

DLP Lab 4-2 Report

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1. Introduction

- This lab we need to analysis diabetic retinopathy with three steps
 1. Write custom DataLoader that load data from files
 2. Using model as Resnet18 and Resnet50
 3. Calculate the confusion matrix to evaluate the performance

2. Experiment setups

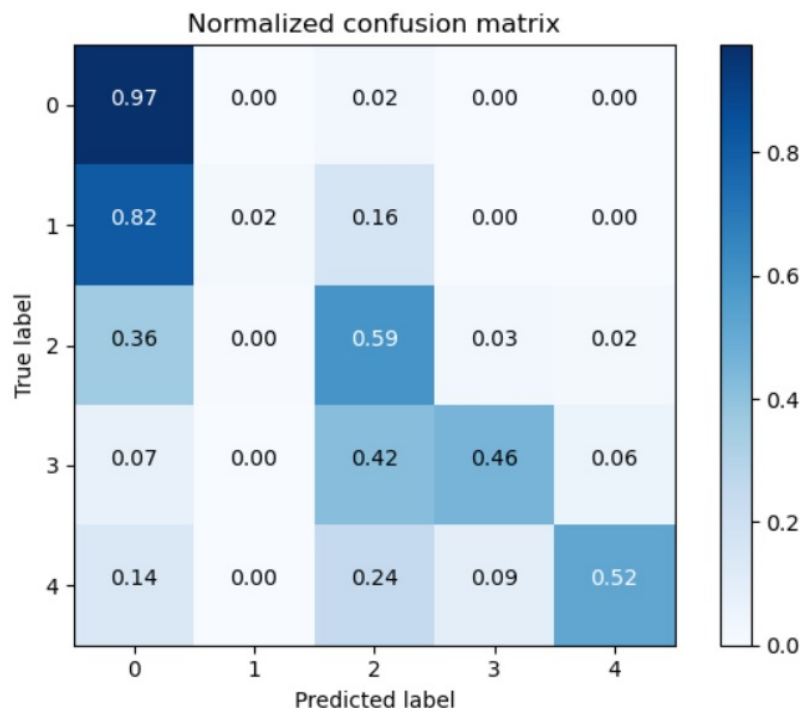
A. The details of your model (ResNet)

- Load model from torchvision.models
- To fit the input/output size in this task, change self.classify in origin model
 - In Resnet18, self.classify = nn.Linear(512, 5)
 - In Resnet50, self.classify = nn.Linear(2048, 5)
- If with pretrained, dump pretrained weight in our model.

B. The details of your Dataloader

- In function getitem(self, index), do following steps:
 1. get img_name and label from self.img_name and self.label
 2. open image file using img_name
 3. normalize and transpose the img data
 4. return img, label

C. Describing your evaluation through the confusion matrix



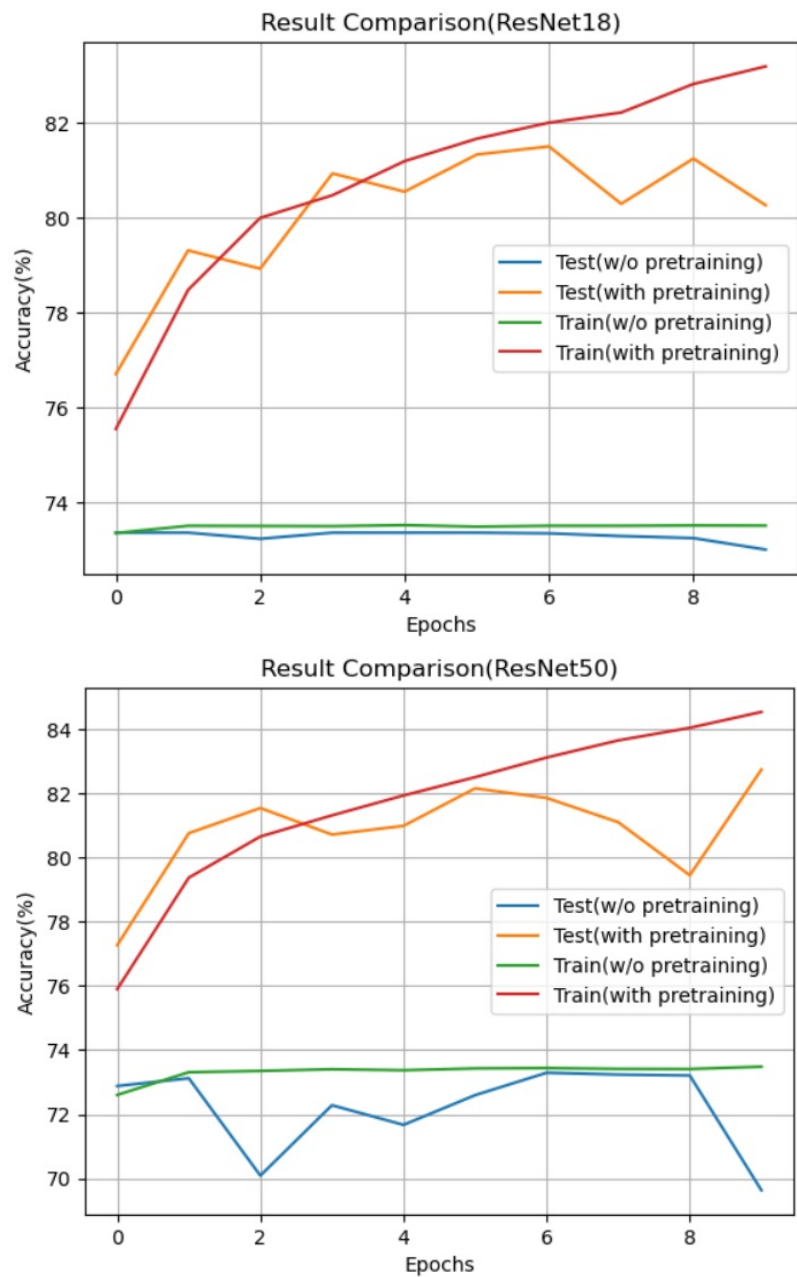
- It's tend to predict label 0, and has the highest accuracy among all label
- Label 1 is hard to predict, most of label 1 are predicted as label 0 or 2
- Label 2, 3, 4 has accuracy only about 50%, not a good performance

3. Experimental results

A. The highest testing accuracy

	w/o pretrained	with pretrained
ResNet18	73.35%	81.49%
ResNet50	73.30%	82.73%

B. Comparison figures



4. Discussion

- In my first version of model, i just read the data and directly and using the hyperparameters given in slide, in this setting it can get accuracy about 81.5%
- Then, i apply data augmentation in training data by random horizontal flip and random rotation, then i acheive baseline and get accuracy 82.7%