

Homework 2

Collaborators:

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Problem 2-1. A Walk Through Linear Models

(a) Perceptron

Answer:

- 1.
- 2.
- 3.

(b) Linear Regression

Answer:

- 1.
- 2.
- 3.
- 4.

(c) Logistic Regression

Answer:

- 1.
- 2.

(d) Support Vector Machine

Answer:

- 1.
- 2.
- 3.

Problem 2-2. Regularization and Cross-Validation

- (a) Implement Ridge Regression, and use LOOCV to tune the regularization parameter λ .

Answer:

- 1.
- 2.
- 3.

- (b) Implement Logistic Regression, and use LOOCV to tune the regularization parameter λ .

Answer:

Problem 2-3. Bias Variance Trade-off

Let's review the bias-variance decomposition first. Now please answer the following questions:

- (a) True or False

Answer:

- 1.
- 2.
- 3.
- 4.
- 5.