

Homework 1 – Machine Learning (CS4342, Whitehill, C-Term 2025)

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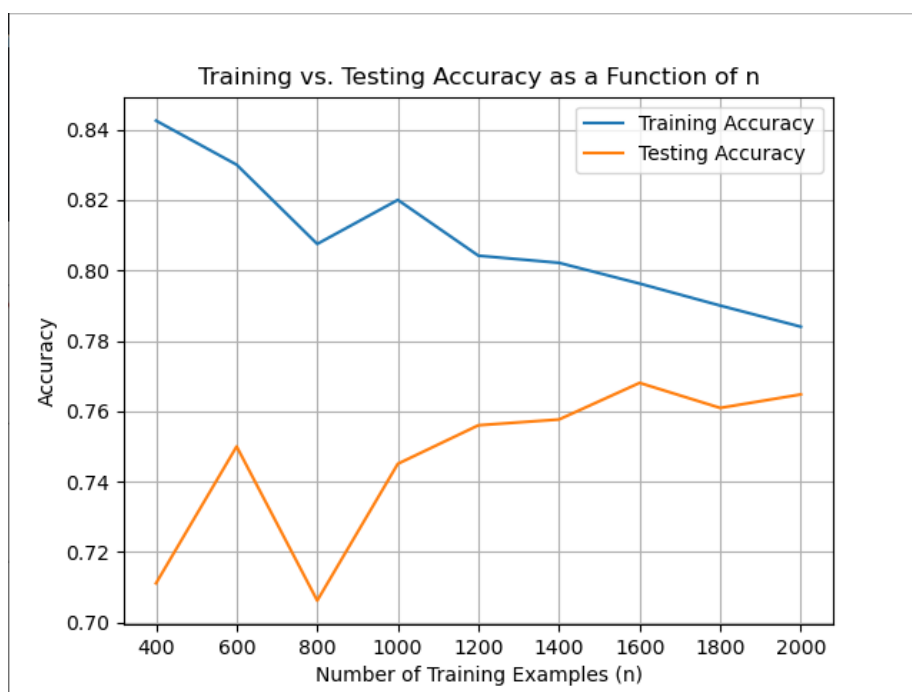
1 Question 4

| n | trainingAccuracy | testingAccuracy |
|------|------------------|-----------------|
| 400 | 0.8425 | 0.7112 |
| 600 | 0.8300 | 0.7500 |
| 800 | 0.8075 | 0.7062 |
| 1000 | 0.8200 | 0.7451 |
| 1200 | 0.8042 | 0.7560 |
| 1400 | 0.8021 | 0.7577 |
| 1600 | 0.7963 | 0.7681 |
| 1800 | 0.7900 | 0.7609 |
| 2000 | 0.7840 | 0.7648 |

As is apparent in the provided table, and this plot 1, as the number of features n is increased, the difference between the training and testing accuracy is decreased. In addition, as the testing accuracy increases, the training accuracy decreases. However, at 800 training examples, there is a significant outlier, which is likely a result of the greedy algorithm selecting unoptimal pixel-pair locations.

2 Question 5

2



Visualization of Learned Features

