532 Team Project —— Dropout Regularization

Estimated Time: 15 minutes for P1, 20 minutes for P2, 20 minutes for P3.

P1. Open the .ipynb file, there is a code for training a neuron network to classify the handwritten letter based on mnist. Open it and try to run it.

1. When the parameter is (?), how is the performance of the network?
2. When the parameter is (?), how is the performance of the network?
3. What do you think may be the reason that caused the poor performance of the network?

P2. In the same code, comment out the code for dropout. Rerun the code.

1. How is the performance now? What is the error rate.
2. Explain how does the dropout regularization help to relive the problem of over-fitting.

P3. In this course, we have learnt many other regularization methods, for example L1 regularization and L2 regularization.

1. List the purpose of L1 regularization and L2 regularization.
2. Comment out the code for L1 regularization instead of Dropout regularization, what do you observe?
3. Comment out the code for L2 regularization instead of L1 regularization, what do you observe?