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Section H6

I chose the Iris dataset for all of my assignments that are available in the sklearn library. Here are the parameters for the assignment 2 deep learning that are used in model training.

Model	Learning Rate	Optimization	Number of Layers	Dropout Rate	Activation Function
1	0.001	sgd	1	0.1	tanh
2	0.01	adam	2	0.3	relu
3	0.1	rmsprop	3	0.5	sigmoid
4	0.01	adam	3	0.1	sigmoid
5	0.1	rmsprop	2	0.3	relu

When I used the first row of the hyper parameter for the model training I got these answers after training the model.

learning rate: 0.001
optimization: sgd
number of layers: 1
dropout rate: 0.1
activation function: tanh
accuracy: 96.67%

When I used the Second row of the hyper parameter for the model training I got these answers after training the model.

learning rate: 0.01
optimization: adam
number of layers: 2

dropout rate: 0.3
activation function: relu
accuracy: 100%

When I used the third row of the hyper parameter for the model training I got these answers after training the model.

learning rate: 0.1
optimization: rmsprop
number of layers: 3
dropout rate: 0.5
activation function: sigmoid
accuracy: 83.33%

When I used the fourth row of the hyper parameter for the model training I got these answers after training the model.

learning rate: 0.01
optimization: adam
number of layers: 3
dropout rate: 0.1
activation function: sigmoid
accuracy: 93.33%

When I used the fifth row of the hyper parameter for the model training I got these answers after training the model.

learning rate: 0.1
optimization: rmsprop
number of layers: 2
dropout rate: 0.3
activation function: relu
accuracy: 100%

My opinion for the Output of each Model implementation.

In the above given outputs Model 2 and Model 5 gives the highest accuracy of 100%. Because the hyper parameter I chose is correct and working fine. Another reason is I choose Iris dataset that is why Model accuracy is 100%

Model 3 with a higher learning rate 0.1 and fewer layers 3 with a dropout rate of 0.5 resulted in the lowest accuracy of 83.33%. That means dropout rate is more that is why Model accuracy is less.

Model 1, 2, and 4 performed well with accuracies above 90% indicating that learning rates, optimization algorithms and activation functions are good for model performance like in Model 2 and 5.

The dropout rate of 0.1 works better in Model 1 and 4. So proven that a low learning rate is good for every model during training compared to the dropout rate of 0.3 that is used in Model 2 and 5.

Thanks

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