

# Computer Vision Assignment 3

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## 1 Results

Our submitted SimCLR featured the following parameter combination:

1. temperature = 0.07,
2. encoder\_feature\_dim = 1000,
3. projection\_feature\_dim = 128,
4. batch\_size = 2048,
5. max\_epochs = 200.

The following sections will first showcase both training accuracy and loss of SimCLR and then examine the accuracy of the downstream classifiers.

### 1.1 SimCLR

Figure 1 shows the loss curve, while figure 2 and figure 3 show the top-1 and top-5 accuracy of the SimCLR model, respectively. It can be observed that the loss function decreases nicely for the amount of given time steps. Top-1 and top-5 accuracy are peculiarly close to perfect, which should most probably not be the case. As discussed in person, it was hard to discern where this might come from, since even adjusting the accuracy function had no effect on the high accuracy evaluation. Further, the implementation of the accuracy function should actually be right and functional. It might be some python-internal stuff that is causing these problems.

### 1.2 Classifier

Figures 4 and 5 show the train and test accuracies of all downstream classifiers. It can be observed that the fully trained classifier performed best, followed by the finetuned pretrained one and lastly we have the finetuned random classifier. The final training accuracies are as follows:

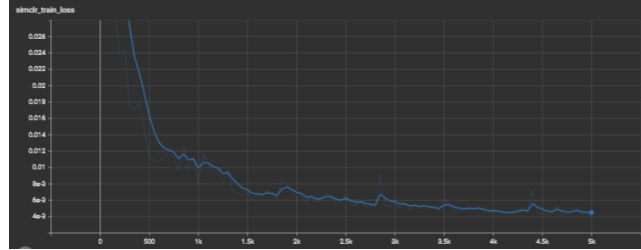


Figure 1: SimCLR loss

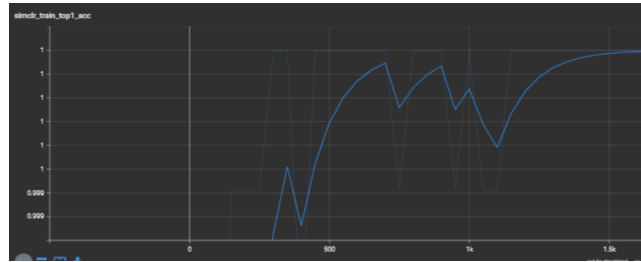


Figure 2: SimCLR top-1 accuracy

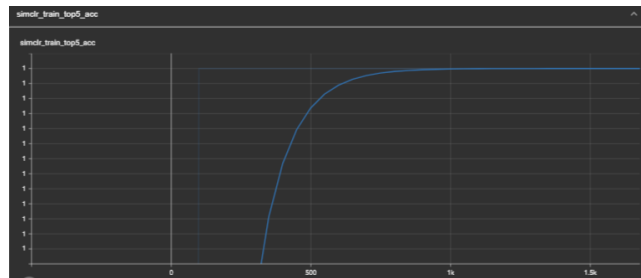


Figure 3: SimCLR top-5 accuracy

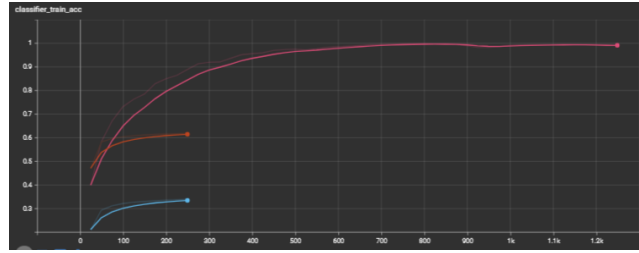


Figure 4: Classifier training accuracy

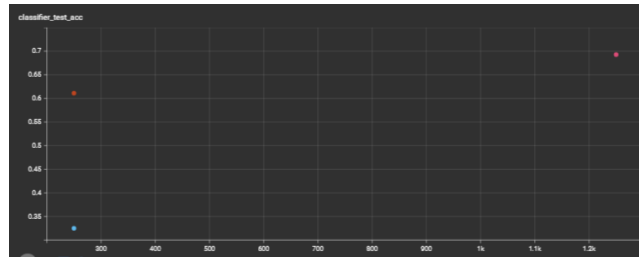


Figure 5: Classifier test accuracy

1. full\_classifier: 0.6927,
2. finetuned\_pretrained: 0.611,
3. finetuned\_random: 0.3249.