

Prediction in the linear model

stats545.1 Theory of linear models

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Prediction and prediction uncertainty

A new observation: \mathbf{x}_h

The prediction: $\hat{y}_h = E[\hat{y}_h] = \mathbf{x}_h' \hat{\boldsymbol{\beta}}$

The variance: $\sigma^2 \mathbf{x}_h' (\mathbf{X}'\mathbf{X})^{-1} \mathbf{x}_h$

Prediction uncertainty: $V[y_h - \hat{y}_h]$