Lecture-8 aHFgTe

Token Number:- aHFgTe

Summary:-

The lecture started with brief about paper presentation. Then we studied about least square linear Regression.

$$y = f(x) + \epsilon$$

Where we deduced our eq to

$$E_{out}(h) = \frac{1}{N}\sum_{n=1}^{N}(\hat{y}_n - y_n)^2$$

$\hat{}$ is used to denote predicted value.

We want, $\hat{y} \approx y$ i.e predicted value equal to actual.

Then we studied ordinary least Squares: Minimum E_{in}

$$E_{in}(w) = \frac{1}{N}(w^T x^T x w - 2w^T x^T y + y^T y)$$

Intermediate goal is $w_{in} = \arg\min E_{in}(w)$ which can achieved by taking derivative.

$$\nabla E_{in}(w) = 0$$

$\theta(s)$ ↓ Sigmoid fun^c

$$\theta(s) = \frac{e^s}{1+e^s} = \frac{1}{1+e^{-s}}, \quad \theta(-s) = \frac{e^{-s}}{1+e^{-s}} = \frac{1}{1+e^s}$$