

PSet 6 – CS 4649/7649

CS 4649/7649 Robot Intelligence: Planning
Instructor: Matthew Gombolay

Instructions:

- You may work with one or more classmates on this assignment. However, all work must be your own, original work (i.e., no copy+pasting code). You must list all people you worked with and sources you used on the document you submit for your homework
- Solutions to “by hand” problem must be enclosed by a box and be legible.

Problem 1:

PSet6 uses templated code! For PSet6, we want you to get PSet6.py running by filling out the missing code in the four python files within the zip folder provided on Canvas. You will need to fill out forwardPass.py, backprop.py, and PSet6.py. Note that in some locations where we have marked #INSERT CODE HERE, it may take more than one line to do the computations necessary.

When PSet6.py (and all the other files) are coded properly, you should see it generate a plot tracing out the progress of stochastic gradient descent training a neural network to minimize the MSE loss on a training dataset (which happens to be created by another neural network in the top part of PSet6.py).

Grading

PSet 6 should be submitted on Gradescope. To help you check your implementations, we have added a test case that verifies your calculation of the loss gradient with respect to your parameters. The point distribution will be:

40 points – gradient

60 points – plot (graded by hand)

To help you iterate quickly on your code, Gradescope will not be training your model or generating plots, so please make sure you submit your plot (PSet6_plot.png) for full credit.