

Projects in machine learning and AI

HW 3

Xiao Jin

September 2021

1 Task 1

I used the same dataset as the previous projects: MNIST. The platform I used is tensorflow and I used packages in keras to help me build my neural network. (see details in the code)

2 Task 2

2.1 Data Analysis

As shown in the code, I divided them by 255.0.

2.2 Train-dev-test split

As shown in the code, data are divided into training set and testing set.

2.3 Implement forward propagation

I built a class to implement the forward and backward functions

2.4 Compute loss

I built a loss function to compute the loss

2.5 Mini-batch gradient descent

I set the batch size as 600 and I used SGD optimizer as the optimization method.

3 Results

Training loss, training accuracy, testing loss and testing accuracy are shown in the code