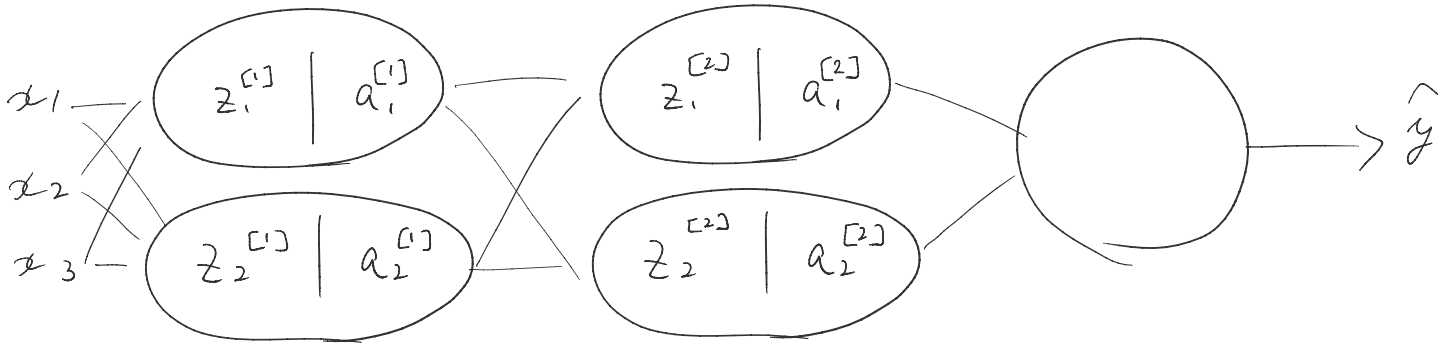
Course2 Week3

2019年12月8日　19:51

Batch Norm



$X \xrightarrow{w^{[1]},\ b^{[1]}} z^{[1]} \xrightarrow[\text{Batch Norm (BN)}]{\beta^{[1]},\ \gamma^{[1]}} \tilde{z}^{[1]} \longrightarrow a^{[1]} = g^{[1]}(\tilde{z}^{[1]}) \longrightarrow z^{[2]} \cdots$

Params : $w^{[1]}, b^{[1]}, \cdots w^{[l]}, b^{[l]}$

$\beta^{[1]}, \gamma^{[1]}, \cdots \beta^{[l]}, \gamma^{[l]}$

$d\beta^{[l]}$

$\beta^{[l]} := \beta^{[l]} - \alpha\, d\beta^{[l]}$

Softmax

$$t = e^{z^{[L]}}$$

$$a^{[L]} = \frac{e^{z^{[L]}}}{\sum_{i=1}^{n_L} t_i}$$

$(n_L, 1)$

Softmax.

例 $z = \begin{bmatrix} 5 \\ 2 \\ -1 \\ 3 \end{bmatrix}$ $t = \begin{bmatrix} e^5 \\ e^2 \\ e^{-1} \\ e^3 \end{bmatrix} = \begin{bmatrix} 148.4 \\ 7.4 \\ 0.4 \\ 20.1 \end{bmatrix}$

$\sum_{i=1}^{4} t_i = 176.3$

$a = \frac{t}{176.3} = \begin{bmatrix} 0.842 \\ 0.042 \\ 0.002 \\ 0.114 \end{bmatrix}$ → 1