CS4278 Neural Computing

Lab 2
The Multilayer Perceptron (MLP)

WEEK 4/5
Autumn Semester 2024/25

Exercises

1. Download the zip file containing code to implement a Multilayer Perceptron (MLP) using Stochastic Gradient Descent (SGD) to classify handwritten digits using MNIST data set.

   The code is from

   ➔ Michael Nielsen. Neural Networks and Deep Learning, Chapters 1-3.
   http://neuralnetworksanddeeplearning.com

2. Type in the code from the file pdf network.py.pdf

   Be careful with indentation. 4 white spaces is an indent!

   Try to understand the code and relate back to concepts discussed in lectures i.e. the forward pass, computing the gradient, the backward pass, cross validation, and more.

   Save the file as network.py

3. Open a shell, change to the working director and run test.py.

4. Modify the parameter for the number of epochs. How does this impact accuracy?