MLP, Back-propagation

2023年4月2日 上午 12:46

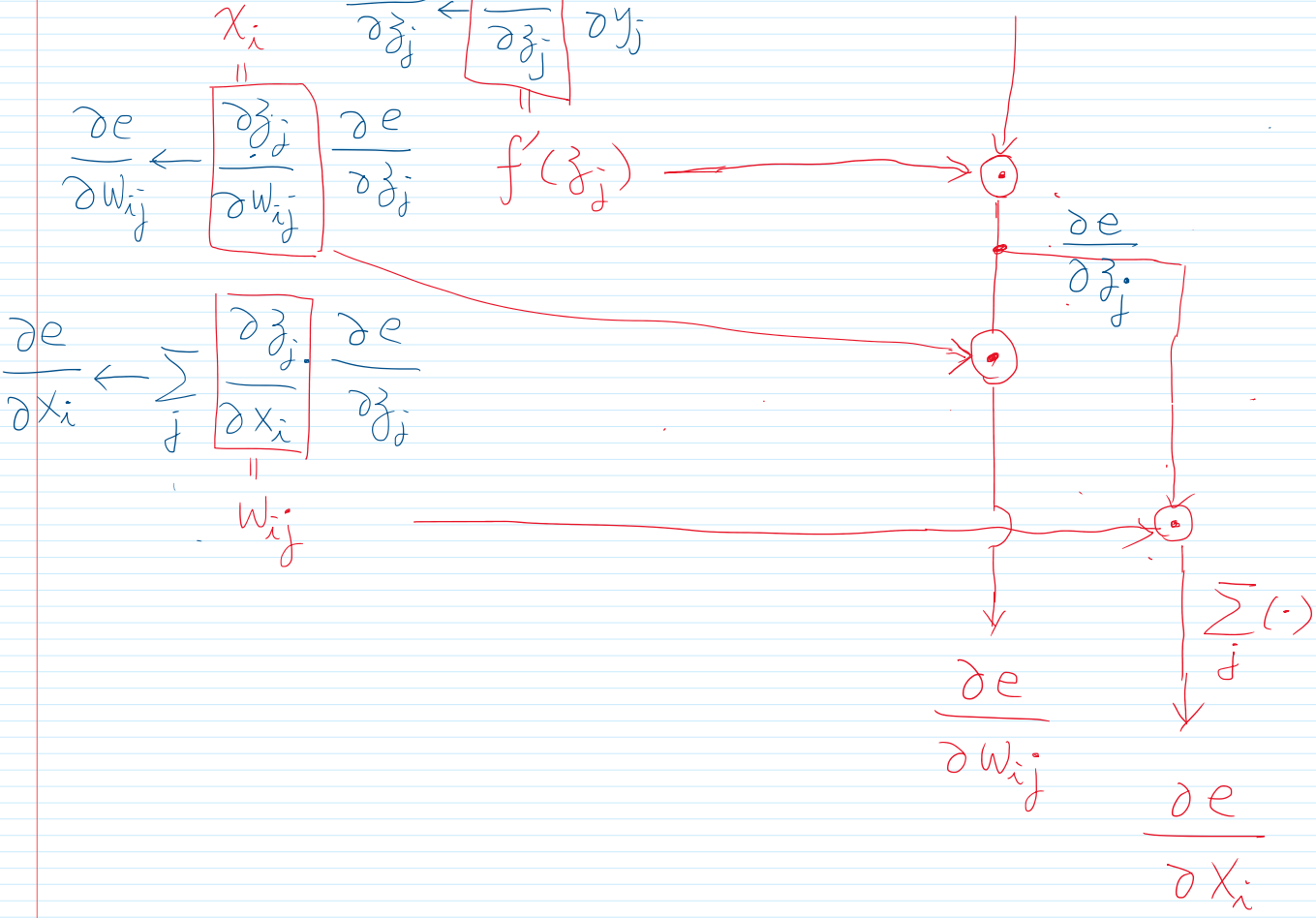
$$\vec{x}^{i} @ \underset{i}{\downarrow}\overrightarrow{W}^{j} \rightarrow \vec{z}^{j} \xrightarrow{f(\cdot)} \vec{y}^{j} \xrightarrow{\mathcal{E}(\cdot)} e$$

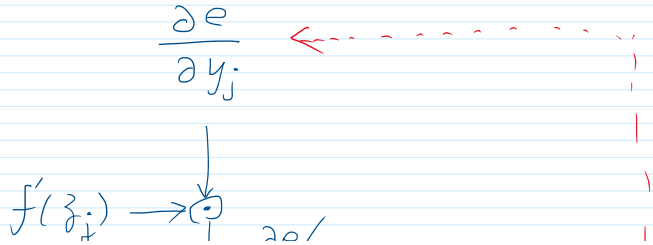
$$\sum_i x_i w_{ij} = z_j$$

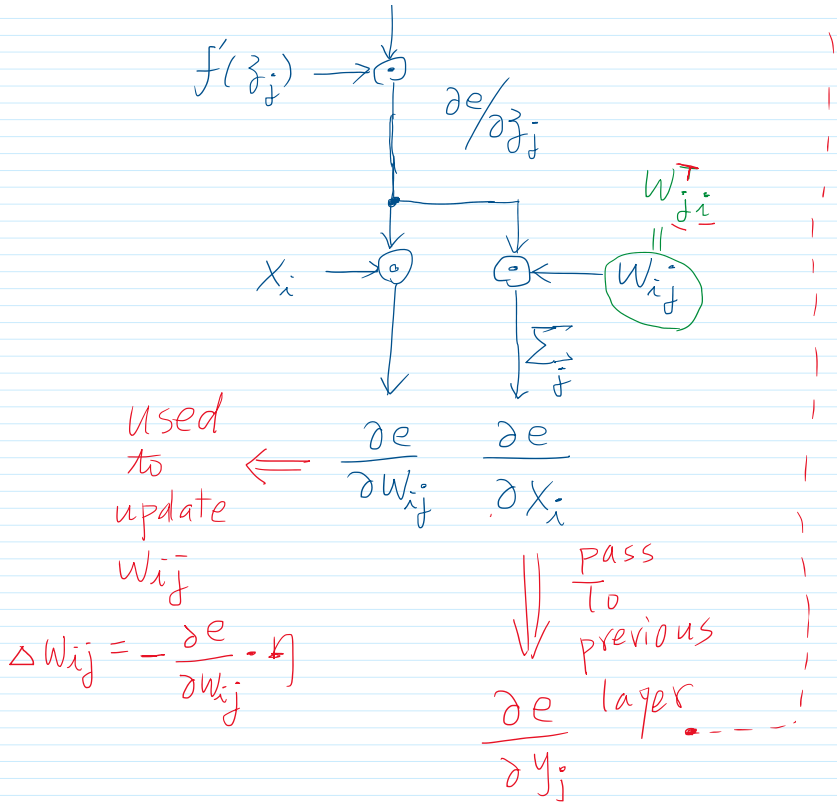
$$f(z_j) = y_j$$

$$\mathcal{E}(y_j; y_j^*, \forall j) = e \overset{S.E.}{=} \sum_j (y_j - y_j^*)^2$$

$$\frac{\partial e}{\partial y_j} = 2(y_j - y_j^*)$$






$f'(z_j)$
$\partial e / \partial z_j$
W^T_{ji}
W_{ij}
x_i
$\sum_j$
$\frac{\partial e}{\partial W_{ij}}$
$\frac{\partial e}{\partial x_i}$
used to update W_{ij}
$\Delta W_{ij} = -\frac{\partial e}{\partial W_{ij}} \cdot \eta$
pass To previous layer
$\frac{\partial e}{\partial y_j}$