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Regularizing your
neural network

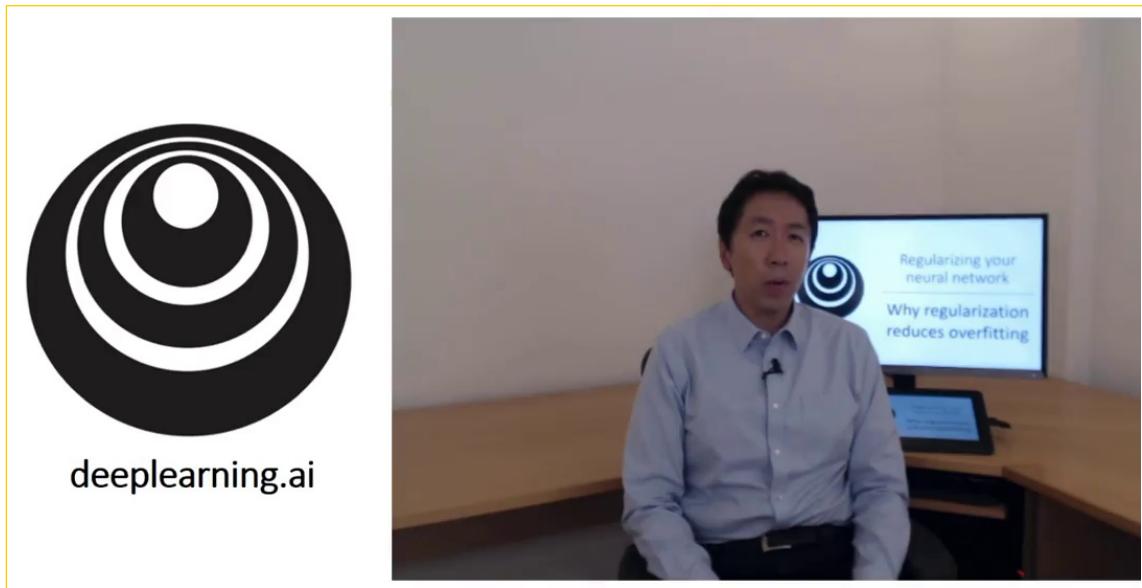
Why regularization
reduces overfitting

↳

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[■■: keyframe_00-00-00-000_0000.jpg

[■■■: 00:00:03.000]



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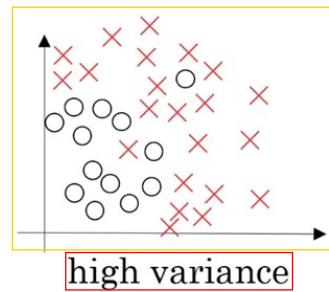
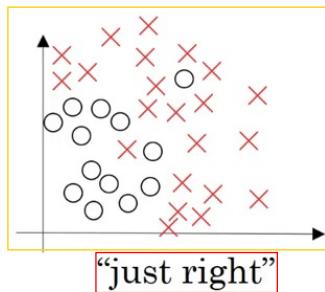
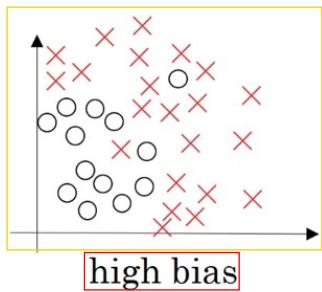
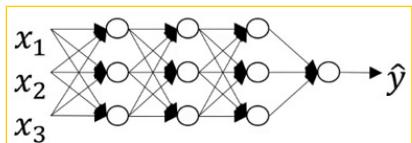


Regularizing your
neural network

Why regularization
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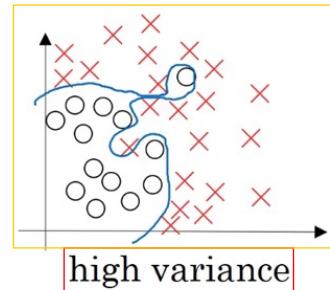
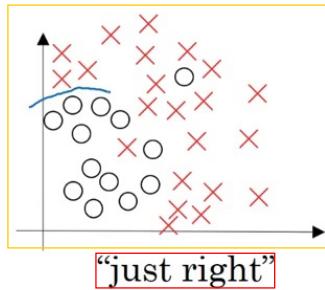
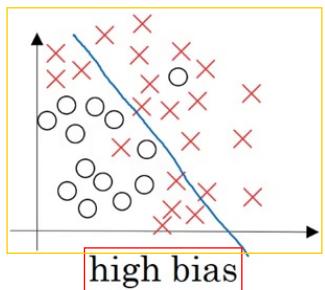
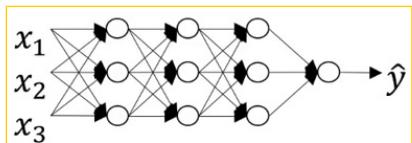
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How does regularization prevent overfitting?



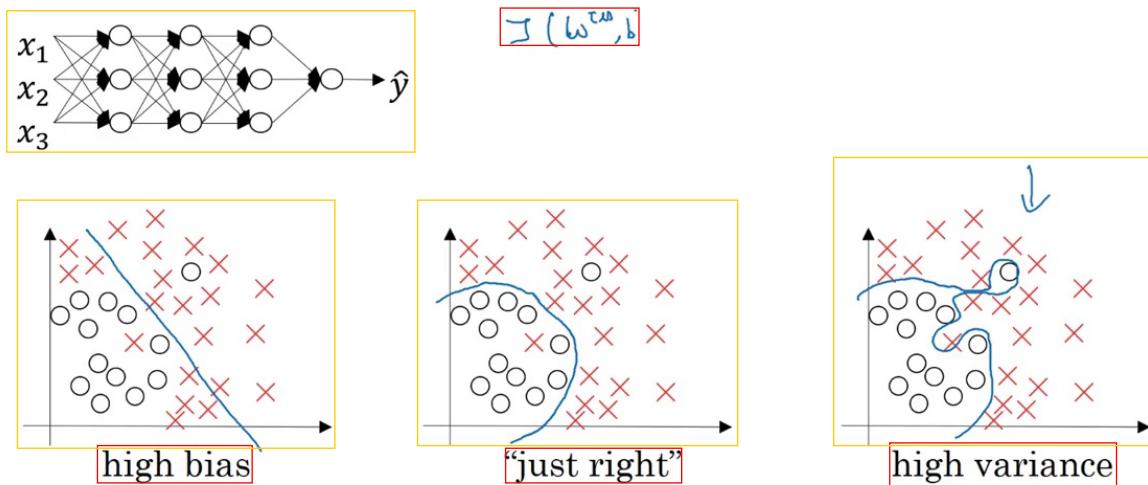
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How does regularization prevent overfitting?



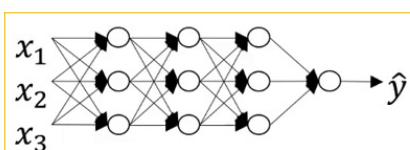
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How does regularization prevent overfitting?

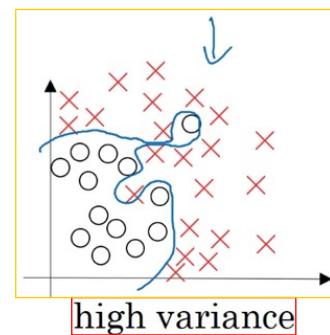
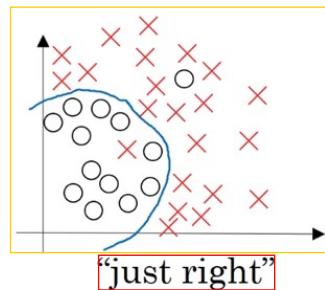
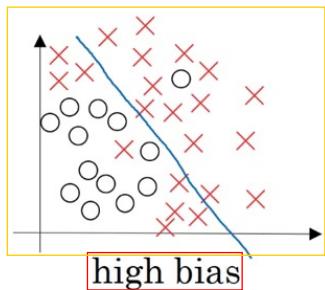


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How does regularization prevent overfitting?

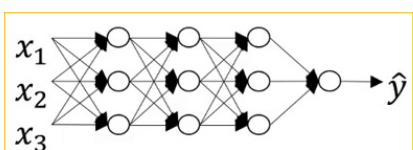


$$J(\omega^{(m)}, b^{(m)}) = \frac{1}{m} \sum_{i=1}^m L(y^{(i)}, \hat{y}^{(i)}) + \frac{\lambda}{2m} \sum_{l=1}^L \|\omega^{(l)}\|^2$$



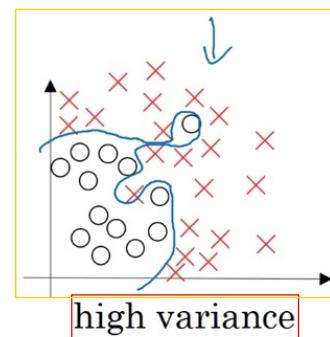
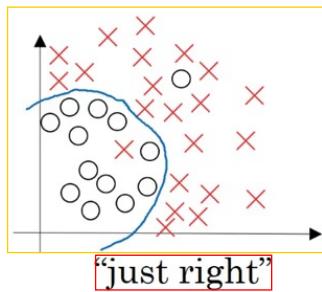
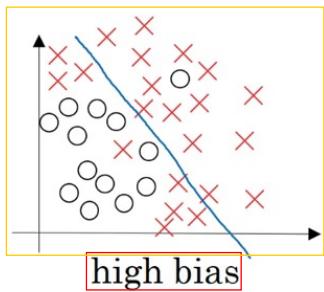
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How does regularization prevent overfitting?



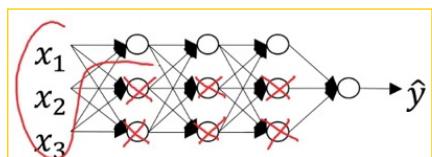
$$J(\omega^{(0)}, b^{(0)}) = \frac{1}{m} \sum_{i=1}^m L(y^{(i)}, \hat{y}^{(i)}) + \frac{\lambda}{2m} \sum_{l=1}^L \|\omega^{(l)}\|_F^2$$

ω



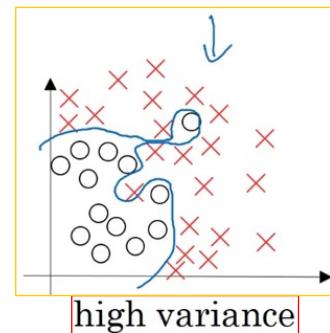
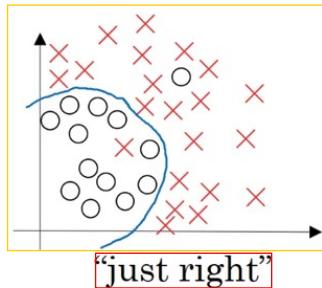
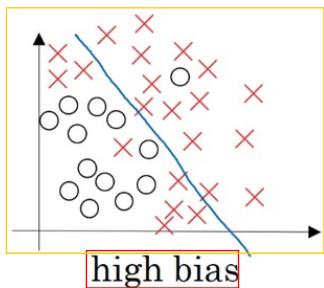
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How does regularization prevent overfitting?



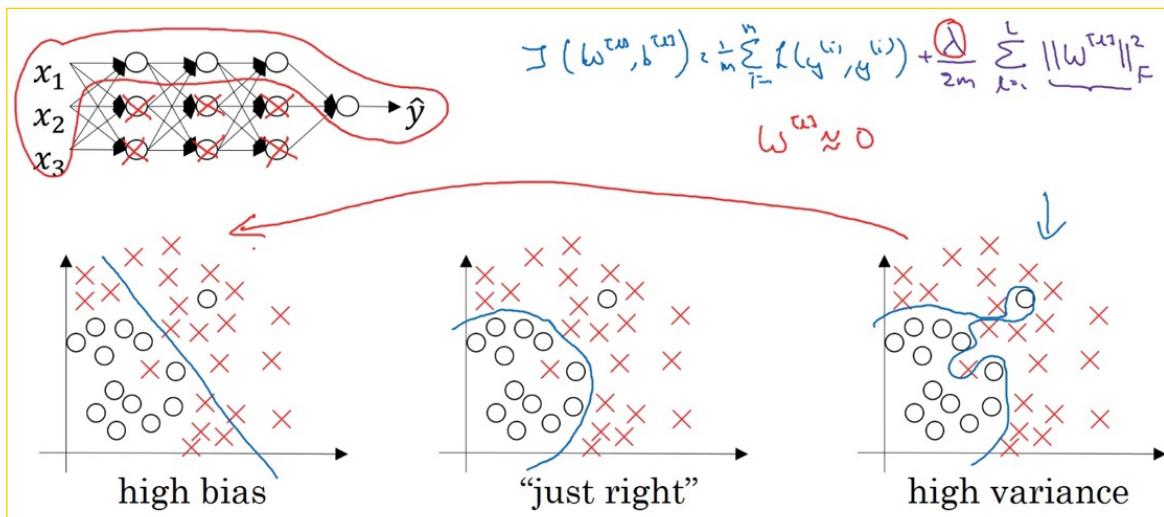
$$J(\omega^{(0)}, b^{(0)}) = \frac{1}{m} \sum_{i=1}^m L(y_i^{(0)}, \hat{y}_i^{(0)}) + \frac{\lambda}{2m} \sum_{l=1}^L \|\omega^{(l)}\|_F^2$$

$\omega^{(0)} \approx 0$



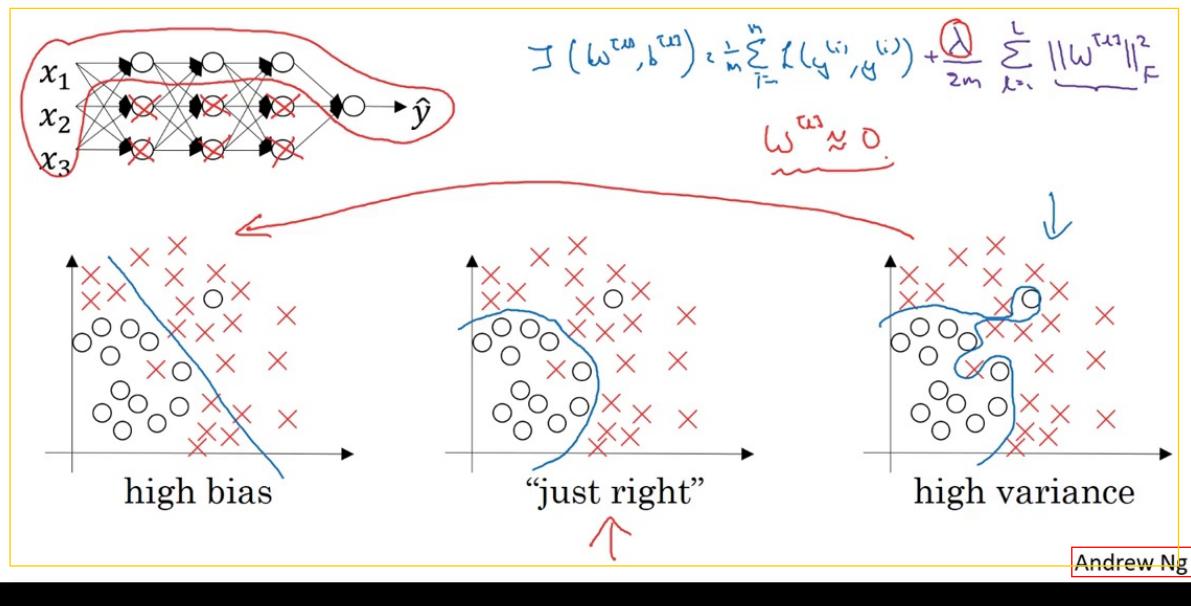
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How does regularization prevent overfitting?

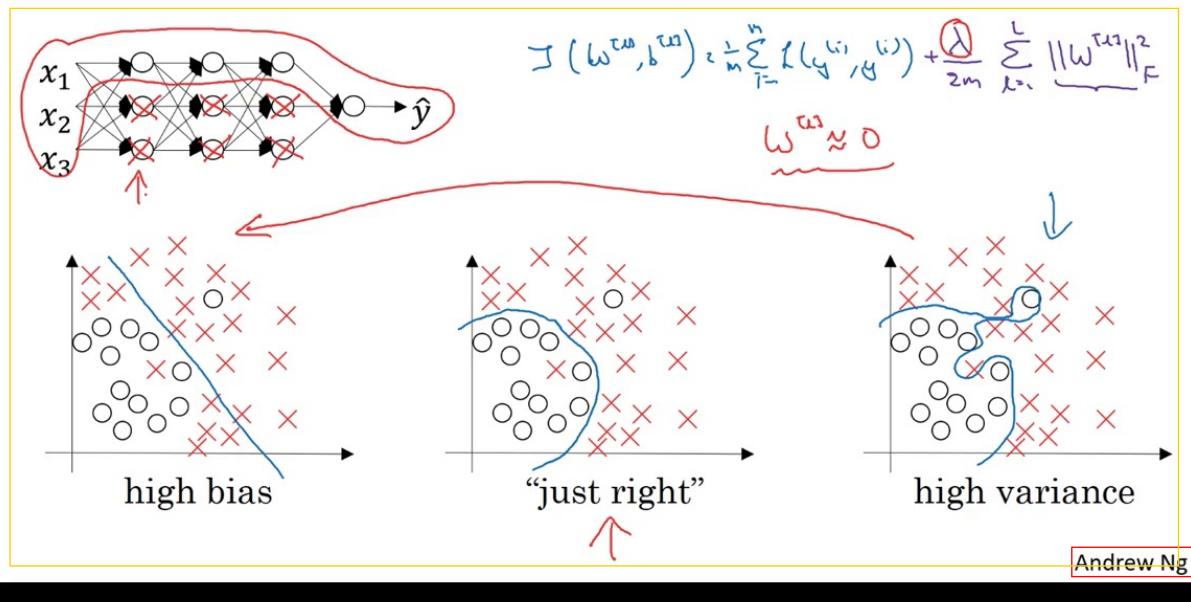


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How does regularization prevent overfitting?

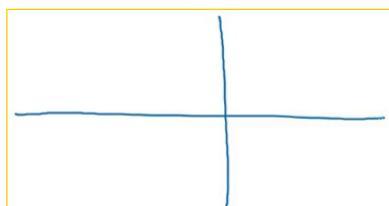


How does regularization prevent overfitting?



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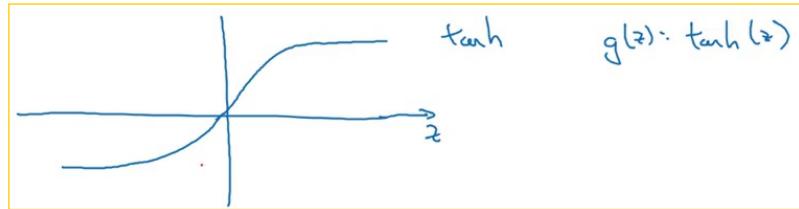
How does regularization prevent overfitting?



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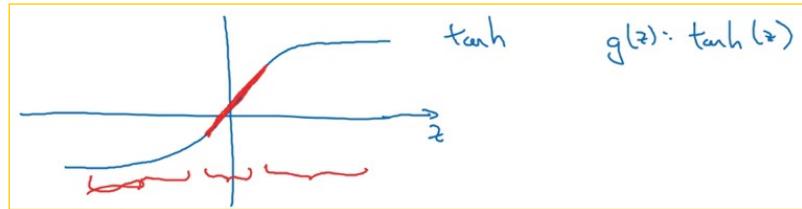
How does regularization prevent overfitting?



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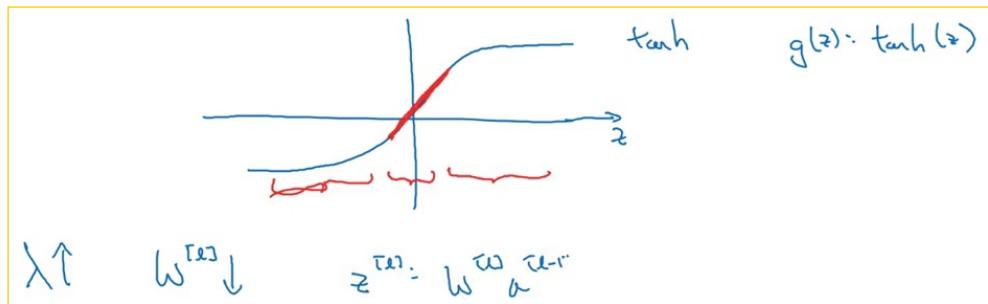
How does regularization prevent overfitting?



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How does regularization prevent overfitting?

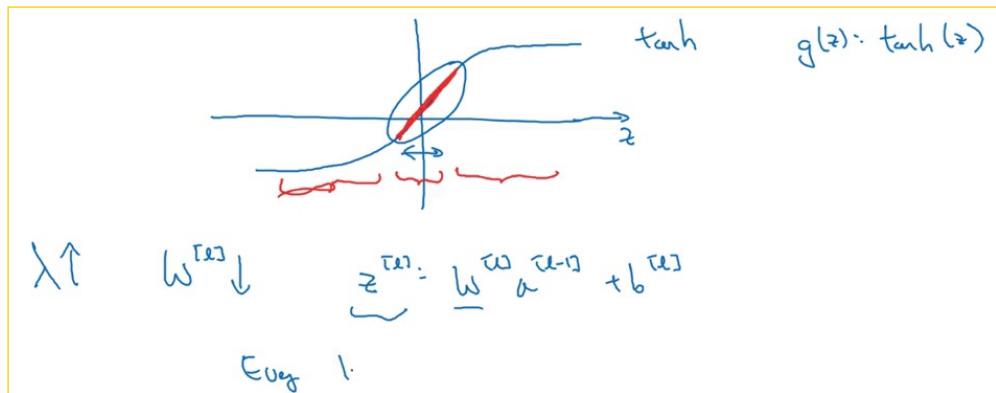


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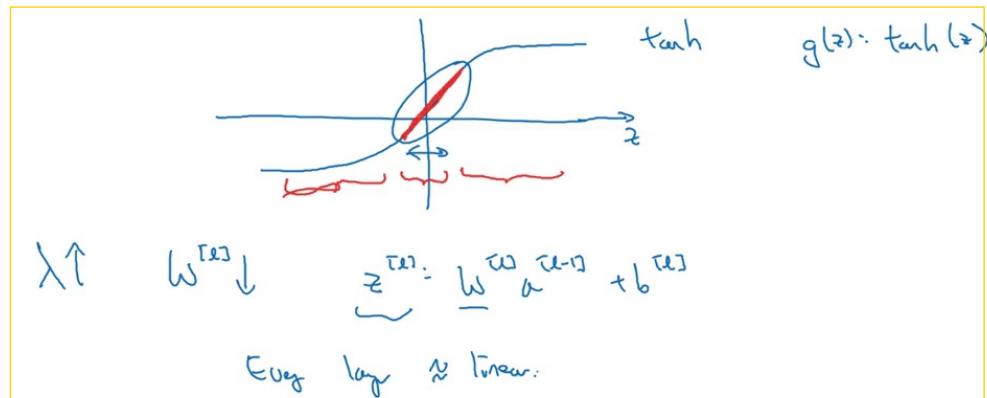
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How does regularization prevent overfitting?



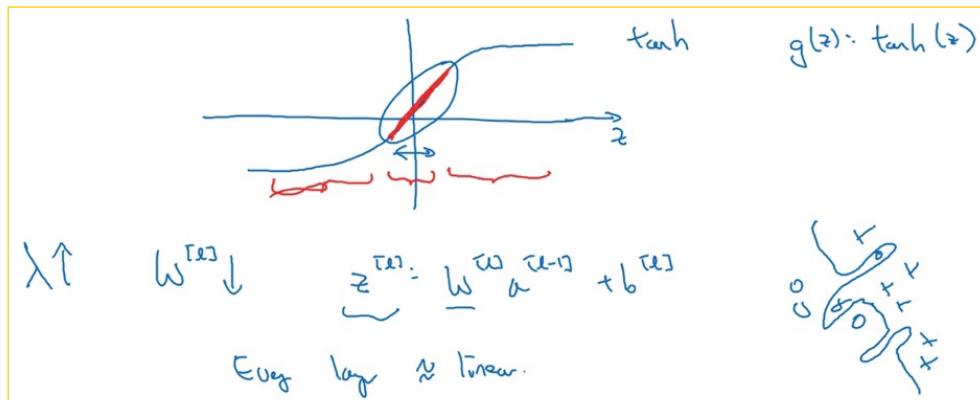
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How does regularization prevent overfitting?



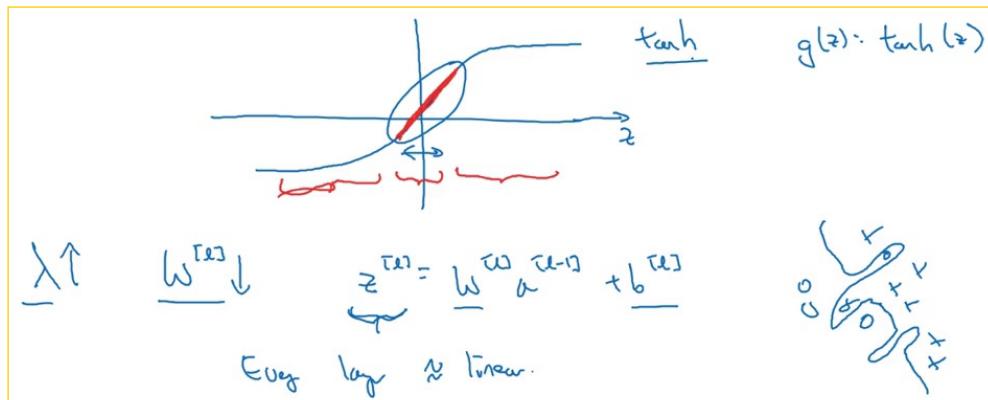
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How does regularization prevent overfitting?



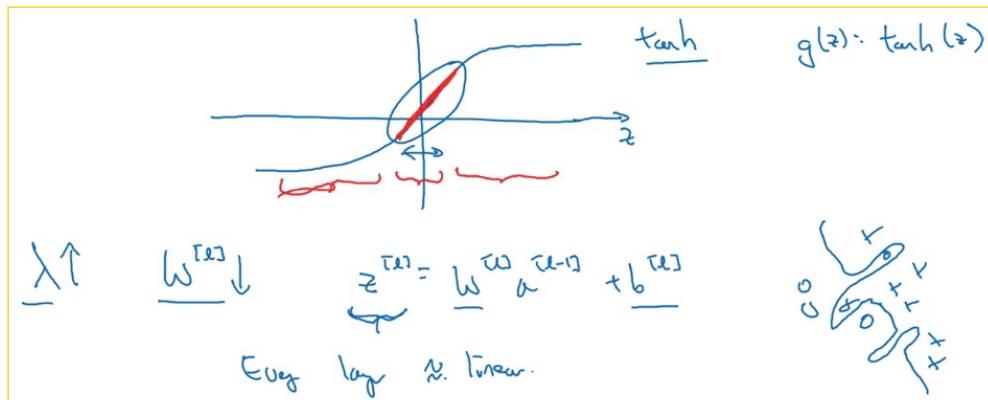
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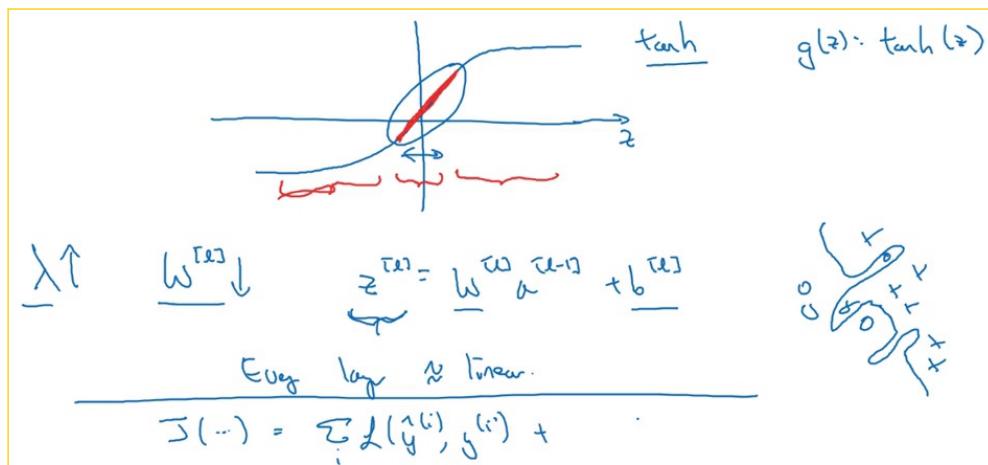
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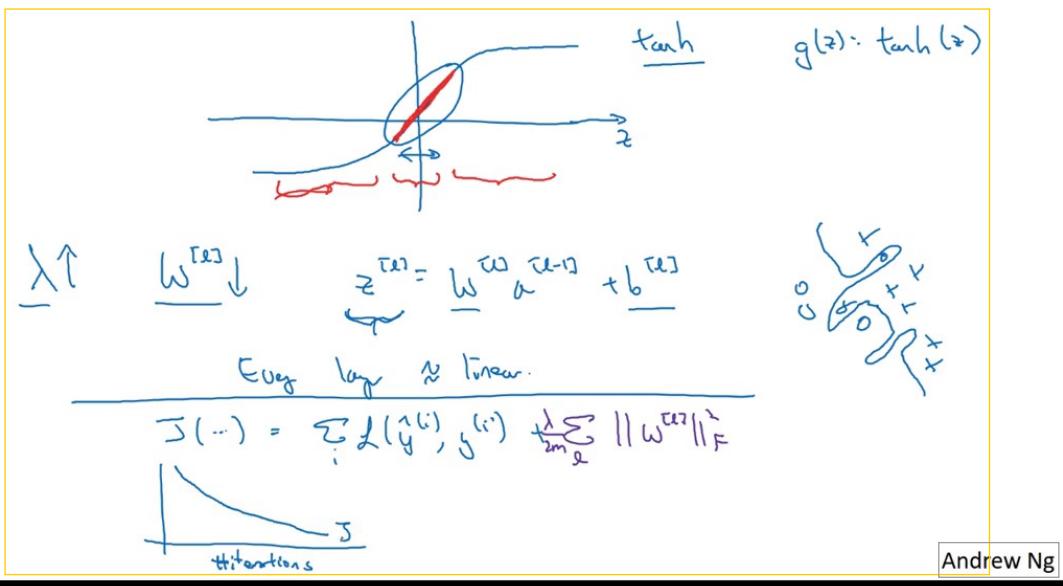
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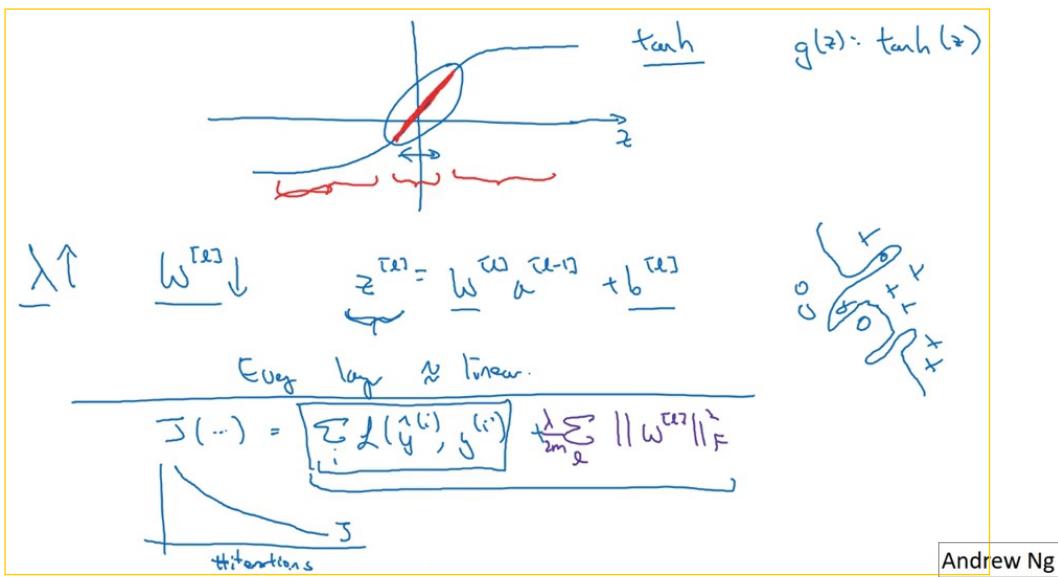


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How does regularization prevent overfitting?

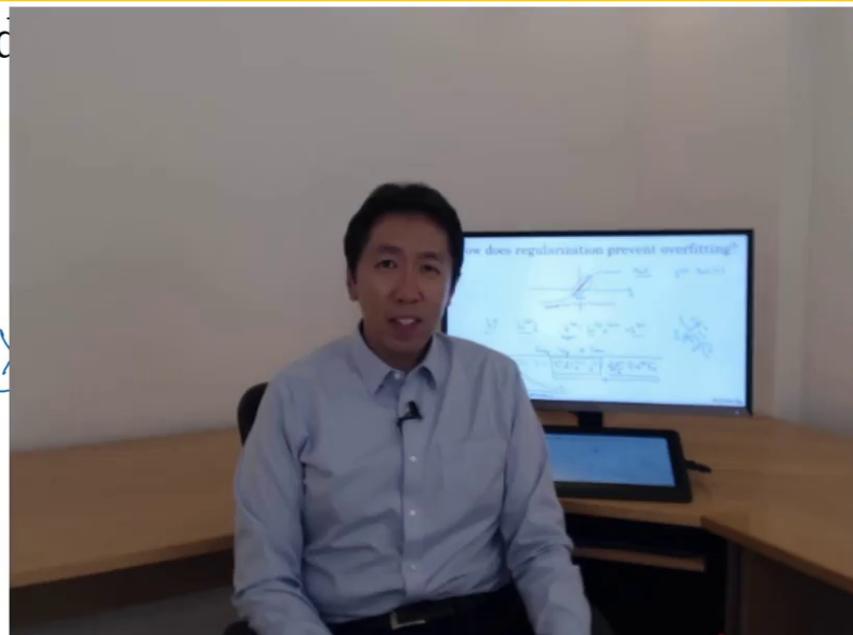


How does regularization prevent overfitting?



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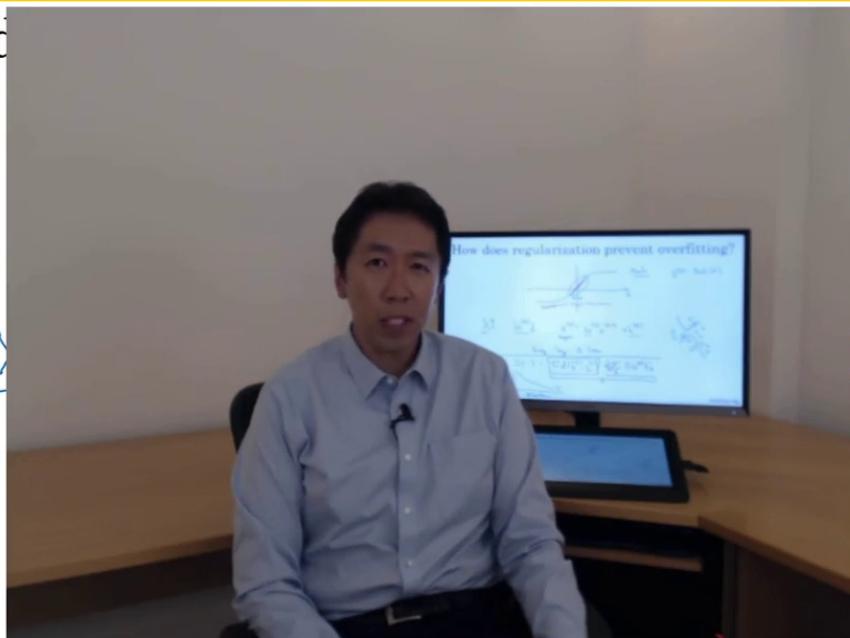
How does regularization prevent overfitting?



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How does regularization prevent overfitting?



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