100 XP

Introduction

2 minutes

This module explores a process called supervised learning, in which machine learning models learn from examples.

By understanding supervised learning, we'll start a deeper dive into the individual components of the learning process, and exactly how this process can improve a model. Through examples, we'll also explore how setting up this learning process correctly is critical to achieving a high-performance model.

Throughout this module, we'll be using the following example scenario to explain the process of supervised learning. This scenario is designed to provide an example for how you might meet these concepts while programming yourself:

Your family have managed Washington State's longest-running elk farm for several generations, but the health of your herd has slowly worsened for decades. it's well known that your farm's breed of elk should not be fed grain when nightly temperatures average above freezing (32°F or 0°C). For that reason, you've always followed your grandfather's farming calendar and switched from grain feed after January 31st. That said, you've recently have read about climate change affecting others' farming practices. Could this explain the poorer health of elk in recent years? With some historical weather data at your side, you seek to determine whether local temperatures have changed from your grandfather's day, and whether your farming calendar needs to be updated.

Prerequisites

A basic familiarity with inputs, outputs, and models.

Learning objectives

In this module, you will:

- Define supervised and unsupervised learning.
- Explore how cost functions affect the learning process.
- Discover how models are optimized by gradient descent.
- Experiment with learning rates, and see how they can affect training.

Next unit: What is supervised learning?

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