

4105931 機器學習

Assignment #1 – Perceptron Deadline : 2021/3/30 11:59 pm

1. Use line equation $y=mx+b$ with particular parameters m and b to generate 30 2D data samples. 15 samples are in the right of the line are marked as positive samples and the others are in the left as negative samples. No samples on the line.
2. Implement Perceptron Learning Algorithm with your own initial w . Discuss if your PLA halts or how many iterations it halts. Generate the data samples three times and calculate the average number of iterations when PLA halts.
3. In Problem 1, generating 1000 positive samples and 1000 negative samples. Implement Pocket Algorithm and compare the execution time to PLA on the same dataset.

Note:

- The assignment should be implemented by Python.
- You need to hand in the python code and the report.
- In your report, it should contain: (請以中文撰寫)
 - **Execution description:** Please describe the detailed steps how to execute your codes.
 - **Experimental results:** As specified in the assignment.
 - **Conclusion:** The observation from your results.
 - **Discussion:** The questions or the difficulties you met during the implementation.
- Assignment format
 - Zip all your files into a single one and upload it to the E-Course2 website.
 - Please format the file name as:
Student ID_proj1_verNo
ex : 602410143_proj1_v1
- No copy! Late policy applies.