

5/27 wed

Recap



$$y = \theta X \begin{bmatrix} \theta_0 \\ \theta_1 \\ \vdots \\ \theta_d \end{bmatrix}$$

$$MSE = \frac{1}{n} \sum (y - \theta \cdot X)^2$$

$$D = A$$

$$\theta = (X_0, X_1, \dots, X_d)$$

$$(X_0, X_1, \dots, X_d)$$



$$y = ax + b$$

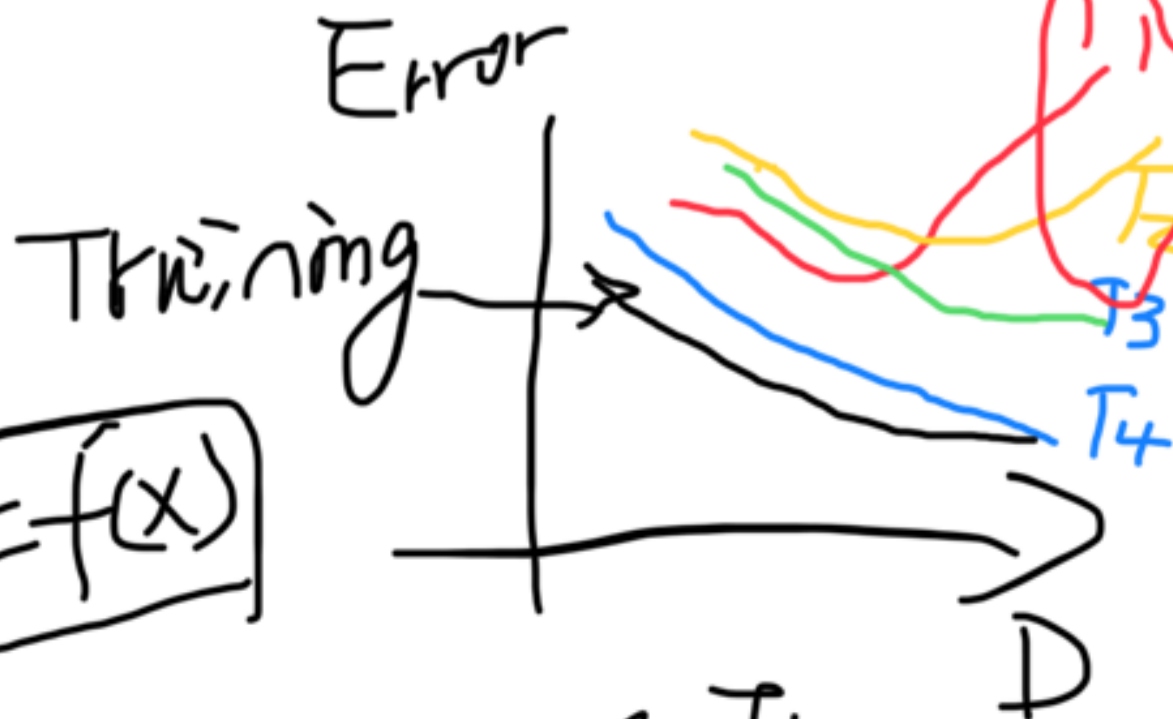
$$\Rightarrow \begin{cases} MSE = \sum (y - X\theta)^2 \\ X = (X_0, X_1, \dots, X_n) \end{cases}$$

overfitting

Error \Rightarrow Bias \propto Error

Bias \downarrow

$$y = f(x)$$



Training \Rightarrow Test



Bias ↓ var ↑
Bias ↑ var ↓



$$\textcircled{1} P(y|x) = \frac{\textcircled{2} P(x|y) \textcircled{3} P(y)}{\textcircled{4} P(x)}$$



Training



$$\textcircled{1} P(y = -1 | x_{p1}) \\
 P(y = +1 | x_{p1})$$

TEST

$$\begin{array}{l} P(X|Y=1) \\ P(X|Y=-1) \end{array}$$

②

$$N(\mu, \sigma)$$

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③ $P(Y=1)$
0.6

$P(Y=-1)$
0.4