# 6. Introduction to Classifiers: Let's bring in some geometry!

Exercises due Feb 15, 2023 08:59 -03 Completed

**Introduction to Linear Classifiers**

0:00 / 0:00 1.0x

**Video**

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**Transcripts**

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Training data can be graphically depicted on a (hyper)plane. **Classifiers** are **mappings vectors as input** and produce **labels as output**. A common kind of classifier is the **linea** linearly divides space(the (hyper)plane where training data lies) into two. Given a point classifier $h$ outputs $h(x) = 1$ or $h(x) = -1$, depending on where the point $x$ exists linearly divided spaces.

## Linear Classifier

1/1 point (graded)

We have a linear classifier $h$ that takes in any point on a two-dimensional space. The li the two-dimensional space into two, such that on one side $h(x) = +1$ and on the oth depicted below.

As an aside, classifiers need not be linear. They can be of any shape!

Submit You have used 2 of 2 attempts

## Training Error

1/1 point (graded)

Suppose a classifier correctly classifies 5 points in the training set and 1 points in the te
incorrectly classifies 5 points in the training set and 2 points in the test set. What is the
better than chance?

- (•) 0.5, equal to chance
- ( ) 0.46, worse than chance
- ( ) 0.55, better than chance
- ( ) 0.33, worse than chance

Submit You have used 3 of 3 attempts

## Hypothesis Space

1/1 point (graded)

What is the meaning of the "hypothesis space"?

- ( ) the set of test points
- (•) the set of possible classifiers
- ( ) the set of training points

Where can I get the annotated slides? Moreover which text book are we following for the given course ?

Is this a correct way to think about training error?

Am I right with the way I think about how to calculate training error? =

What are y(i) labels? vectors or scalar values?

In the lecture (1:40-1:50) Professor said: "... We have four training examples. It is a collection of pairs of those

What does it mean to make the "hypothesis class" too large?

Hi folks! At 12:27, professor Jaakkola says: "And the problem here is that in allowing these classifiers that wra

The warning about the model being too complex

The success of deep neural networks to correctly generalize many tasks seems to demonstrate that the clai

I havent finished watching the video but why is the graphic displaying x1 and x2? what are th components of x? like different categories say how much red or green a window is?

If so, this should be explained.. I feel so many teachers in MIT are so brilliant that they just dont think about t

Training Error

I am having issue with 2nd question , Training error. pls help

Wording on 2nd question

The second question asks "What is the **training error?** Is it **better** than chance?" and on the options v

Linear classifier divides the space into 2 halves?

I don't fully follow the above statement. Why necessarily halves? Does this imply that the two parts are equa