

1. What is the difference between Machine Learning and Deep Learning?

Machine Learning forms a subset of Artificial Intelligence, where we use statistics and algorithms to train machines with data, thereby, helping them improve with experience.

Deep Learning is a part of Machine Learning, which involves mimicking the human brain in terms of structures called neurons, thereby, forming neural networks.

2. What is a perceptron?

A perceptron is similar to the actual neuron in the human brain. It receives inputs from various entities and applies functions to these inputs, which transform them to be the output.

A perceptron is mainly used to perform binary classification where it sees an input, computes functions based on the weights of the input, and outputs the required transformation.

3. How is Deep Learning better than Machine Learning?

Machine Learning is powerful in a way that it is sufficient to solve most of the problems.

However, Deep Learning gets an upper hand when it comes to working with data that has a large number of dimensions. With data that is large in size, a Deep Learning model can easily work with it as it is built to handle this.

4. What are some of the most used applications of Deep Learning?

Deep Learning is used in a variety of fields today. The most used ones are as follows:

- 1.Sentiment Analysis
- 2.Computer Vision
- 3Automatic Text Generation
- 4.Object Detection
- 5.Natural Language Processing
- 6.Image Recognition

5. What is the meaning of overfitting?

Overfitting is a very common issue when working with Deep Learning. It is a scenario where the Deep Learning algorithm vigorously hunts through the data to obtain some valid information.

This makes the Deep Learning model pick up noise rather than useful data, causing very high variance and low bias. This makes the model less accurate, and this is an undesirable effect that can be prevented.

6. What are activation functions?

Activation functions are entities in Deep Learning that are used to translate inputs into a usable output parameter. It is a function that decides if a neuron needs activation or not by calculating the weighted sum on it with the bias.

Using an activation function makes the model output to be non-linear. There are many types of activation functions:

ReLU

Softmax

Sigmoid

Linear

Tanh

7. Why is Fourier transform used in Deep Learning?

Fourier transform is an effective package used for analyzing and managing large amounts of data present in a database.

It can take in real-time array data and process it quickly. This ensures that high efficiency is maintained and also makes the model more open to processing a variety of signals.

8. What are the steps involved in training a perception in Deep Learning?

There are five main steps that determine the learning of a perceptron:

- 1.Initialize thresholds and weights
- 2.Provide inputs
- 3.Calculate outputs
- 4.Update weights in each step
- 5.Repeat steps 2 to 4

9. What is the use of the loss function?

The loss function is used as a measure of accuracy to see if a neural network has learned accurately from the training data or not. This is done by comparing the training dataset to the testing dataset.

The loss function is a primary measure of the performance of the neural network. In Deep Learning, a good performing network will have a low loss function at all times when training.

10. What are some of the Deep Learning frameworks or tools that you have used?

This question is quite common in a Deep Learning interview. Make sure to answer based on the experience you have with the tools.

However, some of the top Deep Learning frameworks out there today are:

1.TensorFlow

2.Keras

3.PyTorch

4.Caffe2

5.CNTK

6.MXNet

7.Theano

11. What is the use of the swish function?

The swish function is a self-gated activation function developed by Google.

It is now a popular activation function used by many as Google claims that it outperforms all of the other activation functions in terms of computational efficiency.

12. What are autoencoders?

Autoencoders are artificial neural networks that learn without any supervision. Here, these networks have the ability to automatically learn by mapping the inputs to the corresponding outputs.

Autoencoders, as the name suggests, consist of two entities:

Encoder: Used to fit the input into an internal computation state

Decoder: Used to convert the computational state back into the output

13. What are the steps to be followed to use the gradient descent algorithm?

There are five main steps that are used to initialize and use the gradient descent algorithm:

Initialize biases and weights for the network

Send input data through the network (the input layer)

Calculate the difference (the error) between expected and predicted values

Change values in neurons to minimize the loss function

Multiple iterations to determine the best weights for efficient working

▼ 14. Differentiate between a single-layer perceptron and a multi-layer perceptron.

Single Layer Perceptron

Multi Layer Perceptron

Double-click (or enter) to edit

Cannot classify non-linear data points	Can classify non-linear data
Takes in a limited amount of parameters	Withstands a lot of parameters
Less efficient with large data	Highly efficient with large datasets

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