

HW-hyper-tuning

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1 Introduction

Below are the plots of different hyper-parameters and their corresponding accuracy including

1. learning-rate - accuracy
2. transfer function - accuracy
3. .batch size - accuracy
4. epochs - accuracy
5. optimizer - accuracy
6. weight initialization - accuracy

The fixed parameters (if not specified) are

1. learning-rate = 0.0001
2. transfer function = relu
3. batch size = 512
4. epochs = 40
5. optimizer = Adam
6. weight initialization = random uniform

2 Conclusion

the best resultant hyper parameters are respectively:

1. learning-rate = 0.0001
2. transfer function = relu
3. batch size = 100

4. epochs = 400
5. optimizer = Adam
6. weight initialization = random uniform

3 Best result

combine the best hyper parameters we can get 0.978 accuracy, and the plot of training history of the best hyper-parameters are provided

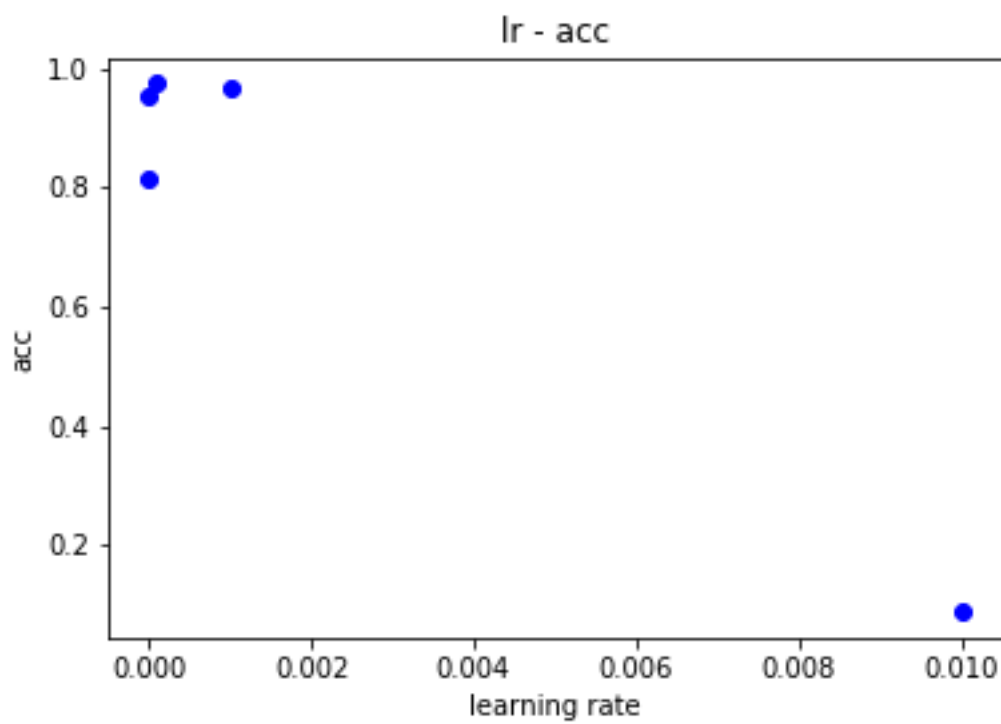


Figure 1: learning rate-accuracy

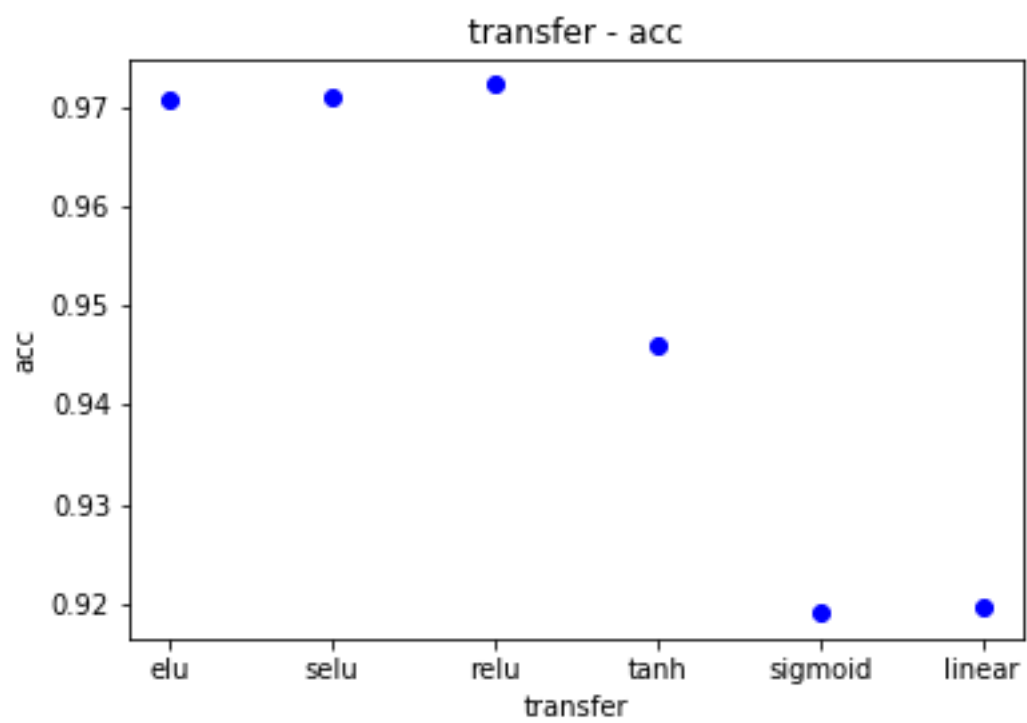


Figure 2: transfer function - accuracy

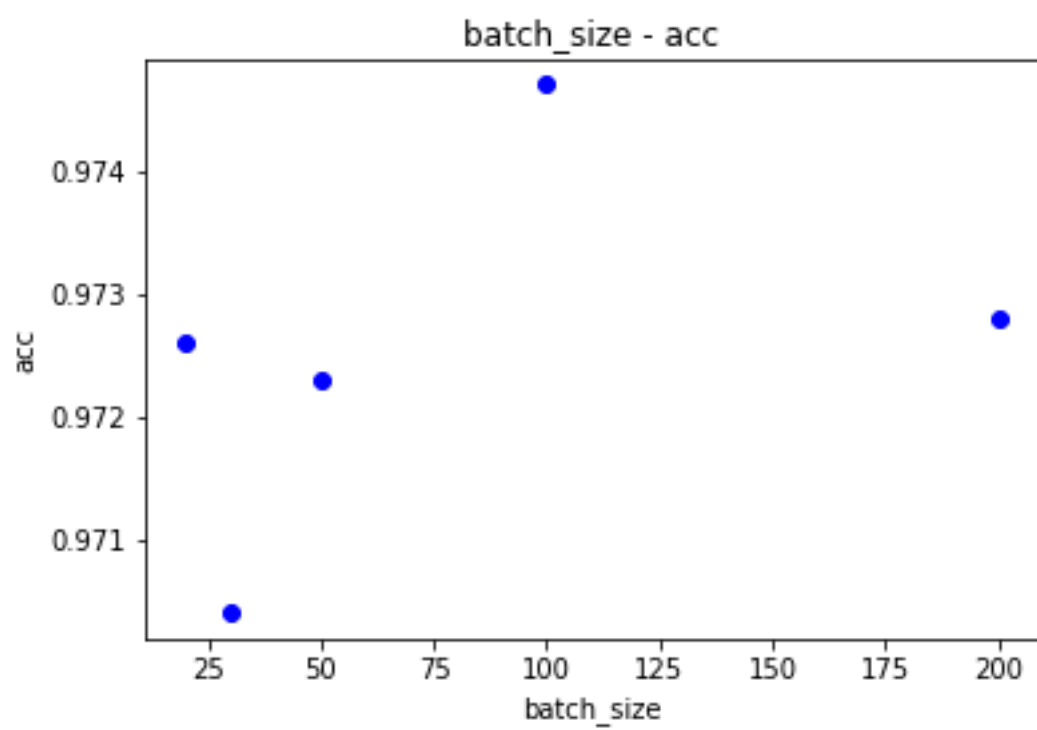


Figure 3: batch size - accuracy

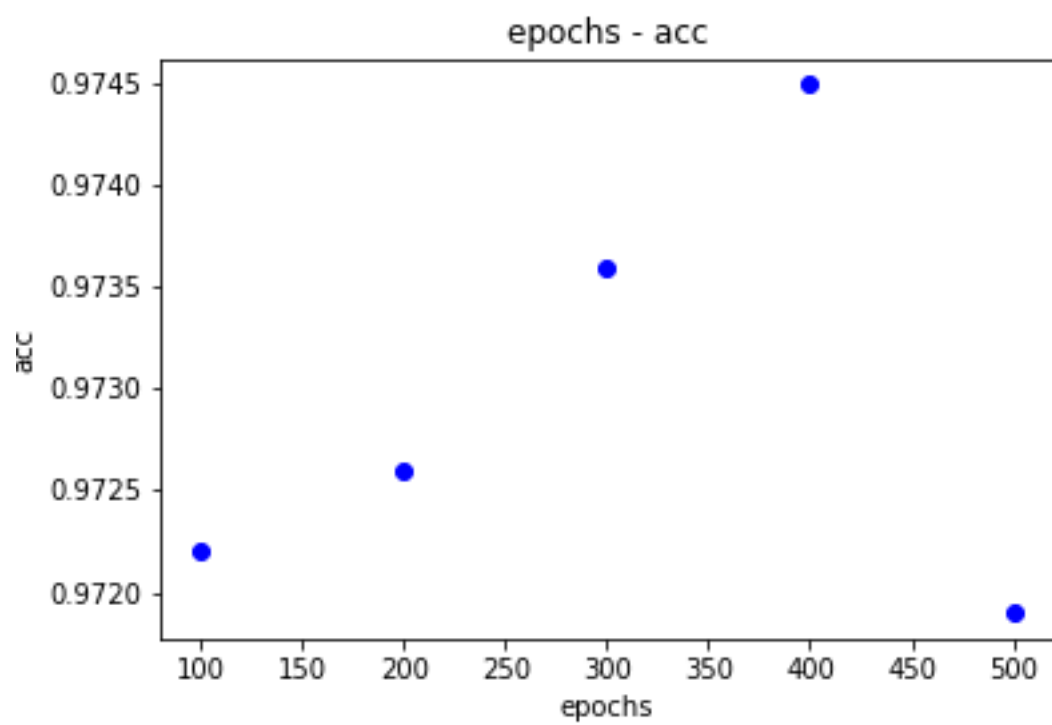


Figure 4: epochs - accuracy

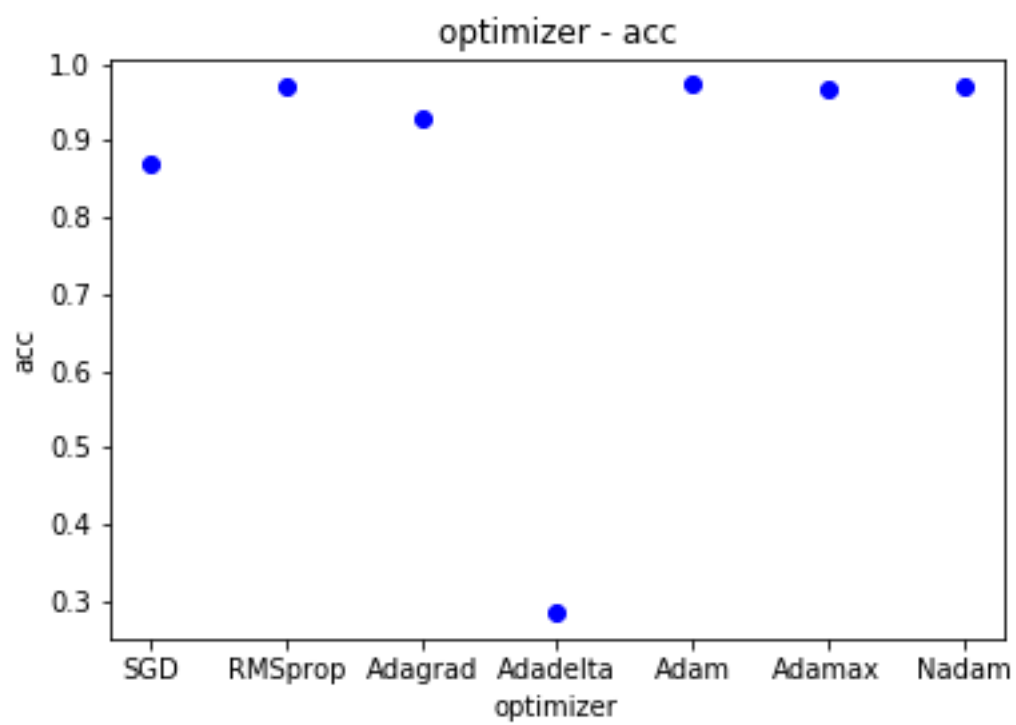


Figure 5: optimizer - accuracy

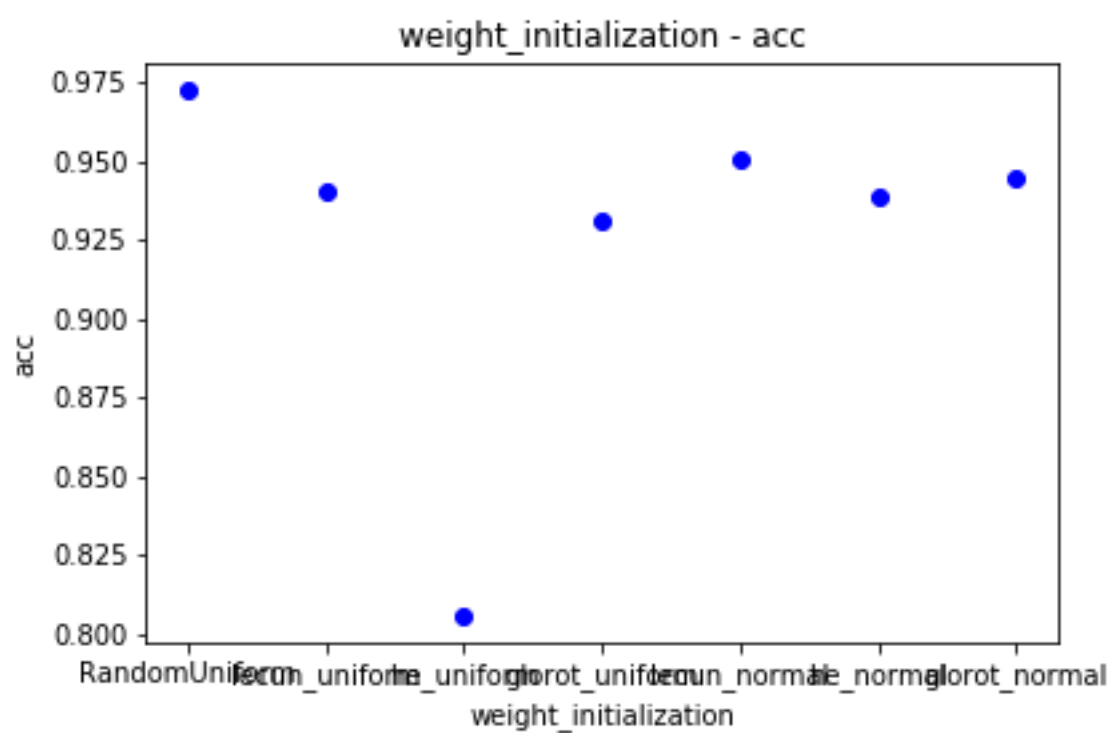


Figure 6: weight initialization - accuracy

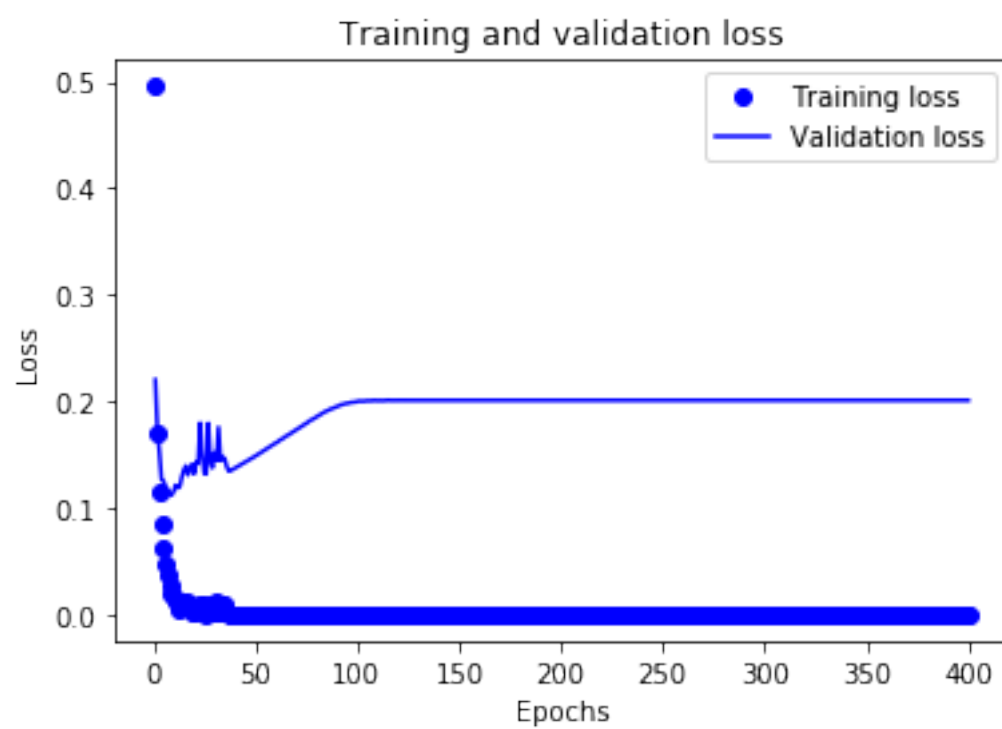


Figure 7: training history of the best hyper parameters