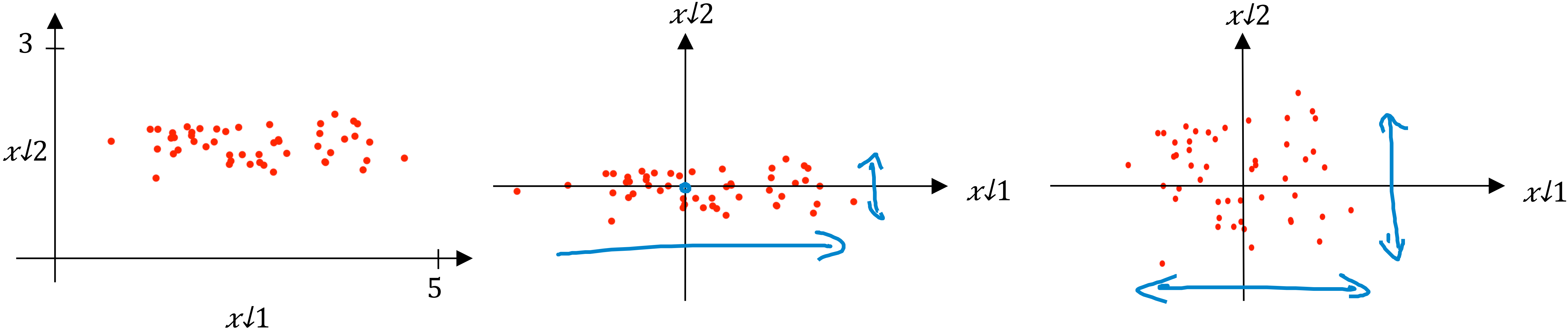
deeplearning.ai

Setting up your optimization problem

Normalizing inputs

Normalizing training sets

$x = \begin{bmatrix} x_1 \\ x_2 \end{bmatrix}$



Subtract mean:

$\mu = \frac{1}{m} \sum_{i=1}^{m} x^{(i)}$

$x := x - \mu$

Normalize variance

$\sigma^2 = \frac{1}{m} \sum_{i=1}^{m} x^{(i)} ** 2$ ← element-wise

$x \mathrel{/}= \sigma^2$

Use same μ, σ^2 to normalize test set.

same

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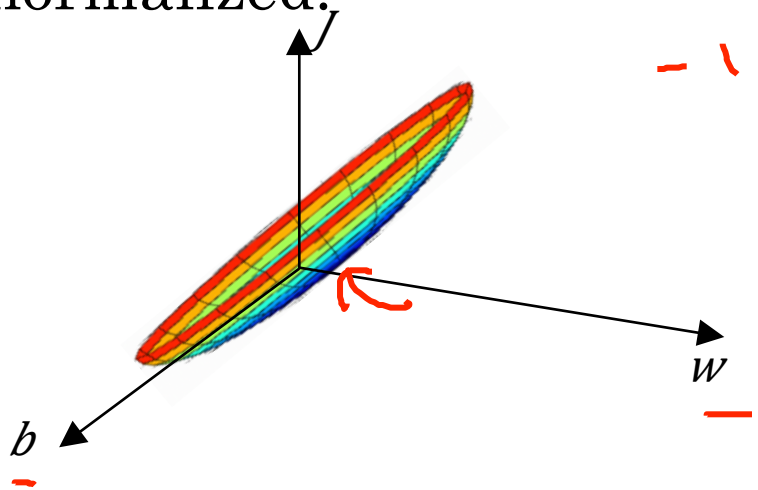
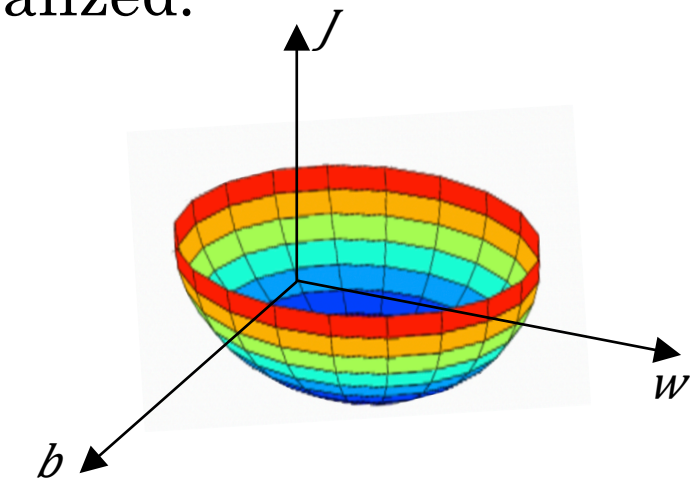
Why normalize inputs?

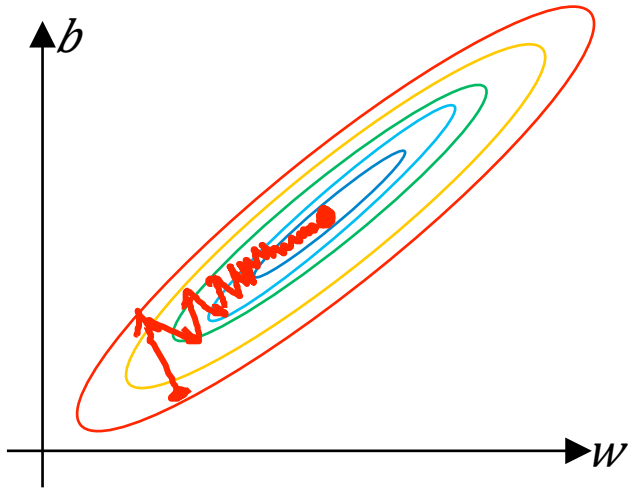
$J(w,b)=1/m \quad \Sigma i=1 \uparrow m \; \mathcal{L}(y\uparrow(i), y\uparrow(i))$

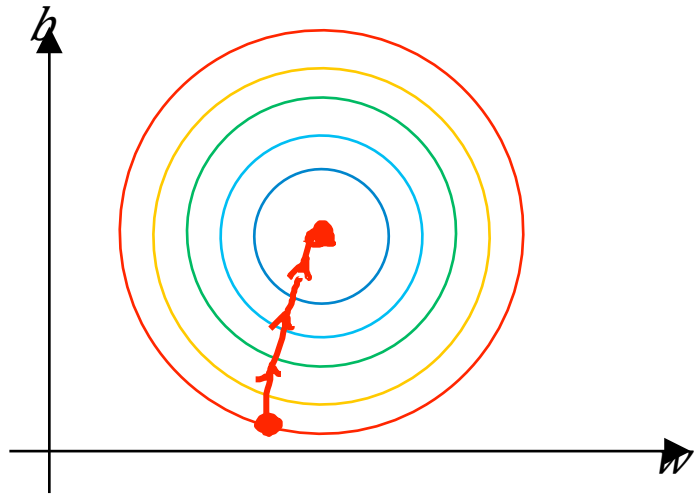
Unnormalized:



Normalized:







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