

CS 547/IE 534 Homework 1

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Overview:

In this assignment, I implemented a fully connected single layer convolutional neural network to classify handwritten digits from MNIST dataset. The dataset is comprised of 70,000 scanned and greyscaled handwritten digits. Out of 70,000 images were used as my training data and the rest were allocated as testing data. The first and only hidden layer contained six 3x3 filters with stride of 1 unit and no padding. I also used ReLU function as the activation function for the convolved images. The convolved images were linearized again before used as an input for the softmax function. The parameters were updated after forward and backward propagation using the Stochastic Gradient Descent. The model was trained for total of 3 epochs. After 3rd epoch, our model was able to achieve 97% test accuracy.