

Assessing Model Accuracy

Suppose we fit a model $\hat{f}(x)$ to some training data $\text{Tr} = \{x_i, y_i\}_1^N$, and we wish to see how well it performs.

- We could compute the average squared prediction error over Tr :

$$\text{MSE}_{\text{Tr}} = \text{Ave}_{i \in \text{Tr}} [y_i - \hat{f}(x_i)]^2$$

This may be biased toward more overfit models.

- Instead we should, if possible, compute it using fresh *test* data $\text{Te} = \{x_i, y_i\}_1^M$:

$$\text{MSE}_{\text{Te}} = \text{Ave}_{i \in \text{Te}} [y_i - \hat{f}(x_i)]^2$$