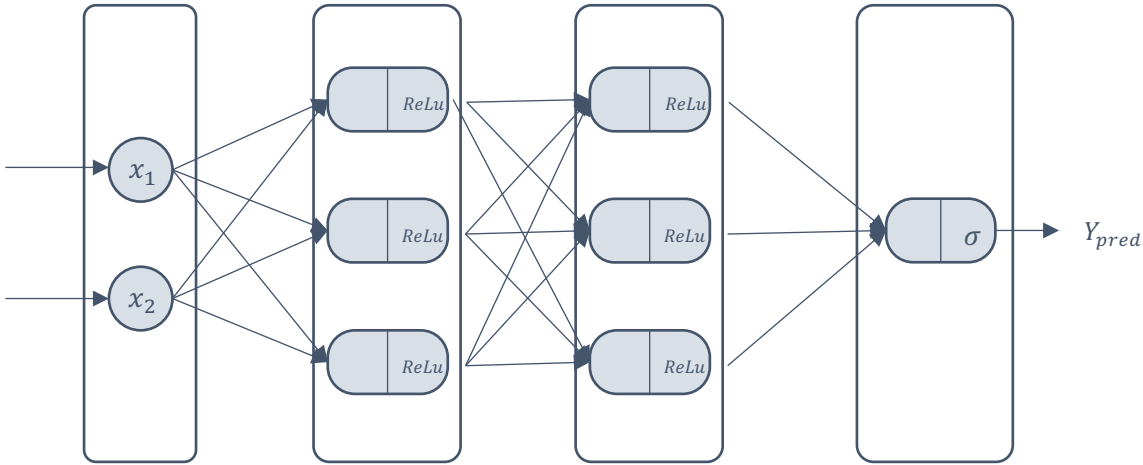
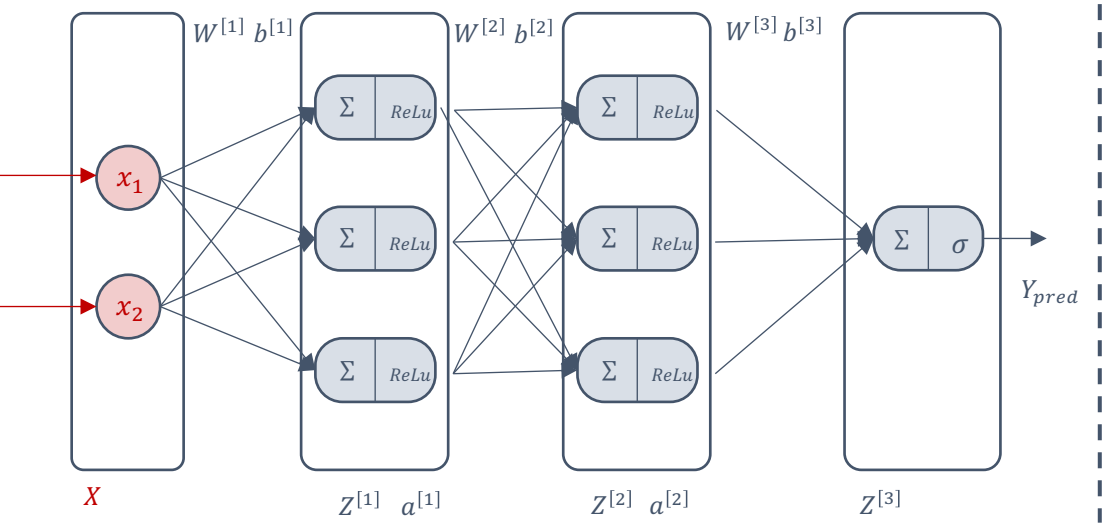
순전파 Feed Forward

PAI
PUBLIC AI



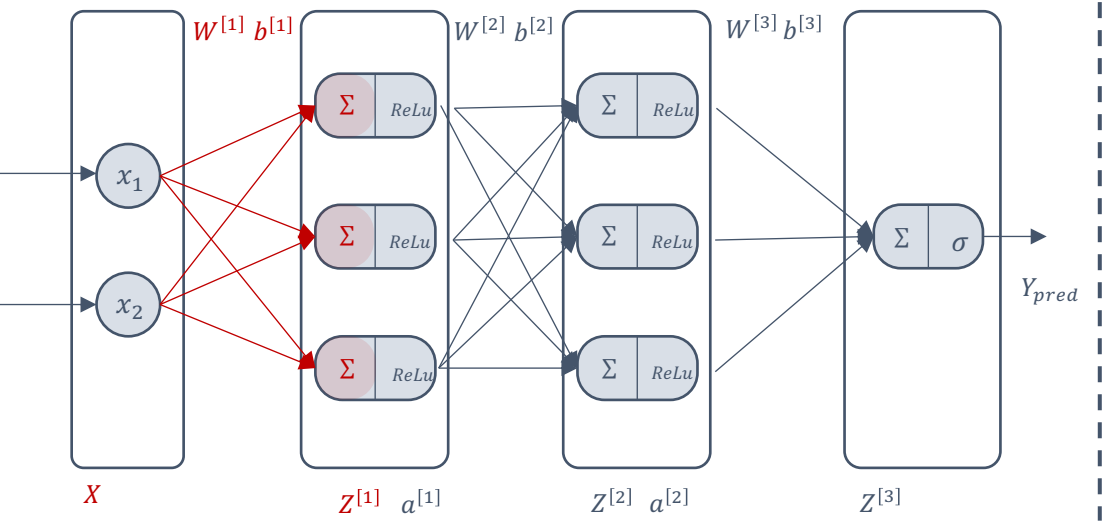
PAI
PUBLIC AI



순전파

X

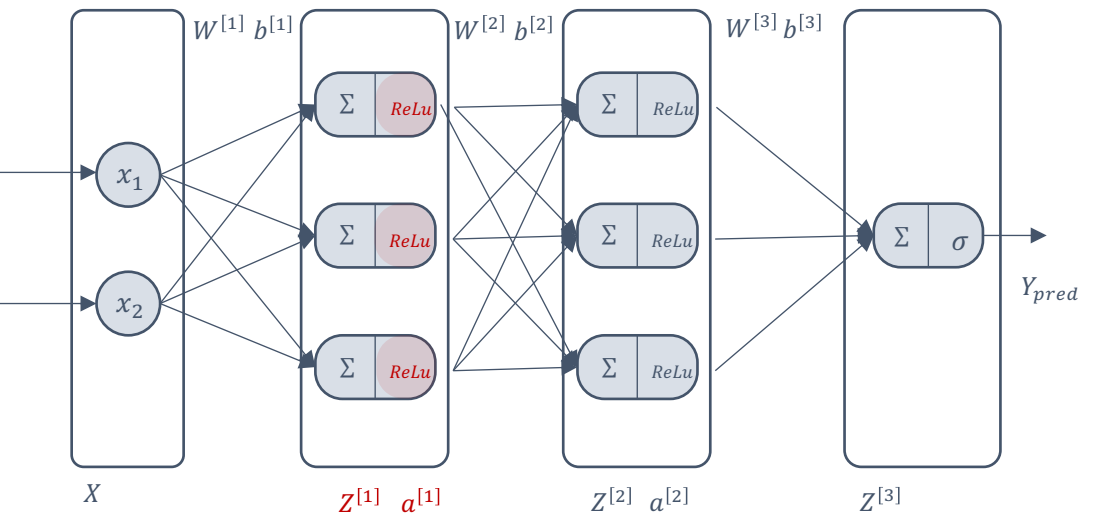
PAI
PUBLIC AI



순전파

$$Z^{[1]} = XW^{[1]} + b^{[1]}$$

PAI
PUBLIC AI

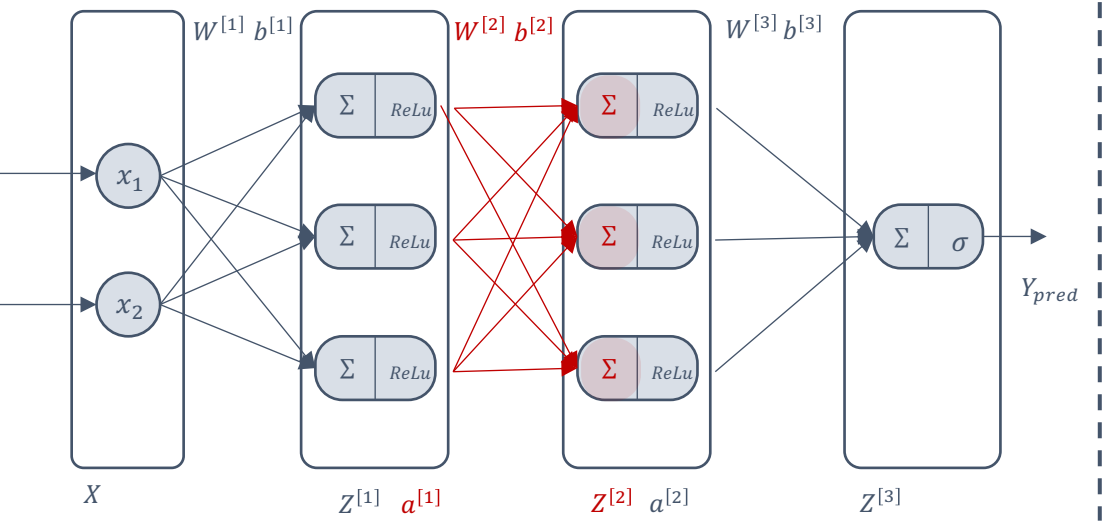


순전파

$$Z^{[1]} = XW^{[1]} + b^{[1]}$$

$$\boldsymbol{a^{[1]} = \max(0, Z^{[1]})}$$

PAI
PUBLIC AI



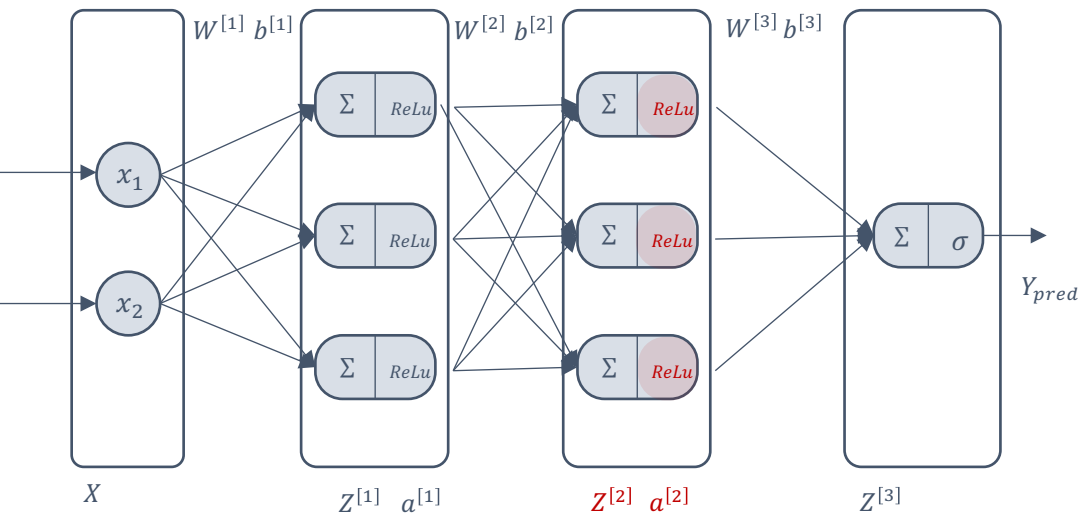
순전파

$$Z^{[1]} = XW^{[1]} + b^{[1]}$$

$$a^{[1]} = \max(0, Z^{[1]})$$

$$\boldsymbol{Z^{[2]} = a^{[1]}W^{[2]} + b^{[2]}}$$

PAI
PUBLIC AI

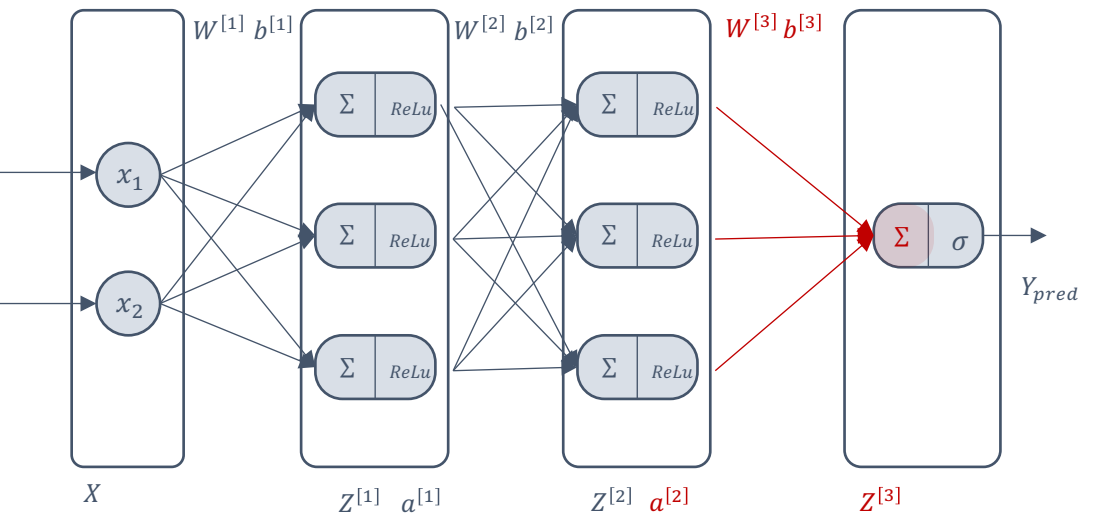


순전파

$$Z^{[1]} = XW^{[1]} + b^{[1]}$$
$$a^{[1]} = \max(0, Z^{[1]})$$

$$Z^{[2]} = a^{[1]}W^{[2]} + b^{[2]}$$
$$\boldsymbol{a^{[2]} = \max(0, Z^{[2]})}$$

PAI
PUBLIC AI



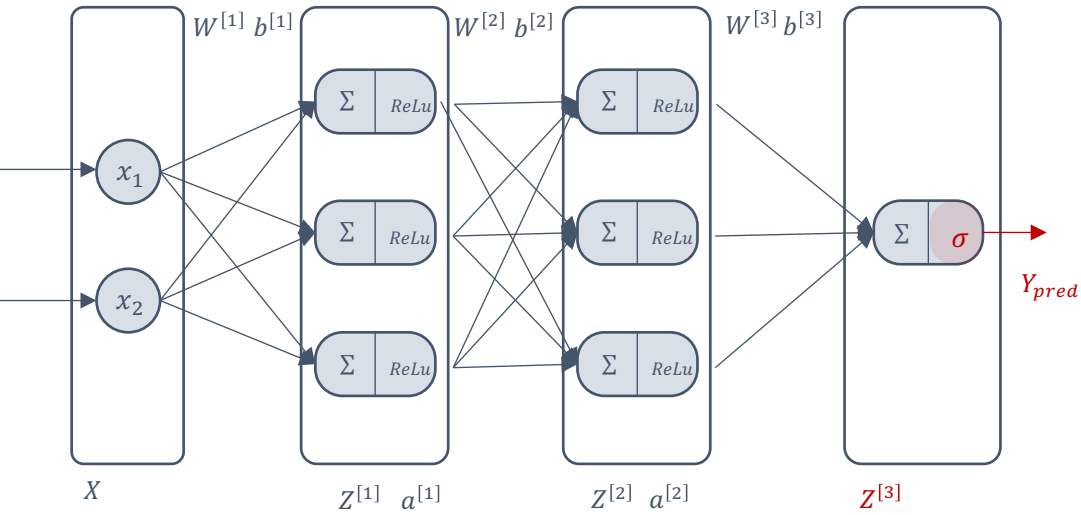
순전파

$$Z^{[1]} = XW^{[1]} + b^{[1]}$$
$$a^{[1]} = \max(0, Z^{[1]})$$

$$Z^{[2]} = a^{[1]}W^{[2]} + b^{[2]}$$
$$a^{[2]} = \max(0, Z^{[2]})$$

$$\boldsymbol{Z^{[3]} = a^{[2]}W^{[3]} + b^{[3]}}$$

PAI
PUBLIC AI



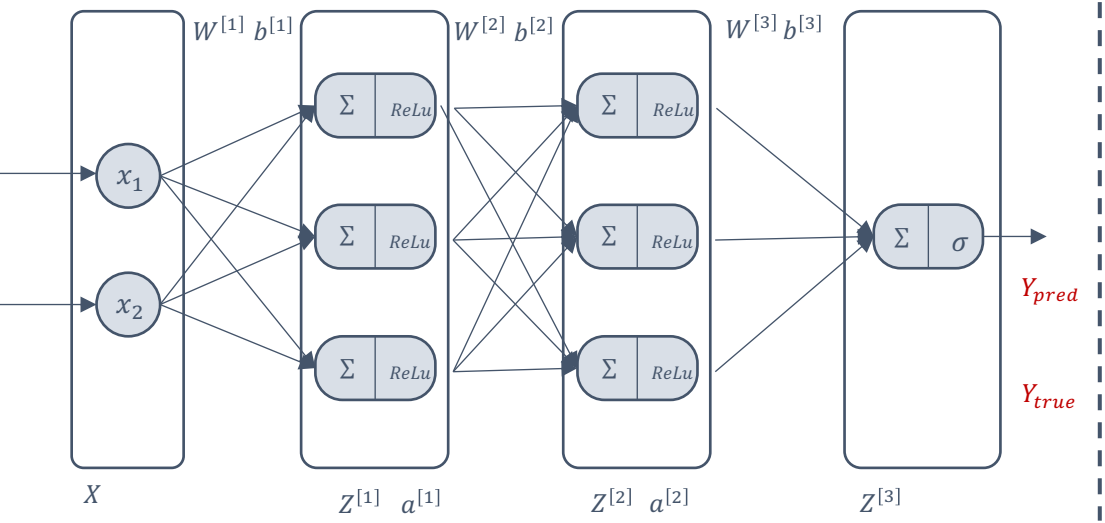
순전파

$$Z^{[1]} = XW^{[1]} + b^{[1]}$$
$$a^{[1]} = \max(0, Z^{[1]})$$

$$Z^{[2]} = a^{[1]}W^{[2]} + b^{[2]}$$
$$a^{[2]} = \max(0, Z^{[2]})$$

$$Z^{[3]} = a^{[2]}W^{[3]} + b^{[3]}$$
$$\boldsymbol{Y_{pred}} = \frac{\mathbf{1}}{\mathbf{1} + \boldsymbol{e}^{-\boldsymbol{Z}^{[3]}}}$$

PAI
PUBLIC AI



순전파

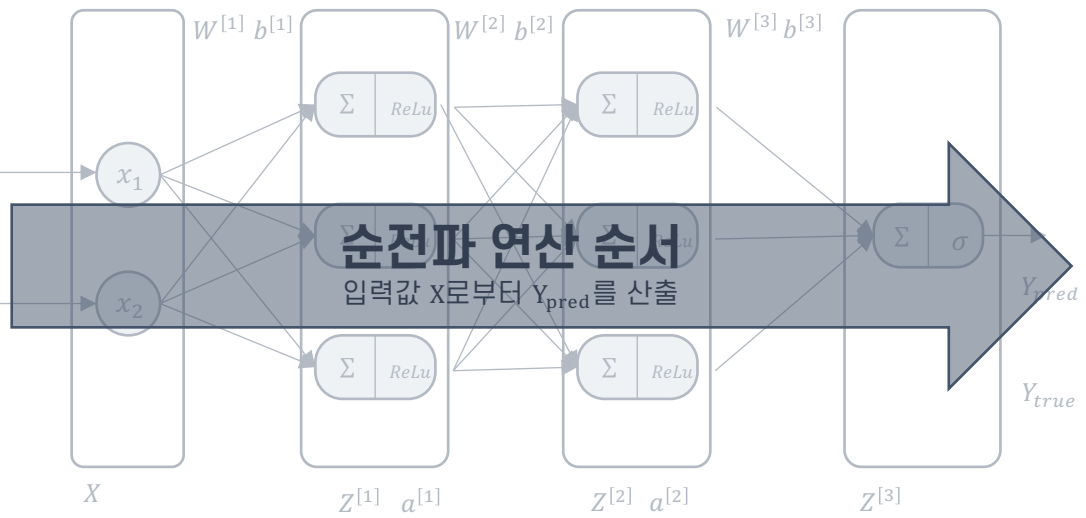
$$Z^{[1]} = XW^{[1]} + b^{[1]}$$
$$a^{[1]} = \max(0, Z^{[1]})$$

$$Z^{[2]} = a^{[1]}W^{[2]} + b^{[2]}$$
$$a^{[2]} = \max(0, Z^{[2]})$$

$$Z^{[3]} = a^{[2]}W^{[3]} + b^{[3]}$$
$$Y_{pred} = \frac{1}{1 + e^{-Z^{[3]}}}$$

$$\boldsymbol{Loss} = \frac{\mathbf{1}}{\mathbf{2}}\left(\boldsymbol{Y_{pred}} - \boldsymbol{Y_{true}}\right)^{\mathbf{2}}$$

PAI
PUBLIC AI



순전파

$$Z^{[1]} = XW^{[1]} + b^{[1]}$$
$$a^{[1]} = \max(0, Z^{[1]})$$

$$Z^{[2]} = a^{[1]}W^{[2]} + b^{[2]}$$
$$a^{[2]} = \max(0, Z^{[2]})$$

$$Z^{[3]} = a^{[2]}W^{[3]} + b^{[3]}$$
$$Y_{pred} = \frac{1}{1 + e^{-Z^{[3]}}}$$
$$Loss = \frac{1}{2}\left(Y_{pred} - Y_{true}\right)^2$$

PAI
PUBLIC AI