the necessary parameters for effective results.

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