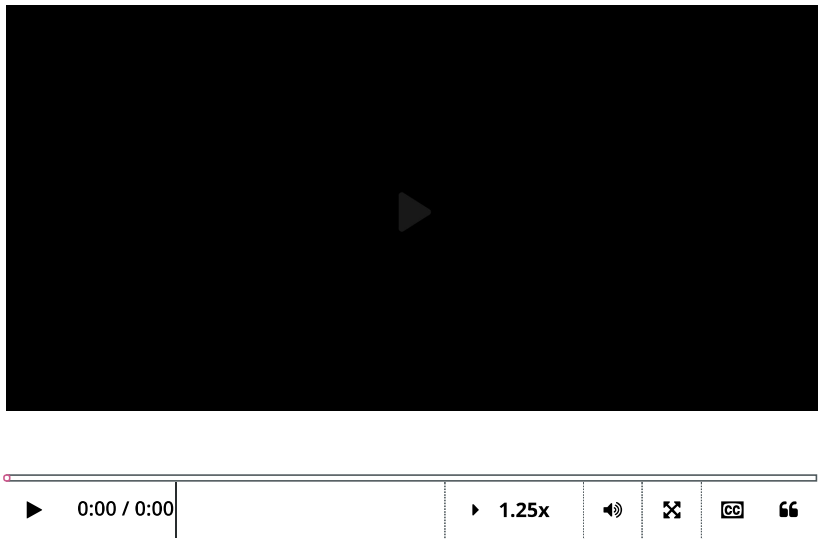
3. Linear Classifiers Mathematically Revisited

Exercises due Sep 23, 2020 05:29 IST *Completed*

Linear Classifiers Mathematically Revisited



Start of transcript. Skip to the end.

All right, let's try to understand

the set of linear classifiers.

In particular, let's take a specific linear classifier.

It divides the space into two halves linearly.

So on one side, the classifier says that all the examples

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Inner product and Orthogonal vectors

1/1 point (graded)
What is the inner product of $[0,1,1]$ and $[1,1,1]$?

2 ✔

Submit You have used 1 of 3 attempts

Linear Classifier Practice

1/1 point (graded)
We saw in the lecture above that for a linear classifier h, $h(x;\theta) = sign(\theta \cdot x)$, i.e. the sign of the dot product of θ and x. Now consider θ which is given by

$$\theta = (1,-1) \tag{4.1}$$

Which of the following points would be classified as positive by θ? Please choose all correct answers.

- [x] $(1,-1)$
- [x] $(1,0)$
- [ ] $(0,1)$
- [ ] $(0,0)$

✔

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Offset Added

1/1 point (graded)
Again, we have a linear classifier with θ given by

$$\theta = (1, -1) \tag{4.2}$$

and the offset, θ_0 given by $\theta_0 = -1$ Now which of the following points would be classified as positive by θ? Please choose all correct answers.

- [x] $(1, -1)$
- [ ] $(1, 0)$
- [ ] $(0, 1)$
- [ ] $(0, 0)$

✔

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Topic: Unit 1 Linear Classifiers and Generalizations (2 weeks):Lecture 2. Linear Classifier and Perceptron / 3. Linear Classifiers Mathematically Revisited

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my intutuion says perceptron equation notation is wrong, staff can you verify it ?	lecture represents theta vector multiplied by X vector, but i feel it should be denoted as theta transpose multiplied by X vector. That way...	2
Geometrical interpretation		4
What does theta represent?	I understand that theta is a parameter vector (orientation of the line) But what exactly does it represent when we say theta (1,-1) I cant v...	5
Point on the decision boundary	Hi, I have a doubt about what happen if we get points those are on the decision boundary. How we should classify them?	6
Which of the following points would be classified as positive by θ ? Please choose all correct answers.	why (1,-1) is correct answer?	1
Is theta_0 the offset parameter equivalent to (axes)intercept? If so, then (read description)	How come the professor was able to show that $\theta_0 < 0$, given that it was > 0 as the intercept point is $+ve$? I recall that the professor c...	6
What form of straight line(decision boundary) is mentioned in the lecture?	We know that there are various forms of equations for a straight line. Is the line (dec. bound.) $\theta \bullet X + \theta_0 = 0$ an $Y = mX + C$ form ...	4
About Offset Problem	according to course, the offset problem has a bug	5