

# CS547 HW2

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The test accuracy is 97.2%, which is achieved after 140,000 iterations. For the implementation, I wrote a class called *SingleLayerCNN* to hold all variables related to the neural network. I implement *forward()* to do the forward step and *backprop()* to do the back propagation. Note that I adopt a method in used in Caffe to transform an image in order to speed up the convolution process, which is implemented in *img2col()*. The *SGD()* method implements the stochastic gradient descent process. In terms of the setting of variables, I chose the kernel size of  $2 \times 2$  with 16 channels. The learning rate is set to 0.01.