CS398 HW5

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In this homework, there are two parts. The first one is to build very deep convolutional networks, using Residual Networks and achieve at least 60% testing accuracy. First of all, my input went through one single convolution layer, which has a filter size 3 × 3,input channel size of 3, output channel size of 32, padding of 1, and stride of 1. The output of conv1 go through a spatial batch normalization defined as nn.BatchNorm2d in Pytorch, and then go through a ReLu function. After that the output goes to a dropout layer, and then it goes five resnet basic blocks. For each weight layer, it should contain 3 × 3 filters for a specific number of input channels and output channels. The output of a sequence of resnet basic blocks go through a max pooling layer with 4 kernel and 1 stride, and then goes to a fully connected layer. The number of epochs was 30 and learning rate was first set to 0.003 and it was divided by 10 at each 10 layer. This model achieved 65.41% testing accuracy.

In the second part, I was required to fine-tune pretrained ResNet-18 model and achieve at least 70% testing accuracy. I changed the final fully connected layer to match the classification size. The number of epoch was 10 and learning rate was 0.003. This model achieved 75.44% testing accuracy as you can see in the following picture.