

Recap

* Linear Regression

* Minimize θ

$$\underbrace{L(\theta)}_{\text{MSE}}$$

y

$$X\theta = \hat{y}$$

MSE

$$\frac{1}{n} \sum_{i=1}^n (y_i - \hat{y}_i)^2$$

* Logistic Regression

→ For Classification

$$y \in \{0, 1\}$$

$$\hat{y} = P(y = 1 | x)$$

$$\min_{\theta} \underbrace{L(\theta)}$$

Cross-Entropy - Loss

(Binary)

* How do we solve!

(ex. for Linear Regression)

* Closed form

* Gradient Descent (y. for logistic regression)

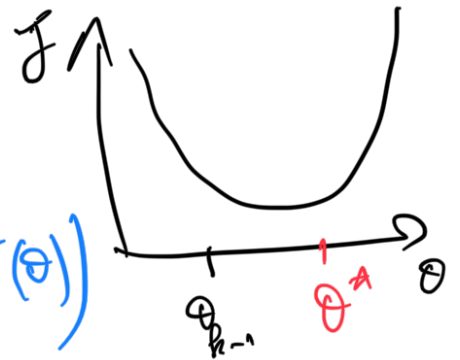
$$\theta = (X^T X)^{-1} X^T y$$

\downarrow
 $+dI$

$$-\nabla_{\theta} J(\theta)$$

$$\theta_k \leftarrow \theta_{k-1} + \alpha (-\nabla_{\theta} J(\theta))$$

general
small
positive



$$\theta_k \leftarrow \theta_{k-1} - \alpha \nabla_{\theta} J(\theta_{k-1})$$