



not a good hypo. funcⁿ
even though it
is passing through
all the training
examples.

"Overfit" & "High Variance"

$$\theta_0 + \theta_1 x + \theta_2 x^2 + \theta_3 x^3 + \theta_4 x^4$$

Overfitting \Rightarrow If we have too many features,
the learned hypothesis may fit the
training

eg) Logistic Regression



$$h_0(x) = g(\theta_0 + \theta_1 x_1 + \theta_2 x_2)$$

(Underfit)

$$h_0(x) = g(\theta_0 + \theta_1 x_1 + \theta_2 x_2 + \theta_3 x_1^2 + \theta_4 x_2^2 + \theta_5 x_1 x_2)$$

(Just right)

$$h_0(x) = g(\theta_0 + \theta_1 x_1 + \theta_2 x_1^2 + \theta_3 x_1^2 x_2 + \theta_4 x_1^2 x_2^2 + \theta_5 x_1^2 x_2^3 + \theta_6 x_1^3 x_2 + \dots)$$

(Overfit)