

Challenge A: Comparison of Optimizer

Group 7

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INTRODUCTION

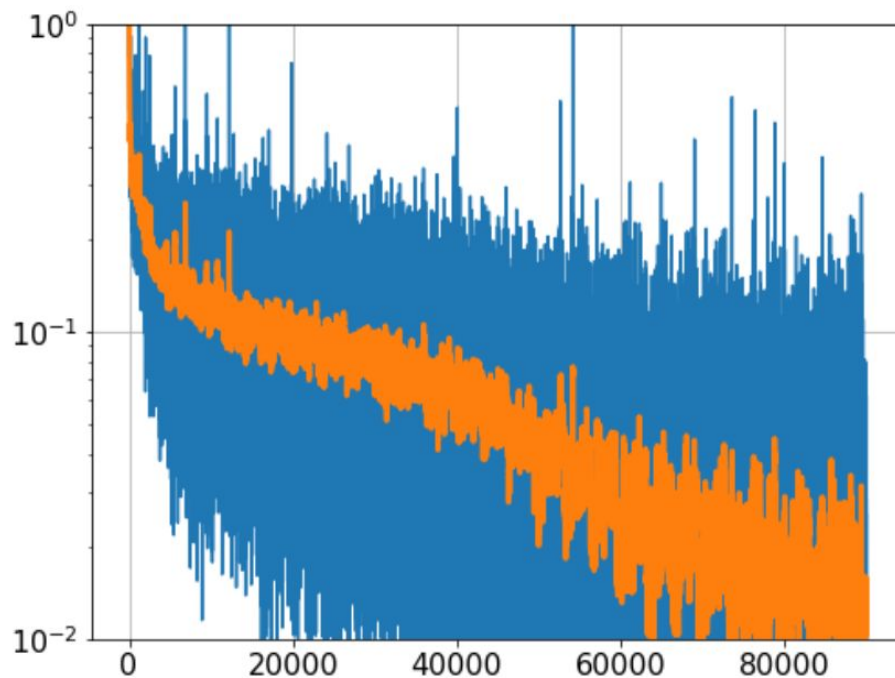
Goal:

- Implementing the simple CNN model for image classification
- Investigating the different iteration number effect on the loss and accuracy at data training models by comparing the different optimizer

ORIGINAL DATA TRAINING

Training sample: 50%
Number of Iteration: 90000

100% Iteration: 90000 elapsed 1461 [sec] ... Loss: 0.01 Accuracy: 1.00

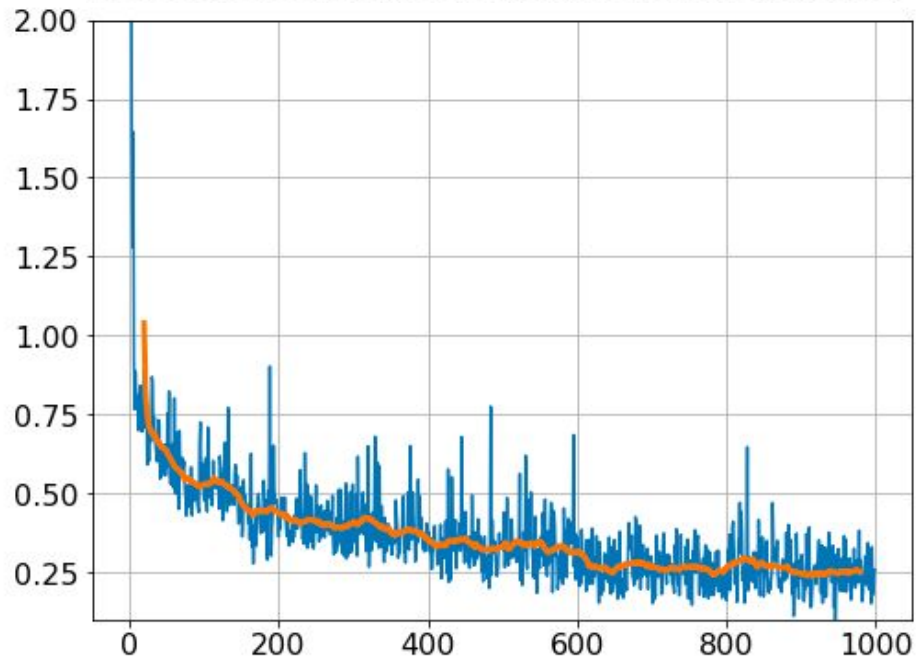


Comparison of Number of Iteration

Optimizer: **Adam**

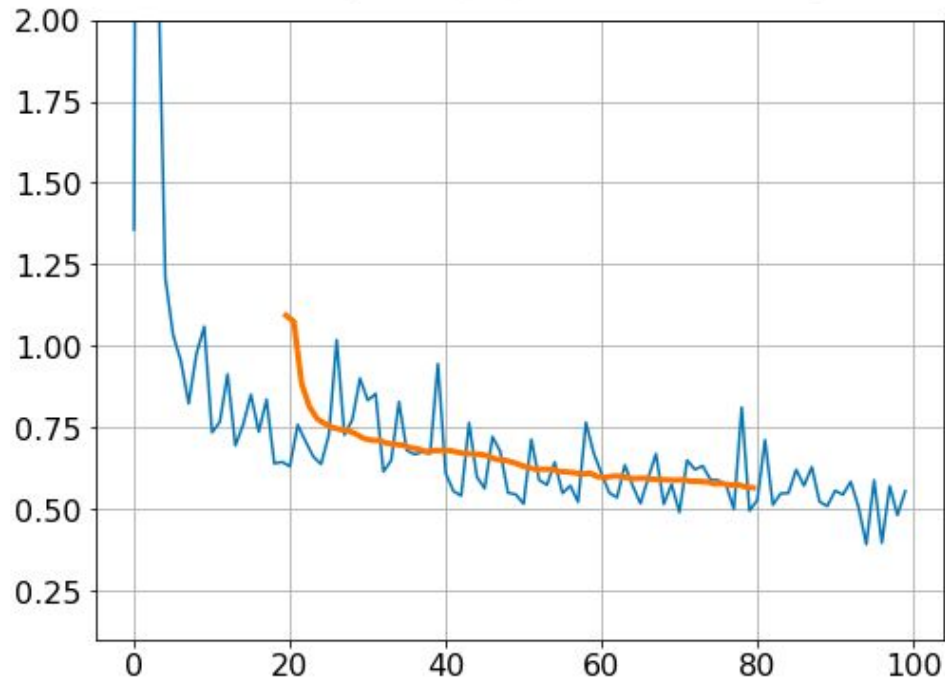
Training sample: 50%
Number of Iteration: 1000

Iteration: 1000 elapsed 299 [sec] ... Loss: 0.26 Accuracy: 0.91



Training sample: 50%
Number of Iteration: 100

Iteration: 100 elapsed 33 [sec] ... Loss: 0.55 Accuracy: 0.67



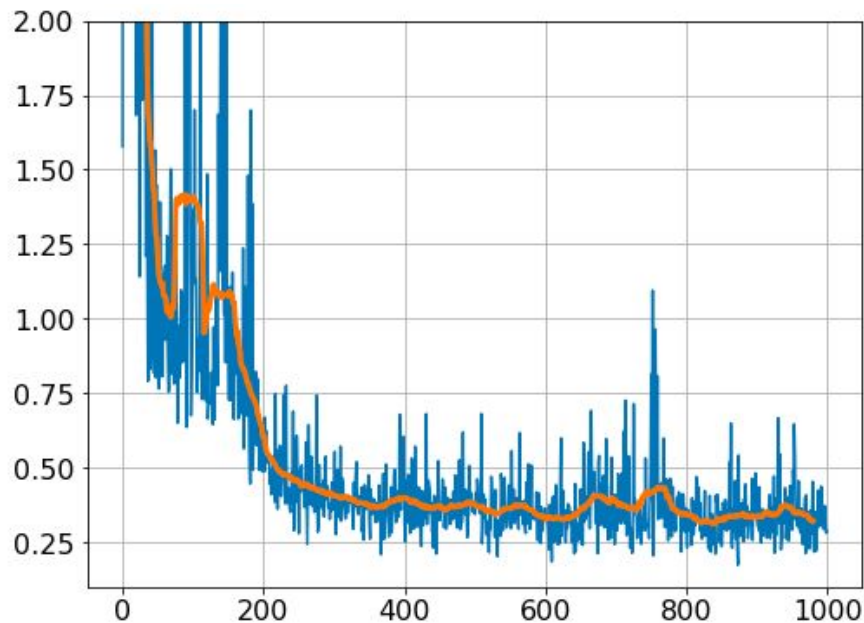
Comparison of Number of Iteration

Optimizer: **SGD**

Training sample: 50%
Number of Iteration: 1000



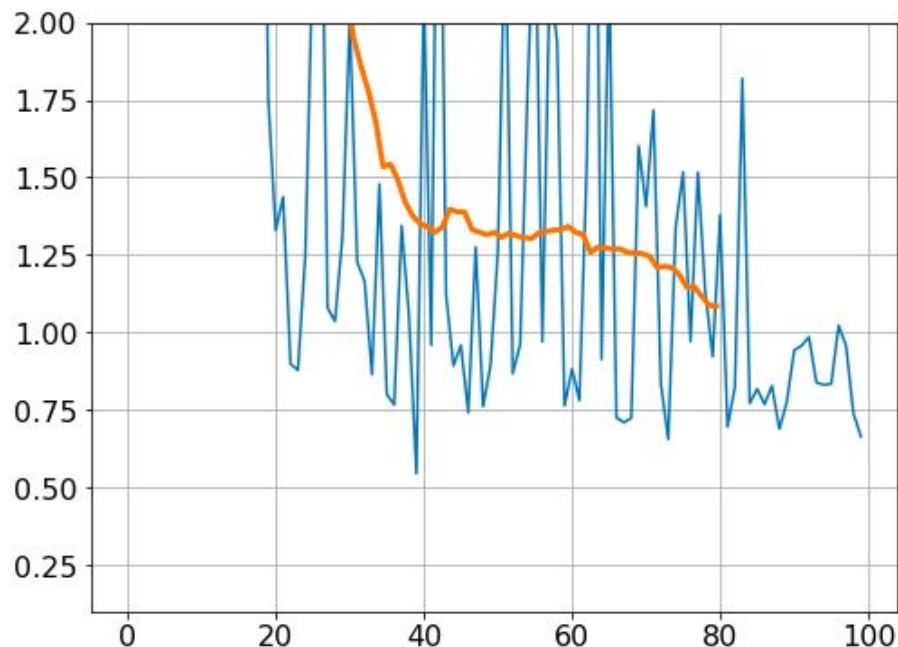
Iteration: 1000 elapsed 300 [sec] ... Loss: 0.29 Accuracy: 0.89



Training sample: 50%
Number of Iteration: 100



Iteration: 100 elapsed 32 [sec] ... Loss: 0.66 Accuracy: 0.64



CONCLUSION

- SGD optimizer is better than Adam because of the convergent of loss function is faster.
- The optimum number of iteration can be below 500, because the loss and accuracy number are already stable and convergent.

Thank you