

since

$$\vec{a}^{(1)} = W^{(1)} * \vec{a}^{(0)} + \vec{b}^{(1)}$$

$$\vec{a}^{(2)} = W^{(2)} * \vec{a}^{(1)} + \vec{b}^{(2)}$$

$$\vec{a}^{(3)} = W^{(3)} * \vec{a}^{(2)} + \vec{b}^{(3)}$$

we have

$$\vec{a}^{(3)} = W^{(3)} * W^{(2)} * W^{(1)} * \vec{a}^{(0)} + \vec{b}^{(3)} + W^{(3)} * \vec{b}^{(2)} + W^{(3)} * W^{(2)} * \vec{b}^{(1)}$$

then

$$\tilde{W} = W^{(3)} * W^{(2)} * W^{(1)}$$

$$\tilde{b} = \vec{b}^{(3)} + W^{(3)} * \vec{b}^{(2)} + W^{(3)} * W^{(2)} * \vec{b}^{(1)}$$