



모두의 딥러닝 (Deep learning)

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Model construct using tensorflow

Cross entropy (교차 엔트로피)

- Entropy

$$H(x) = - \sum_{i=1}^n p(x_i) \log p(x_i)$$

- Cross entropy

$$H_p(q) = - \sum_{i=1}^n q(x_i) \log p(x_i)$$

- Binary cross entropy

$$J(\theta) = - \frac{1}{m} \sum_{i=1}^m [y_i \log(h_\theta(x_i)) + (1 - y_i) \log(1 - h_\theta(x_i))]$$

$$\text{where, } h_\theta(x_i) = \frac{1}{1 + e^{-\theta x}}, \quad y \in 0, 1$$

오차 함수 (Error measurement)

- mean squared error

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

- mean absolute error

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

- mean absolute percentage error

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

- mean squared logarithmic error

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