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Matkul (Kelas) : Pembelajaran Mesin (B)

Tugas ANN

contoh #2

① $net_{h_2} = w_3 \cdot i_1 + w_4 \cdot i_2 + b_1 \cdot 1$

$= 0{,}25 \cdot 0{,}05 + 0{,}3 \cdot 0{,}1 + 0{,}35$

$= 0{,}3925$

→ $Out_{h_2} = \frac{1}{1 + e^{-net_{h_2}}}$

$= \frac{1}{1 + e^{-0{,}3925}}$

$= 0{,}5969$

② $net\ O_2 = w_7 \cdot h_1 + w_8 \cdot h_2 + b_2 \cdot 1$

$= 0{,}5 \cdot 0{,}5933 + 0{,}55 \cdot 0{,}5969 + 0{,}6$

$= 1{,}225$

→ $Out\ O_2 = \frac{1}{1 + e^{-1{,}225}}$

$= 0{,}7729$

③ $E_{O_2} = \frac{1}{2}(target - output)^2 = \frac{1}{2}[0{,}99 - 0{,}7729]^2 = 0{,}0236$

④ $w_6^+ = w_6 - \eta \frac{\partial E\ total}{\partial w_6} = 0{,}45 - 0{,}5\left(\frac{\partial E\ total}{\partial Out\ O_1} \cdot \frac{\partial Out\ O_1}{\partial Net\ O_1} \cdot \frac{\partial Net\ O_1}{\partial w_6}\right)$

$= 0{,}4087$

⑤ $w_7^+ = w_7 - \eta \frac{\partial E\ total}{\partial w_7} = 0{,}5 - 0{,}5\left(\frac{\partial E\ total}{\partial Out\ O_2} \cdot \frac{\partial Out\ O_2}{\partial Net\ O_2} \cdot \frac{\partial Net\ O_2}{\partial w_7}\right)$

$= 0{,}5113$

⑥ $w_8^+ = w_8 - \eta \frac{\partial E\ total}{\partial w_8} = 0{,}55 - 0{,}5\left(\frac{\partial E\ total}{\partial Out\ O_2} \cdot \frac{\partial Out\ O_2}{\partial Net\ O_2} \cdot \frac{\partial Net\ O_2}{\partial w_8}\right)$

$= 0{,}5614$

$$\Rightarrow w_2^+ = w_2 - \eta \frac{\partial E_{total}}{\partial w_2} = 0,2 - 0,5 \left(\frac{\partial E_{total}}{\partial out_{h_1}} \cdot \frac{\partial out_{h_1}}{\partial net_{h_1}} \cdot \frac{\partial net_{h_1}}{\partial w_2} \right)$$

$$= 0,19956$$

$$\Rightarrow w_3^+ = w_3 - \eta \frac{\partial E_{total}}{\partial w_3} = 0,25 - 0,5 \left(\frac{\partial E_{total}}{\partial out_{h_2}} \cdot \frac{\partial out_{h_2}}{\partial net_{h_2}} \cdot \frac{\partial net_{h_2}}{\partial w_3} \right)$$

$$= 0,24975$$

$$\Rightarrow w_4^+ = w_4 - \eta \frac{\partial E_{total}}{\partial w_4} = 0,3 - 0,5 \left(\frac{\partial E_{total}}{\partial out_{h_2}} \cdot \frac{\partial out_{h_2}}{\partial net_{h_2}} \cdot \frac{\partial net_{h_2}}{\partial w_4} \right)$$

$$= 0,2995$$