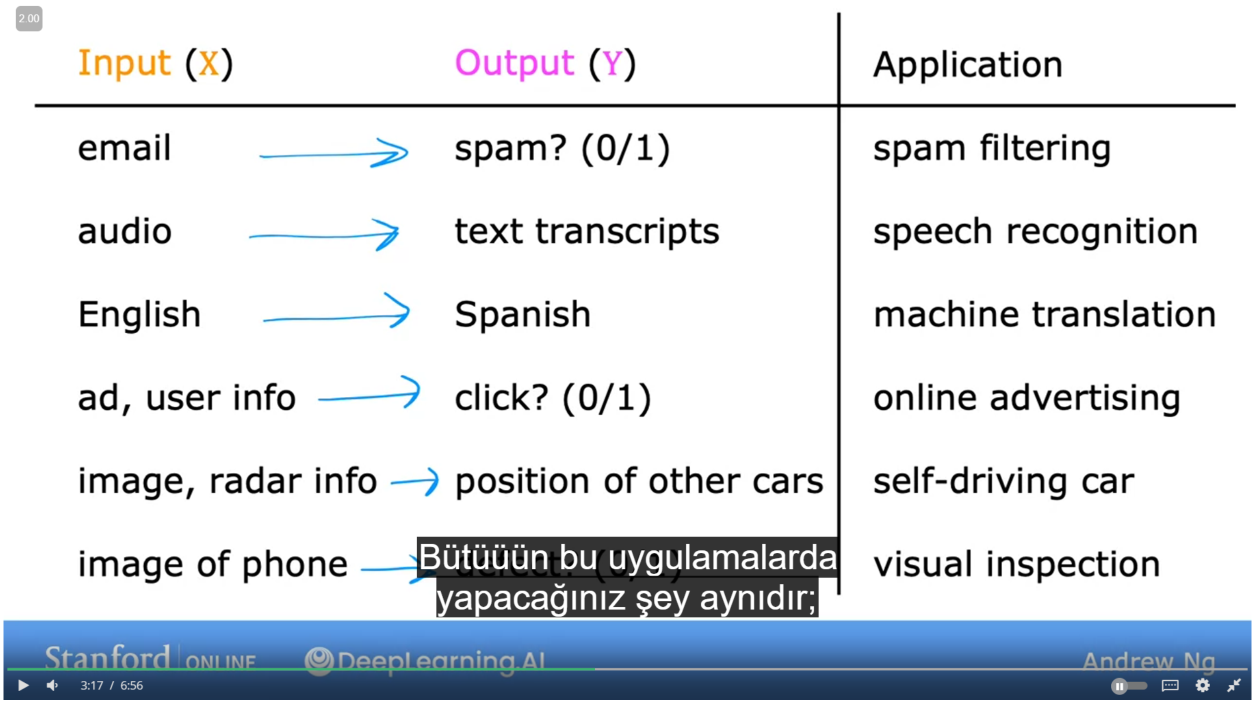
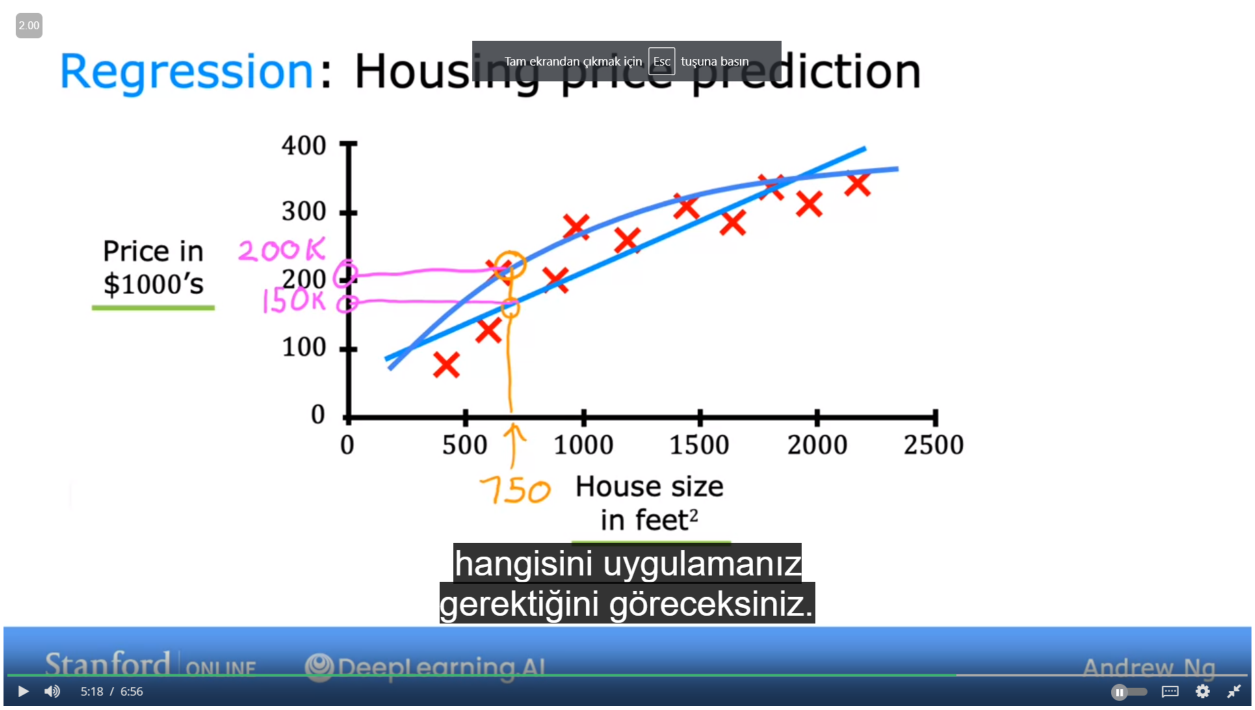
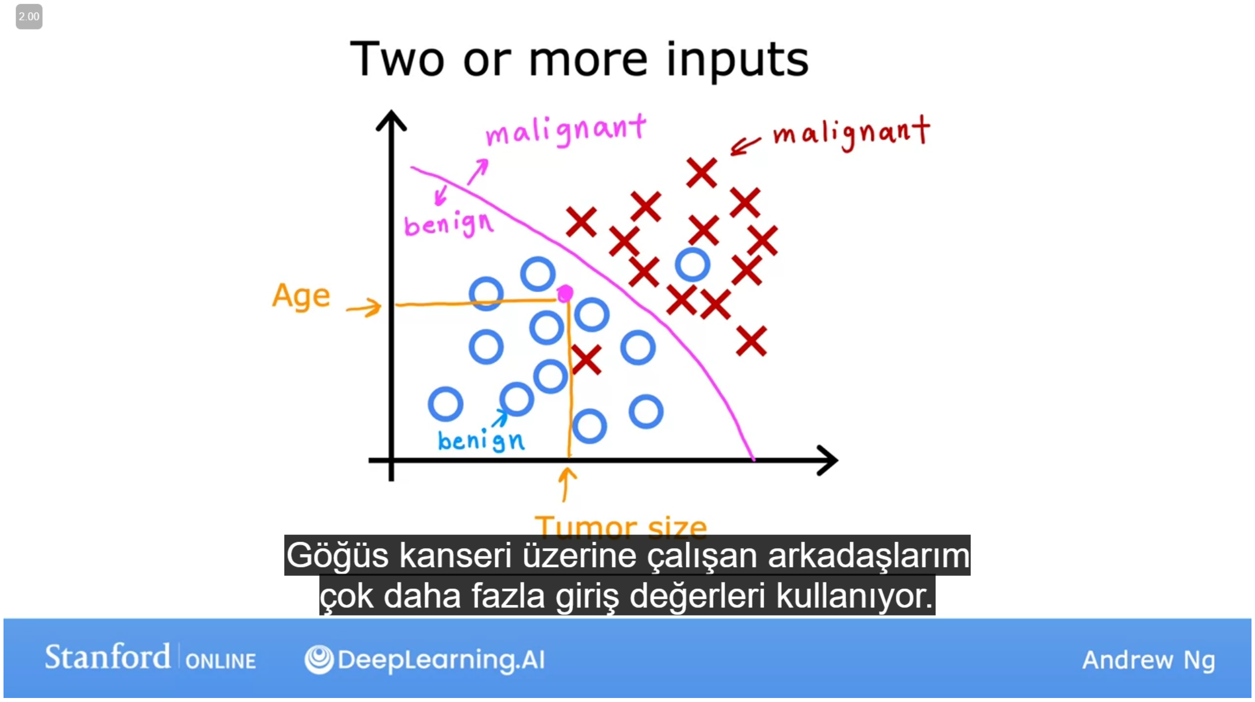
akademi slayt



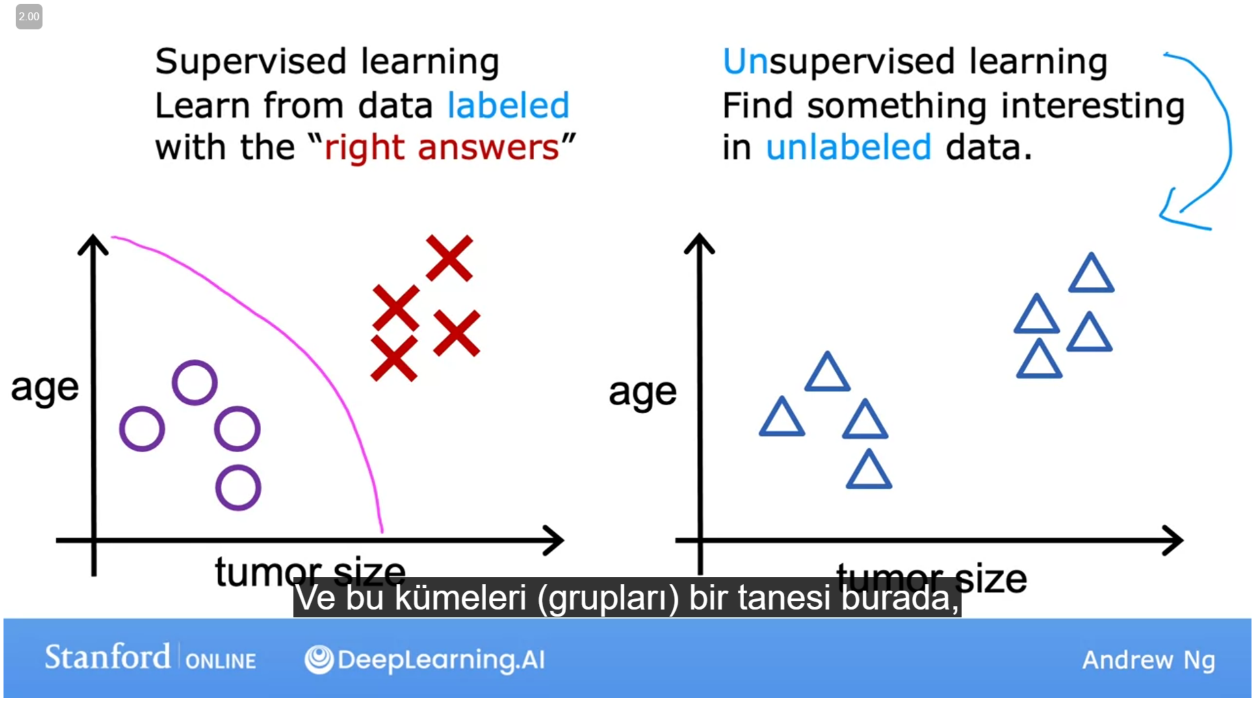


regresyon sonsuz sayıda sayı arasında tahminleme classification 2 sınıf arası

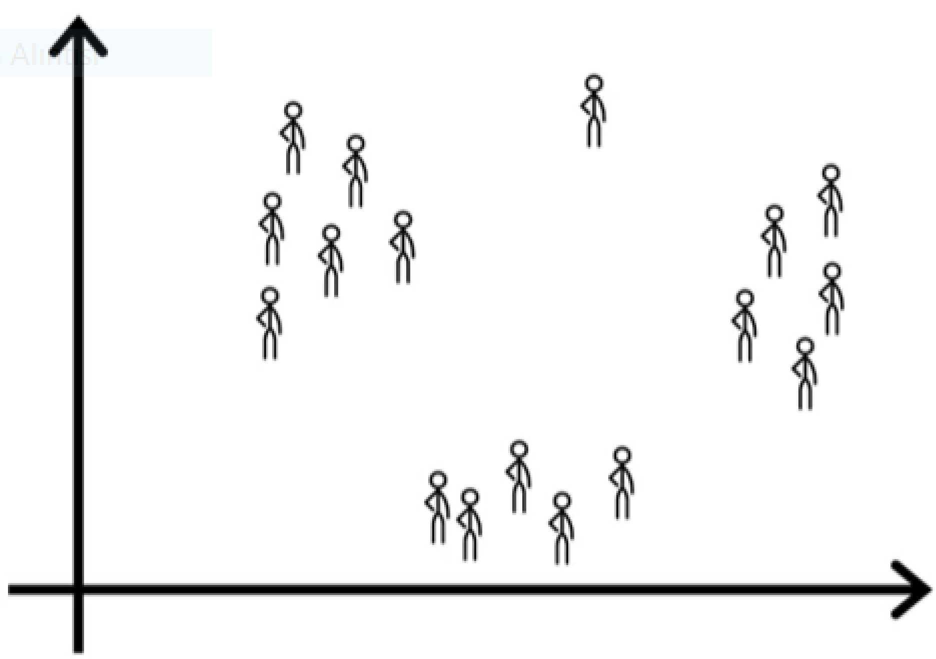
2.00

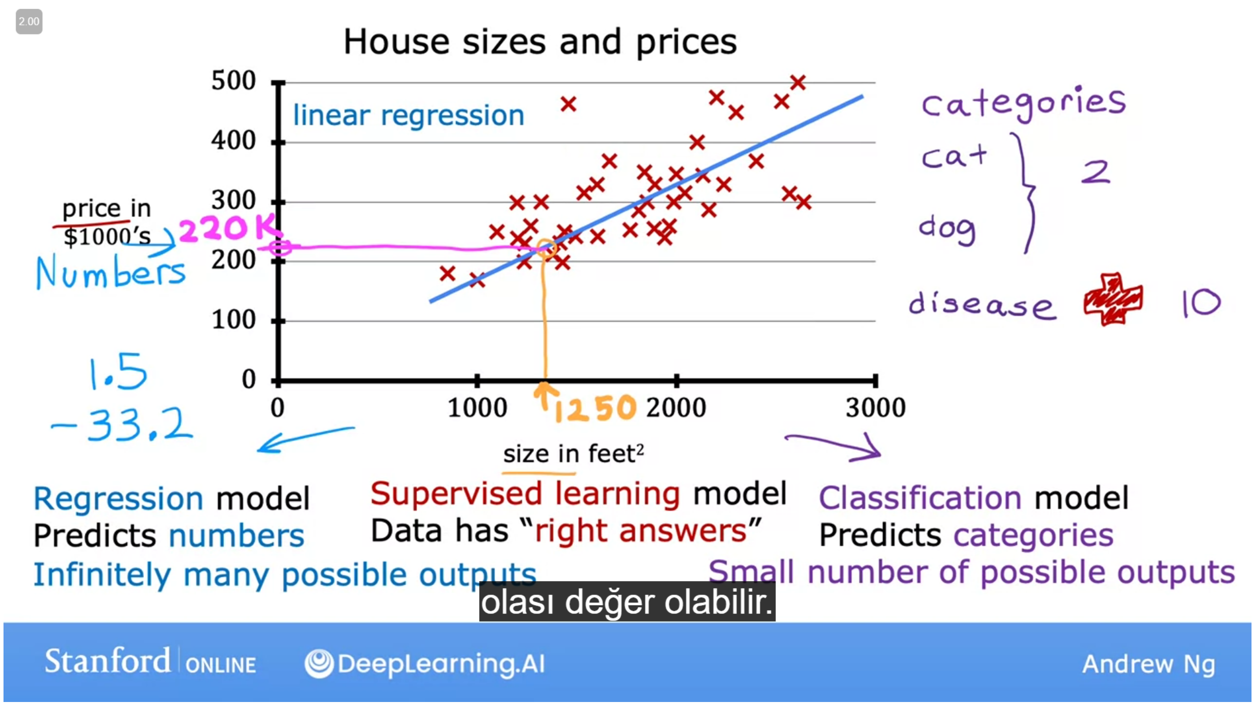


2.00




2.00
Clustering: Google news
Giant panda gives birth to rare twin cubs at Japan's oldest zoo
USA TODAY · 6 hours ago
Giant panda gives birth to twin cubs at Japan's oldest zoo
CBS News · 7 hours ago
Giant panda gives birth to twin cubs at Tokyo's Ueno Zoo
WHBL News · 16 hours ago
A Joyful Surprise at Japan's Oldest Zoo: The Birth of Twin Pandas
The New York Times · 1 hour ago
Twin Panda Cubs Born at Tokyo's Ueno Zoo
PEOPLE · 6 hours ago
Kümeleme algoritmasıyla ilgili havalı olan şey ise,
Stanford ONLINE
DeepLearning.AI
Andrew Ng
3:40 / 8:53




2.00
House sizes and prices
linear regression
500
400
300
200
100
0
0
1000
2000
3000
price in $1000's
220K
Numbers
1.5
-33.2
1250
size in feet²
categories
cat
dog
2
disease
10
Regression model
Predicts numbers
Infinitely many possible outputs
Supervised learning model
Data has "right answers"
Classification model
Predicts categories
Small number of possible outputs
olası değer olabilir.
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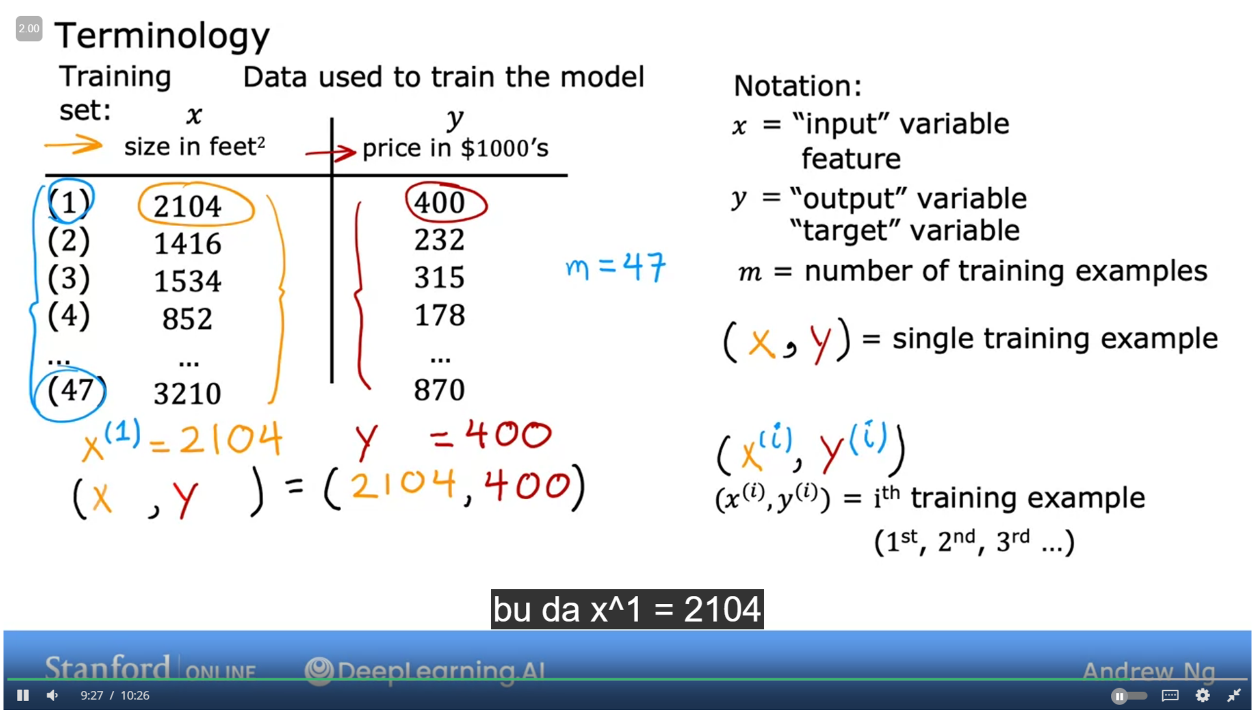
DeepLearning.AI
Andrew Ng


2.00
Terminology
Training set:
Data used to train the model
x
size in feet²
y
price in $1000's
(1) 2104 400
(2) 1416 232
(3) 1534 315
(4) 852 178
... ...
(47) 3210 870
m=47
x(1)=2104 y =400
(x ,y) = (2104,400)
Notation:
x = "input" variable
feature
y = "output" variable
"target" variable
m = number of training examples
(x, y) = single training example
(x(i), y(i))
(x(i), y(i)) = ith training example
(1st, 2nd, 3rd ...)
bu da x^1 = 2104
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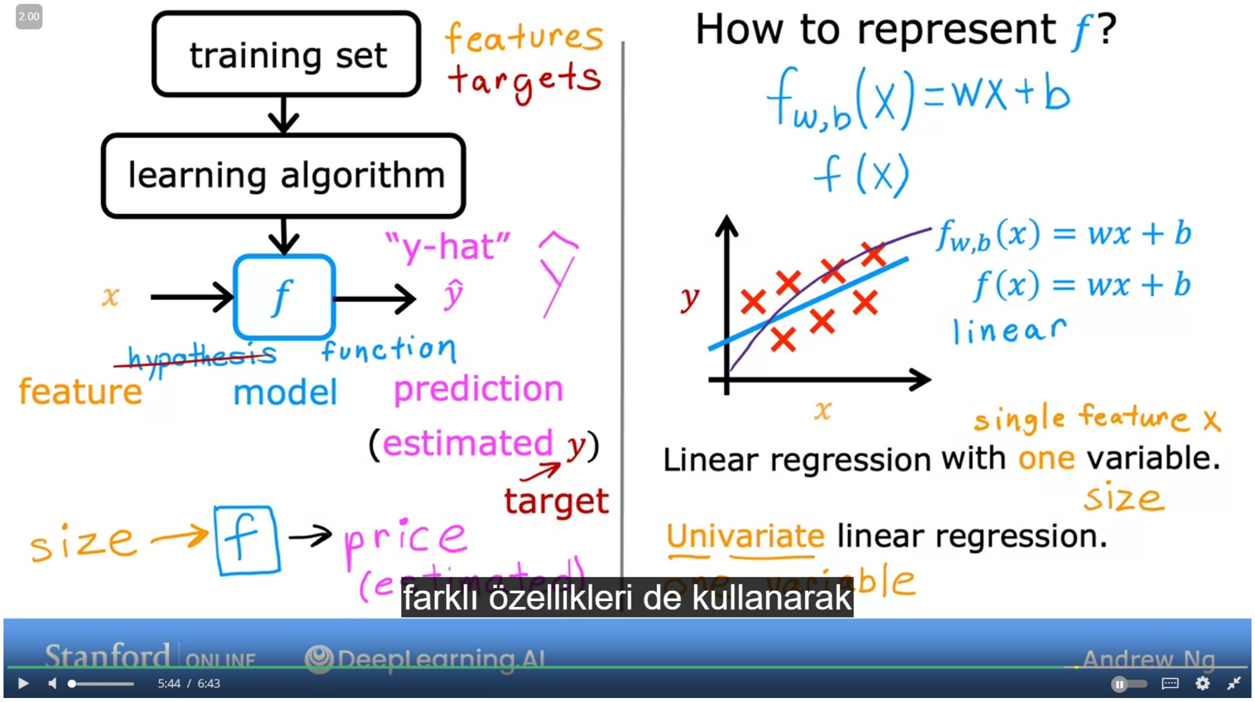
DeepLearning.AI
Andrew Ng
9:27 / 10:26


training set
features
targets
learning algorithm
"y-hat"
x
f
ŷ
~~hypothesis~~ function
feature
model
prediction
(estimated y)
target
size → f → price
How to represent f?
$f_{w,b}(x) = wx + b$
$f(x)$
$f_{w,b}(x) = wx + b$
$f(x) = wx + b$
linear
y
x
single feature x
Linear regression with one variable.
size
Univariate linear regression.
farklı özellikleri de kullanarak
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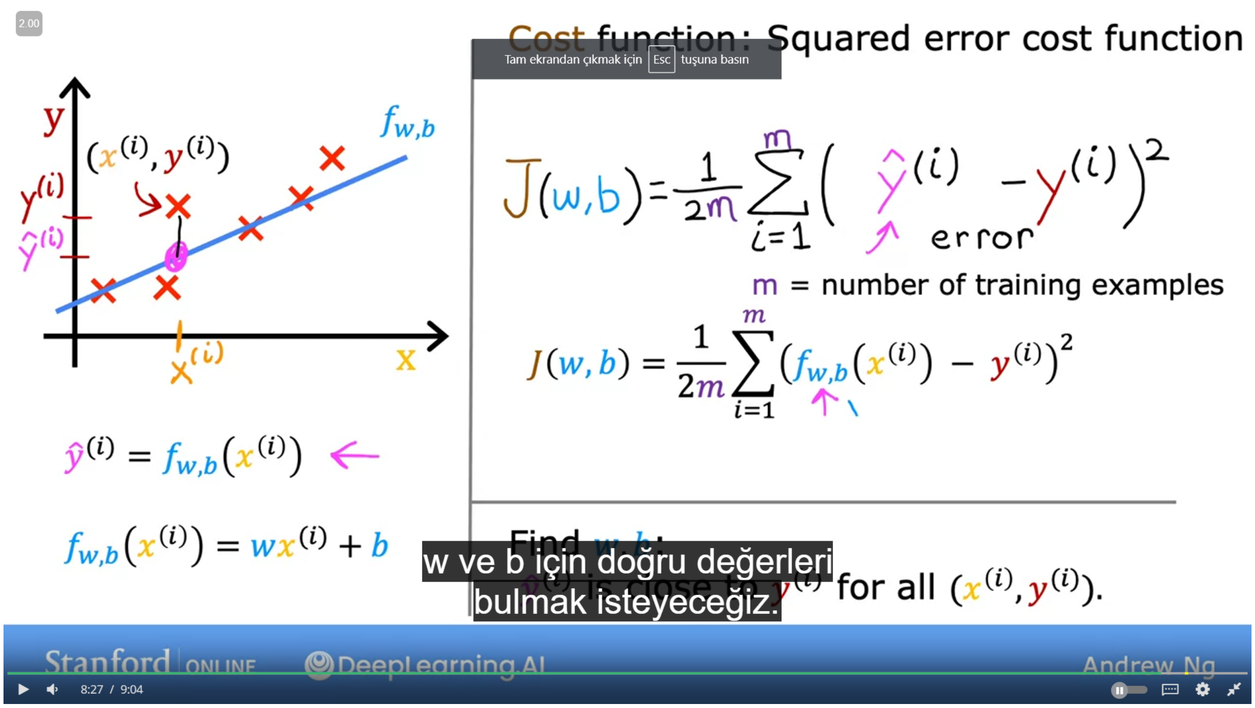
Andrew Ng
5:44 / 6:43


Cost function: Squared error cost function
Tam ekrandan çıkmak için Esc tuşuna basın
y
$(x^{(i)}, y^{(i)})$
$f_{w,b}$
$y^{(i)}$
$\hat{y}^{(i)}$
$x^{(i)}$
x
$J(w,b) = \frac{1}{2m}\sum_{i=1}^{m}(\hat{y}^{(i)} - y^{(i)})^2$
error
m = number of training examples
$J(w,b) = \frac{1}{2m}\sum_{i=1}^{m}(f_{w,b}(x^{(i)}) - y^{(i)})^2$
$\hat{y}^{(i)} = f_{w,b}(x^{(i)})$
$f_{w,b}(x^{(i)}) = wx^{(i)} + b$
for all $(x^{(i)}, y^{(i)})$.
w ve b için doğru değerleri
bulmak isteyeceğiz.
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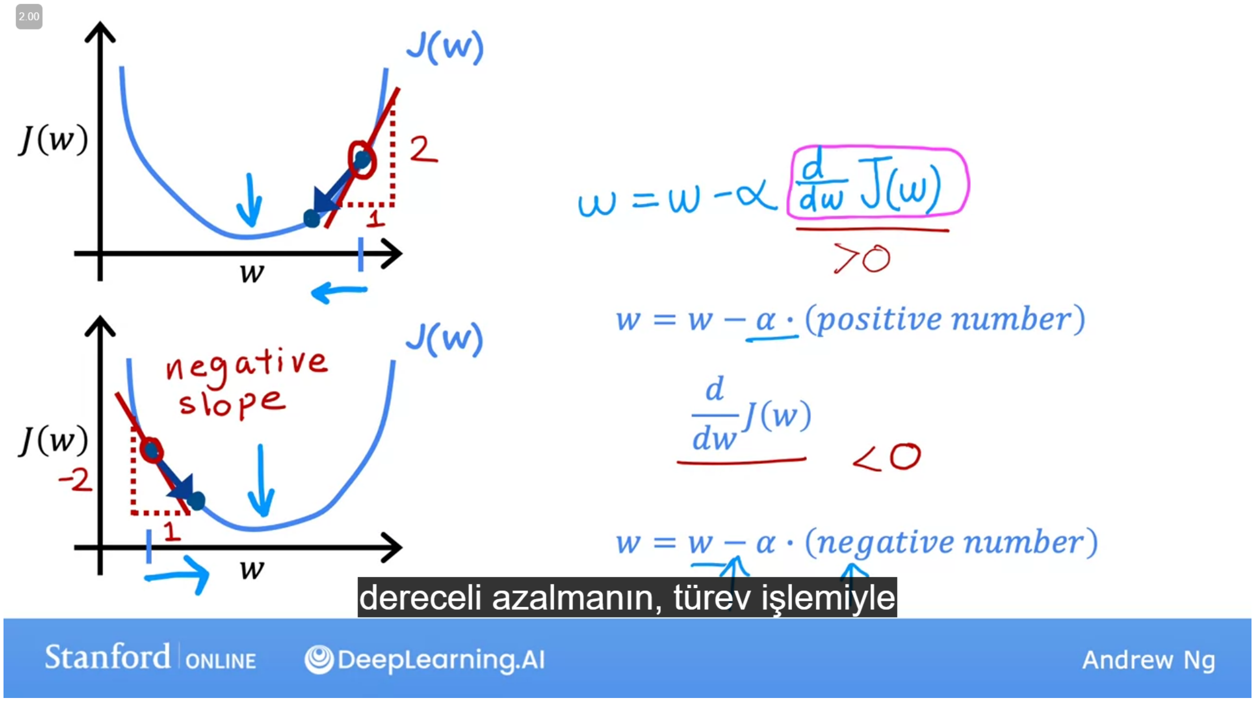
DeepLearning.AI
Andrew Ng
8:27 / 9:04


2.00
J(w)
J(w)
2
1
w
w = w - α d/dw J(w)
>0
w = w − α · (positive number)
J(w)
negative
slope
J(w)
-2
1
w
d/dw J(w)
<0
w = w − α · (negative number)
dereceli azalmanın, türev işlemiyle
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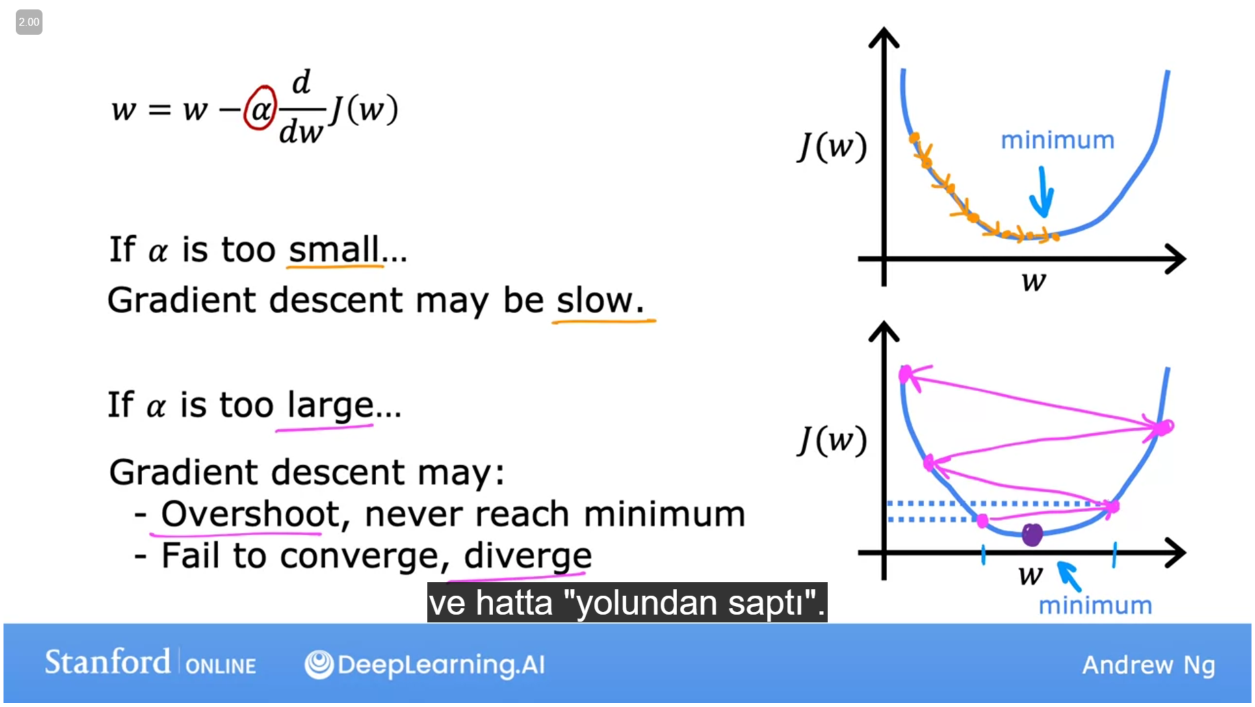
2.00
w = w − α d/dw J(w)
If α is too small...
Gradient descent may be slow.
If α is too large...
Gradient descent may:
- Overshoot, never reach minimum
- Fail to converge, diverge
J(w)
minimum
w
J(w)
w
minimum
ve hatta "yolundan saptı".
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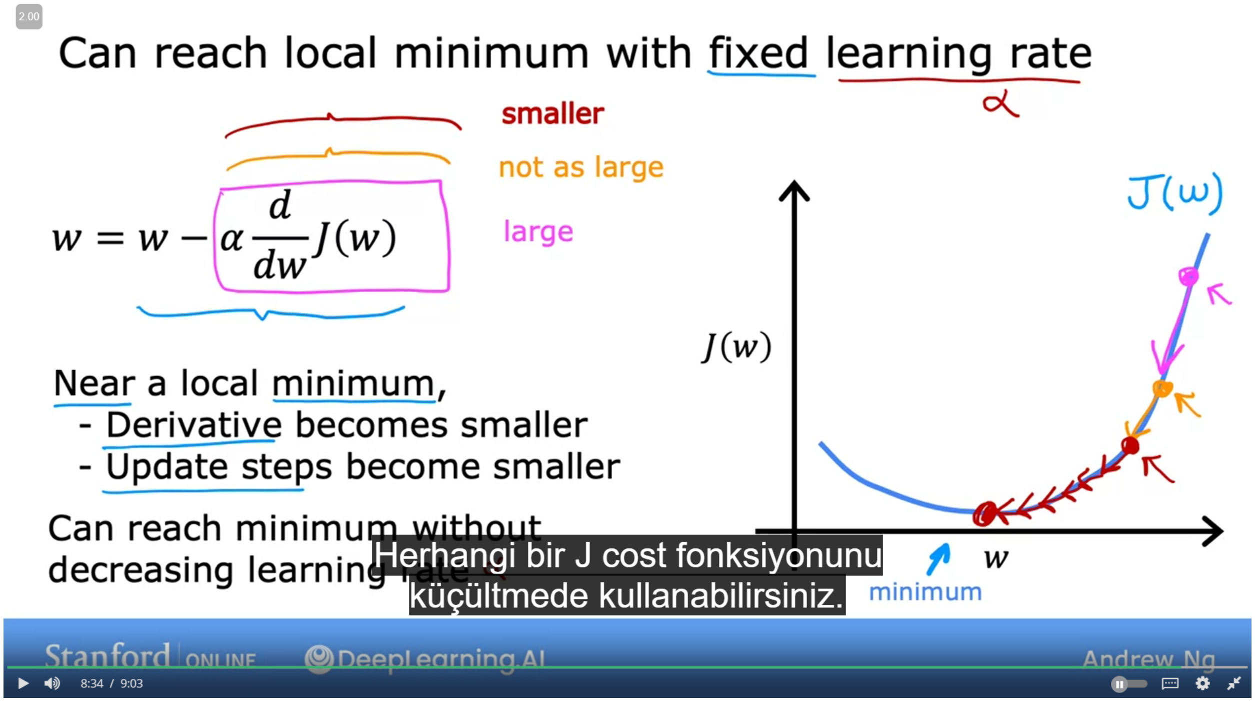
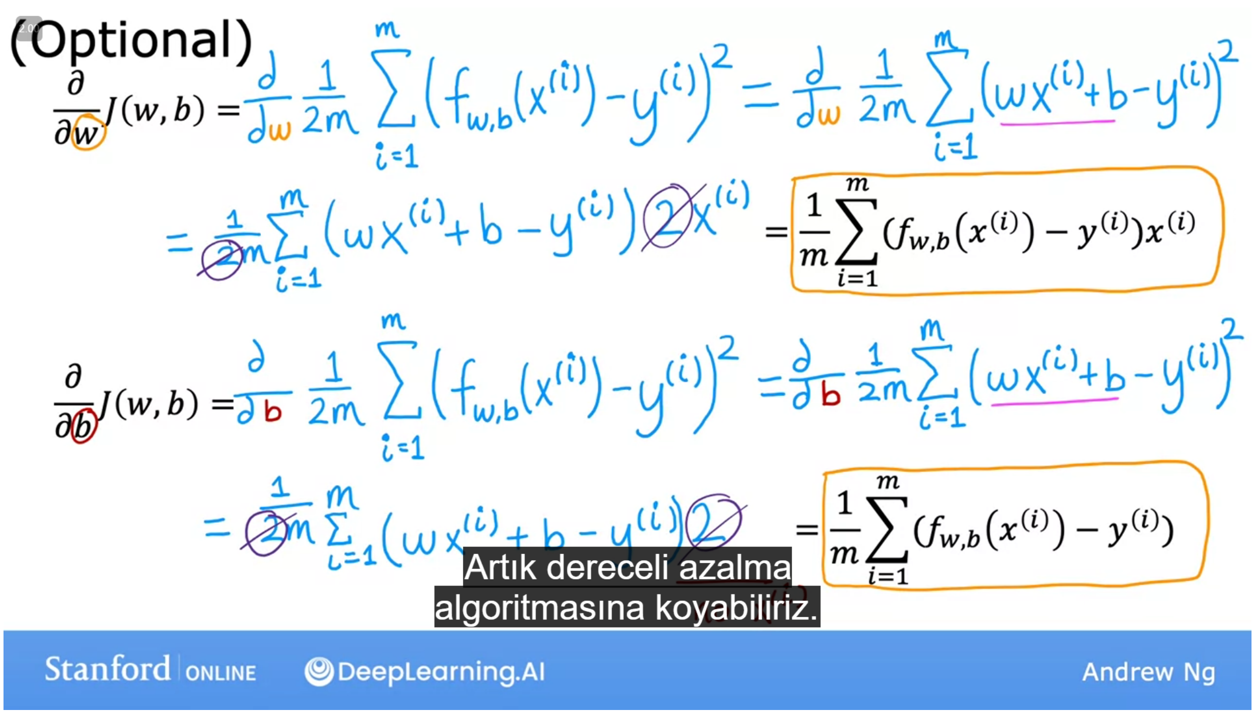
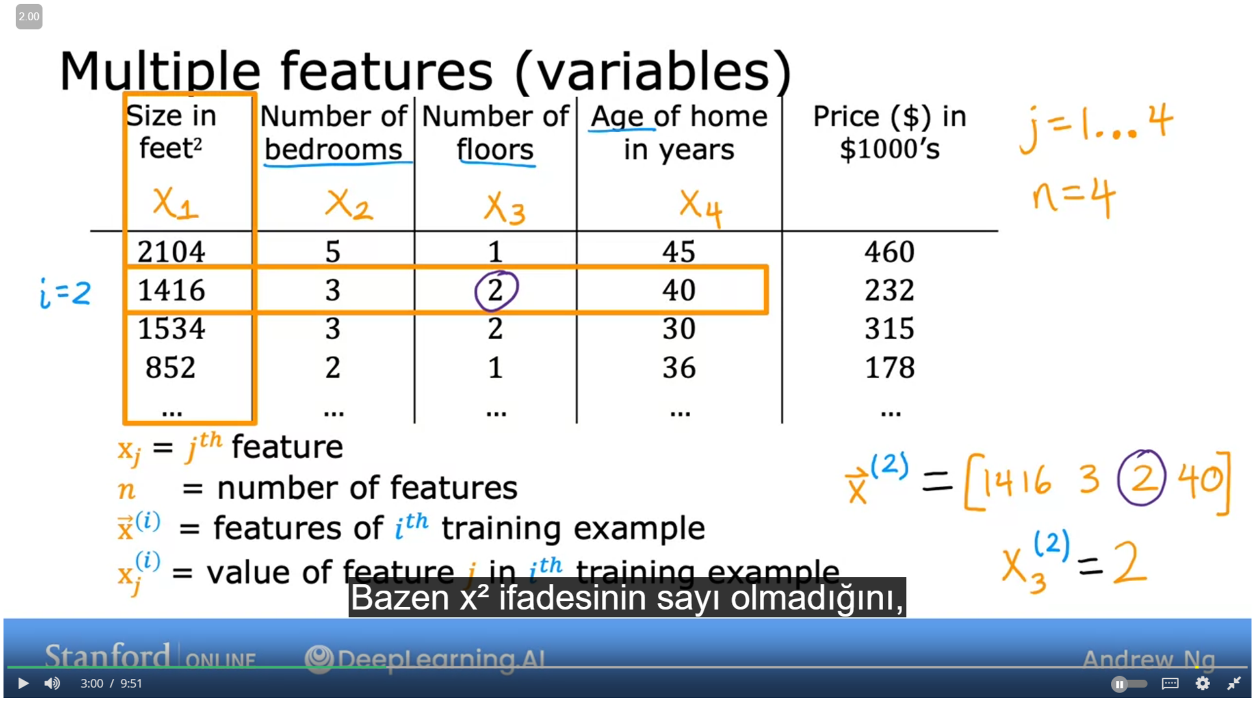
Andrew Ng





multiple linear regression


2.00
Multiple features (variables)
Size in feet^2 | Number of bedrooms | Number of floors | Age of home in years | Price ($) in $1000's
x_1 x_2 x_3 x_4
2104 5 1 45 460
1416 3 2 40 232
1534 3 2 30 315
852 2 1 36 178
... ...
$i=2$
$j=1...4$
$n=4$
$x_j = j^{th}$ feature
n = number of features
$\vec{x}^{(i)}$ = features of i^{th} training example
$x_j^{(i)}$ = value of feature j in i^{th} training example
$\vec{x}^{(2)} = [1416 \ 3 \ 2 \ 40]$
$x_3^{(2)} = 2$
Bazen x² ifadesinin sayı olmadığını,
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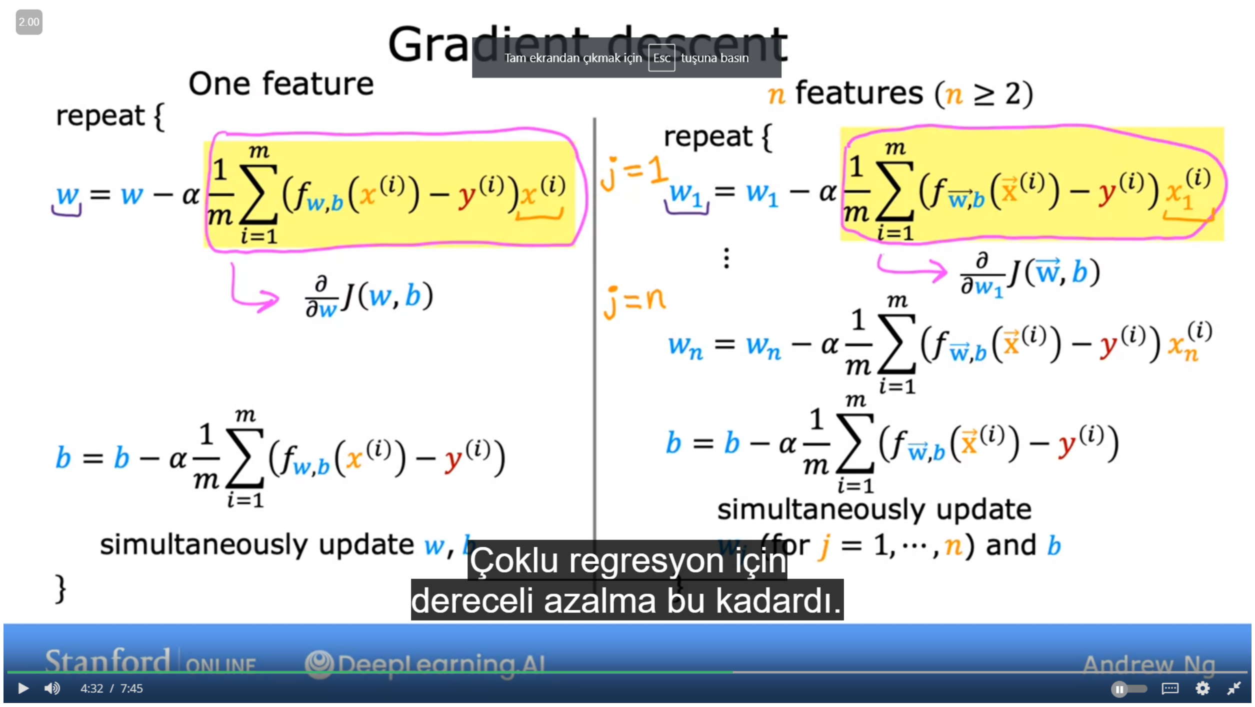
3:00 / 9:51


2.00
Gradient descent
Tam ekrandan çıkmak için Esc tuşuna basın
One feature
repeat {
$w = w - \alpha \frac{1}{m} \sum_{i=1}^{m} (f_{w,b}(x^{(i)}) - y^{(i)}) x^{(i)}$
$\frac{\partial}{\partial w} J(w,b)$
$b = b - \alpha \frac{1}{m} \sum_{i=1}^{m} (f_{w,b}(x^{(i)}) - y^{(i)})$
simultaneously update w, b
}
n features ($n \geq 2$)
repeat {
$j=1$
$w_1 = w_1 - \alpha \frac{1}{m} \sum_{i=1}^{m} (f_{\vec{w},b}(\vec{x}^{(i)}) - y^{(i)}) x_1^{(i)}$
$\frac{\partial}{\partial w_1} J(\vec{w}, b)$
⋮
$j=n$
$w_n = w_n - \alpha \frac{1}{m} \sum_{i=1}^{m} (f_{\vec{w},b}(\vec{x}^{(i)}) - y^{(i)}) x_n^{(i)}$
$b = b - \alpha \frac{1}{m} \sum_{i=1}^{m} (f_{\vec{w},b}(\vec{x}^{(i)}) - y^{(i)})$
simultaneously update
w_j (for $j = 1, \cdots, n$) and b
Çoklu regresyon için
dereceli azalma bu kadardı.
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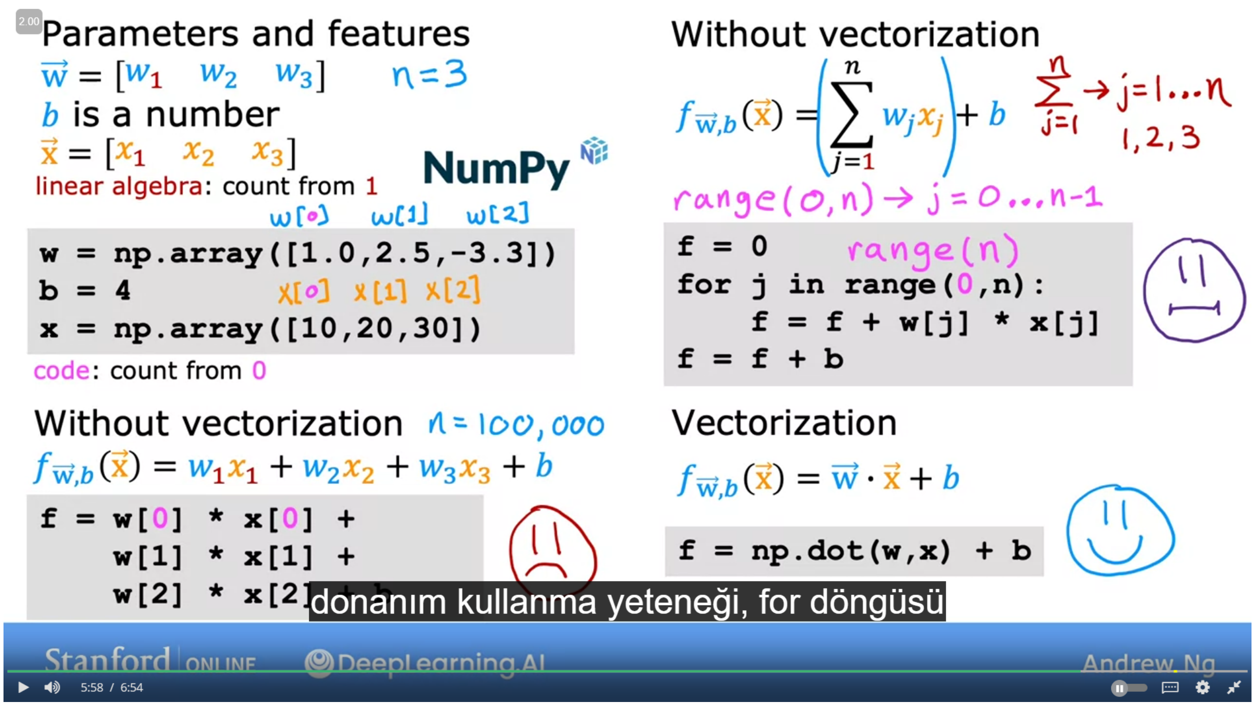
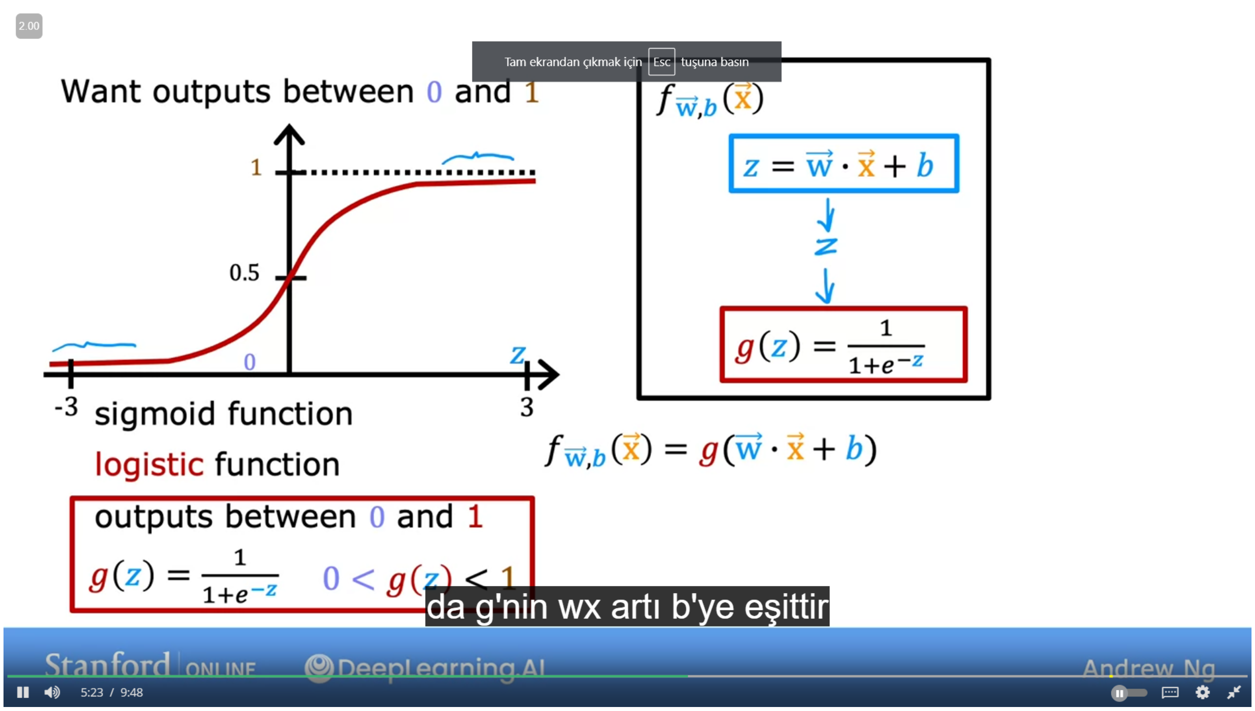
4:32 / 7:45



LOGİSTİC REGRESSİON

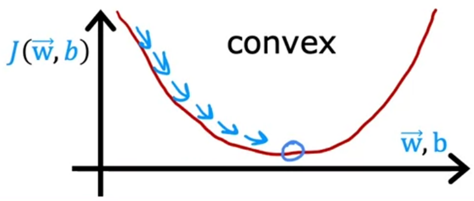


Squared error cost

$$J(\vec{w}, b) = \frac{1}{m}\sum_{i=1}^{m}\frac{1}{2}\left(f_{\vec{w},b}(\vec{x}^{(i)}) - y^{(i)}\right)^2$$

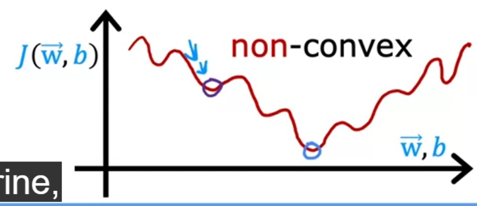
linear regression

$$f_{\vec{w},b}(\vec{x}) = \vec{w}\cdot\vec{x} + b$$



logistic regression

$$f_{\vec{w},b}(\vec{x}) = \frac{1}{1 + e^{-(\vec{w}\cdot\vec{x}+b)}}$$



Bunun yerine,

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2:49 / 11:59

1.50

Simplified cost function

loss

$$L\left(f_{\vec{w},b}(\vec{x}^{(i)}), y^{(i)}\right) = \underbrace{-y^{(i)}\log\left(f_{\vec{w},b}(\vec{x}^{(i)})\right) - (1 - y^{(i)})\log\left(1 - f_{\vec{w},b}(\vec{x}^{(i)})\right)}$$

cost

$$J(\vec{w}, b) = \frac{1}{m}\sum_{i=1}^{m}\left[\underbrace{L\left(f_{\vec{w},b}(\vec{x}^{(i)}), y^{(i)}\right)}\right]$$

$$= -\frac{1}{m}\sum_{i=1}^{m}\left[y^{(i)}\log\left(f_{\vec{w},b}(\vec{x}^{(i)})\right) + (1 - y^{(i)})\log\left(1 - f_{\vec{w},b}(\vec{x}^{(i)})\right)\right]$$

mr

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4:31 / 5:44