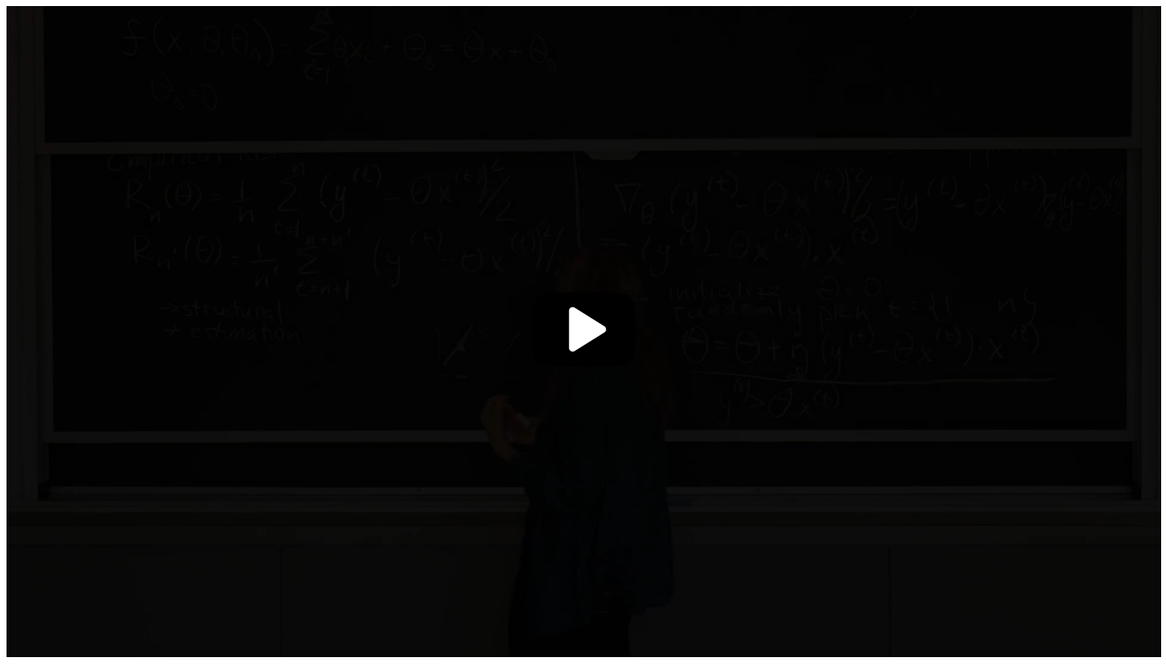
5. Gradient Based Approach
Learning Algorithm: Gradient Based Approach



7:03 / 7:03 Speed 1.50x

in the positive direction of point x.
That's what you're trying to do.

In reality, each time you select new point,
it may push it in its own direction.
But at least in this case, this point
contributed and pushed it in the right direction for itself.

So this is a very simple algorithm,

and you can run this algorithm and get your values.

End of transcript. Skip to the start.

Video
Download video file

Transcripts
Download SubRip (.srt) file

Download Text (.txt) file

True or False

1/1 point (graded)

Let $R_n(\theta)$ be the least squares criterion defined by

$$R_n(\theta) = \frac{1}{n}\sum_{t=1}^{n} \text{Loss}\left(y^{(t)} - \theta \cdot x^{(t)}\right).$$

Which of the following is true? Choose all those apply.

- [x] The least squares criterion $R_n(\theta)$ is a sum of functions, one per data point. ✔
- [ ] Stochastic gradient descent is slower than gradient descent.
- [x] $\nabla_\theta R_n(\theta)$ is a sum of functions, one per data point. ✔

✔

Solution:

For every point, the loss is a function of θ, so the least squares criterion $R_n(\theta)$ is a sum of functions, one per data point, and this is what makes stochastic gradient descent possible. We want to do stochastic gradient descent because it is faster than gradient descent. Finally, because $R_n(\theta)$ is sum of functions, one per data point, $\nabla_\theta R_n(\theta)$ is also a sum of functions one per data point.

Submit You have used 2 of 3 attempts

Answers are displayed within the problem

Discussion

Hide Discussion

Topic: Unit 2 Nonlinear Classification, Linear regression, Collaborative Filtering (2 weeks):Lecture 5. Linear Regression / 5. Gradient Based Approach

Add a Post

Show all posts ▼ by recent activity ▼

?	What's the superscript k in last option indicate?	6
💬	When I submit nothing happens. After I press the submit button nothing happens. Neither the number of attempts is increased and it does not show if I had it correct or not	3
💬	Sum of functions this exercise was really unclear. You should rephrase it.	3
?	[Staff] Don't understand the question 1. What do you mean under the "sum of functions"? Everything can be considered as function :) 2. What do you mean under the "slower" in second option. Slower in calculati...	8
💬	[Staff]True or False The equation misses the equal sign. It seems the question come before the relevant lecture. Community TA	3
☑	When a closed form of solution exists why use gradient based solution ? I seems a closed form of solution exists by setting derivative of square loss equal to zero, the solution is going find parameters where training error is zero. So if such a solutio...	4

Learn About Verified Certificates