

Assignment - XNOR

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How to verify trained algorithms?

Generally we have training data on which the algorithm/model is trained and a separate testing data on which it is tested. We consider the tested data as previously unseen data by the algorithm so that we can verify if it can work on real life problems

But in our case, we have only 4 rows of input. So we cannot separate the train and test data as our size of data is too small. Also there are no unseen data possible as all the possibilities are covered in these 4 rows.

To verify our algorithm, we will test it on the train data itself. If it gives correct prediction for all inputs, then it is trained perfectly.

Overview of code

The Network we have used have 2 inputs, 2 neurons in hidden layer and 1 neuron in output layer.

Activation function used is Sigmoid function in all the neurons.

In the output layer if the output of neuron is less than 0.5, we predict it as 0 or else 1.

The learning rate is 0.3, it takes 1780 epochs to converge.

We stop the training when the MSE(mean squared error) < 0.01 .

How to run:

Run the code on cmd/terminal as `python <filename>`.

The output will be the loss after every 1000 epochs, the prediction on every output and and epoch vs loss graph.