

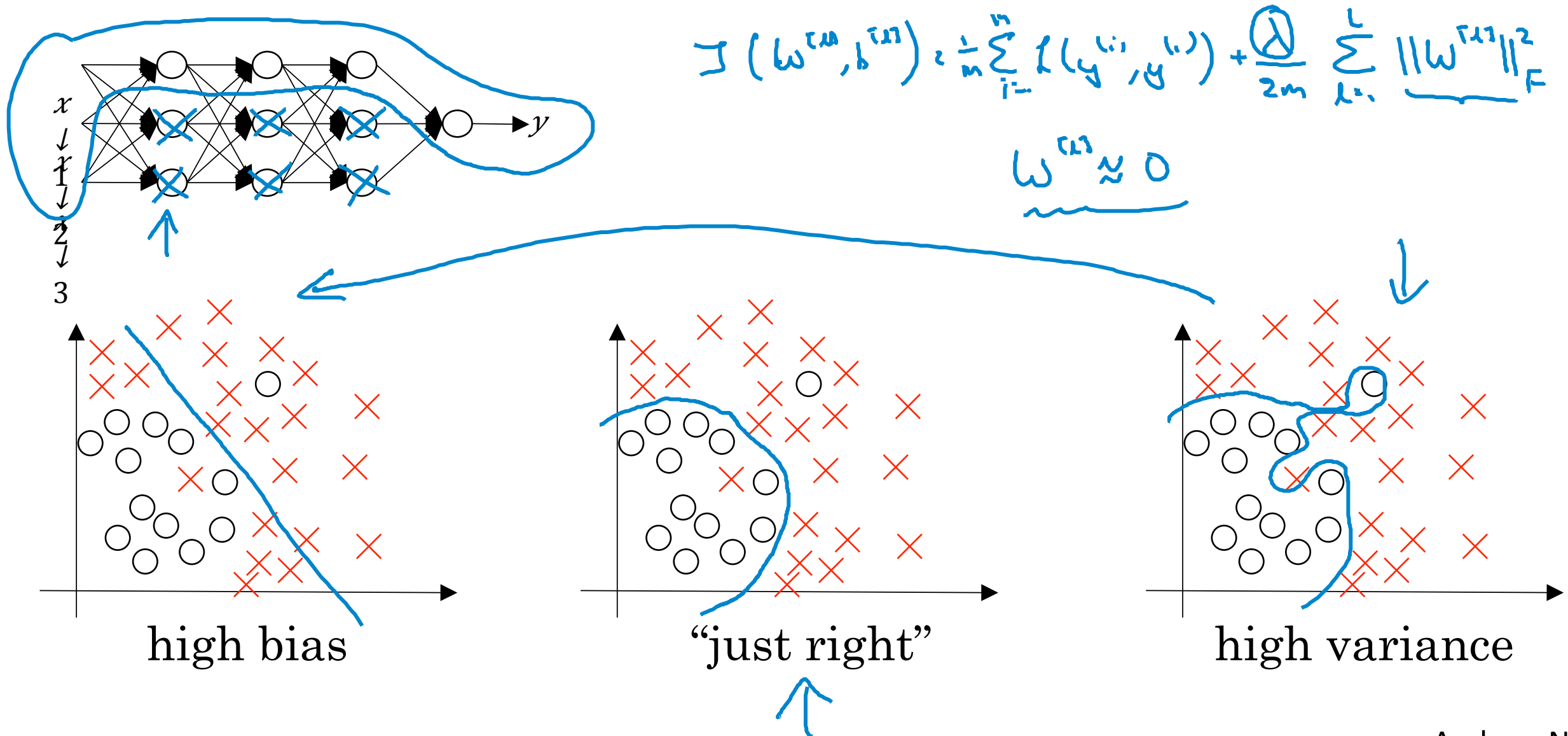


deeplearning.ai

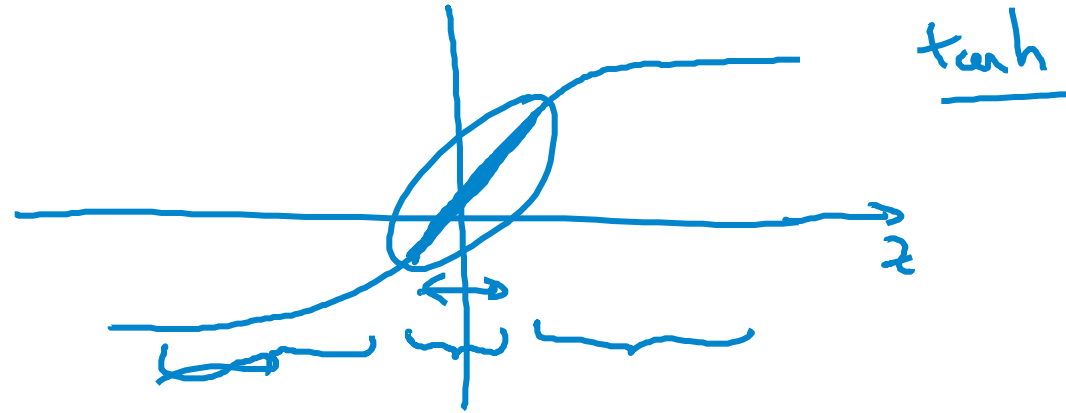
Regularizing your neural network

Why regularization reduces overfitting

How does regularization prevent overfitting?



How does regularization prevent overfitting?



\tanh

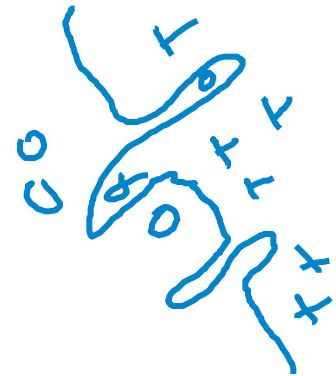
$$g(z) = \tanh(z)$$

$\lambda \uparrow$

$W^{[L]} \downarrow$

$$z^{[L]} = \underline{W}^{[L]} a^{[L-1]} + \underline{b}^{[L]}$$

Every layer \approx linear



$$J(\cdot) = \underbrace{\sum_i \mathcal{L}(\hat{y}^{(i)}, y^{(i)})}_{\text{training loss}} + \underbrace{\frac{\lambda}{2m} \sum_L \|W^{[L]}\|_F^2}_{\text{regularization term}}$$

