2. Introduction

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

Introduction

Start of transcript. Skip to the end.

Welcome back.

This is Machine Learning Lecture Number 3.

Today, we will talk about how to turn machine learning problems

into optimization problems.

That is, we are going to turn the problem of finding

a linear classifier on the basis of the

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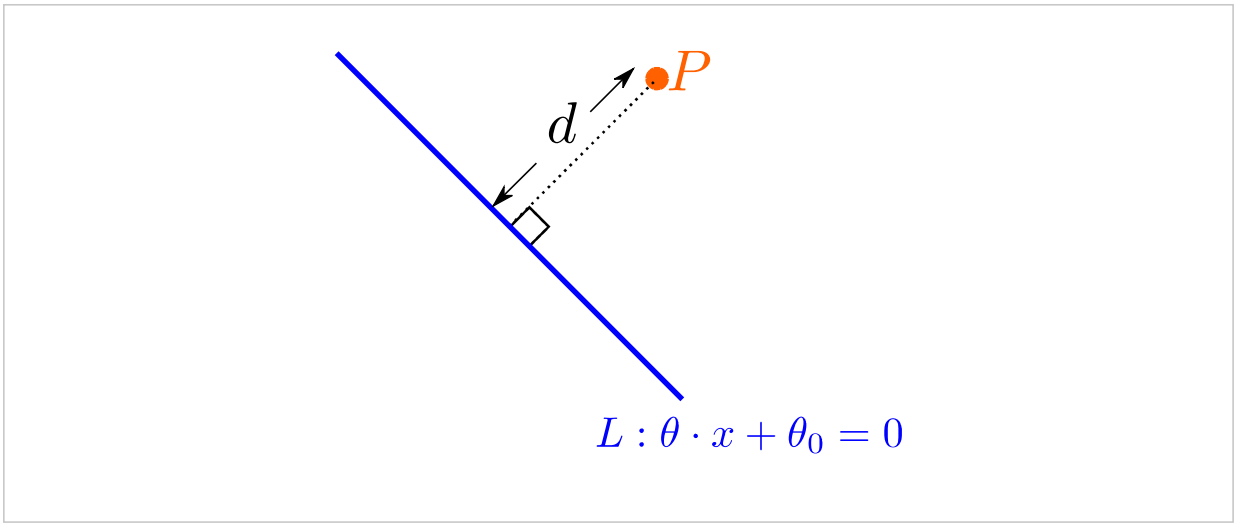
Review: Distance from a Line to a Point

1/1 point (graded)
Consider a line L in $\mathbb{R}^2$ given by the equation

$$L : \theta \cdot x + \theta_0 = 0$$

where θ is a vector normal to the line L. Let the point P be the endpoint of a vector x_0 (so the coordinates of P equal the components of x_0).

What is the the shortest distance d between the line L and the point P? Express d in terms of θ, θ_0, x, x_0.



$d =$

◯ $|\theta \cdot x + \theta_0|$

$\frac{|\theta \cdot x_0 + \theta_0|}{||\theta||}$

$\frac{|\theta \cdot x_0 + \theta_0|}{||\theta||}$

$\frac{|\theta \cdot \theta_0 + \theta_0|}{||\theta||}$

$|\theta \cdot x_0 + \theta_0|$

Submit You have used 3 of 3 attempts

Discussion

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Topic: Unit 1 Linear Classifiers and Generalizations (2 weeks):Lecture 3 Hinge loss, Margin boundaries and Regularization / 2. Introduction

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Handwritten lecture notes Check out my notes for this lecture : https://drive.google.com/drive/folders/172YN9JMYWjb-6k6Sd3USa4TInUKSROWr?usp=sharing		27
The convention behind the notation.		2
Distance from a Line to a Point		3
This is no longer perceptron, right? Just want to make sure I'm following properly. Once the professor starts talking about margin boundaries, we're switching from Percept...		2
Regularization term Is there a reason for calling maximizing the margin term Regularization term ?		2
Additional learning material need I want to learn more about perceptron algorithm. could someone suggest other resource(YouTube, or website links) Thanks		2

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