

ICS635 Homework 4: by Lambert Leong

Problem 1

Maximizing the conditional likelihood of the data.

$$\begin{aligned}\mathcal{L}(\mathcal{D}) = p_{\theta}(y_n|x_n) &= \prod_n^N (\hat{y})^y (1 - \hat{y})^{1-y} \\ &= \sum_n^N \log(\hat{y}) + (1 - y)\log(1 - \hat{y})\end{aligned}$$

Problem 2

1. Sample size is large enough to do a 60%, 20%, 20% split for train, validation, and test.
2. The exact architecture or neural net model is ambiguous.
3. The loss function being optimized is not clear.
4. The exact hyper parameters optimized are not stated.
5. The evaluation method for the competition is unclear(i.e. are they using AUROC, AUPRC, or etc).
6. It seems as though the test set was not used. The individual does not report how the tuned model did on the test set.
7. It is unclear if the individual is first place on the leader board or if they actually won the whole competition.
8. The final optimized parameters are not reported which makes it difficult to reproduce the work.
9. It is not clear what data set was used to train the final model that was submitted. Did the individual use just the model trained on the 80% training data or all the training data?
10. The final test set, mentioned in the last line, is ambiguous because it could be referring to the withheld dataset that is used to pick the winners or the final test set(10% of the training) that the individual set aside when he did his data split.

Problem 3

- 1.
- 2.
- 3.

Problem 4

- 1.
- 2.
- 3.