Welcome

Introduction

Video: Welcome
6 min

Video: What is Machine Learning?
7 min

Reading: What is Machine Learning?
5 min

Reading: How to Use Discussion Forums
4 min

Video: Supervised Learning
12 min

Reading: Supervised Learning
4 min

Video: Unsupervised Learning
14 min

Reading: Unsupervised Learning
3 min

Reading: Who are Mentors?
3 min

Reading: Get to Know Your Classmates
8 min

Reading: Frequently Asked Questions
11 min

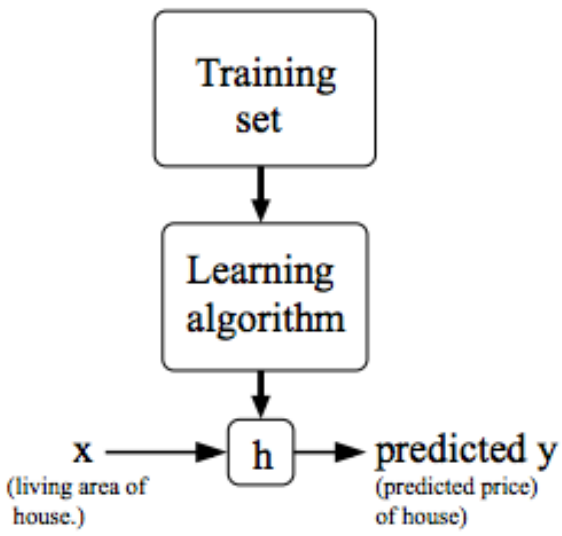
Review

Reading: Lecture Slides
20 min

Model Representation

To establish notation for future use, we'll use $x^{(i)}$ to denote the "input" variables (living area in this example), also called input features, and $y^{(i)}$ to denote the "output" or target variable that we are trying to predict (price). A pair $(x^{(i)}, y^{(i)})$ is called a training example, and the dataset that we'll be using to learn—a list of m training examples $(x^{(i)}, y^{(i)}); i = 1, \ldots, m$—is called a training set. Note that the superscript "(i)" in the notation is simply an index into the training set, and has nothing to do with exponentiation. We will also use X to denote the space of input values, and Y to denote the space of output values. In this example, X = Y = $\mathbb{R}$.

To describe the supervised learning problem slightly more formally, our goal is, given a training set, to learn a function h : X → Y so that h(x) is a "good" predictor for the corresponding value of y. For historical reasons, this function h is called a hypothesis. Seen pictorially, the process is therefore like this:



When the target variable that we're trying to predict is continuous, such as in our housing example, we