# Chpt5 Mechanics of learning

Augest 11, 2021

Cover:

1. Understanding how algorithms can learn from data
2. Reframing learning as parameter estimation, using differentiation and gradient descent
3. How PyTorch supports learning with autograd

A learning algorithm is presented with input data that is paired with desired outputs. Once learning has occured, that algorithm will be capable of producing correct outputs when it is fed new data that is similar enough to the input data it was trained on. With deep learning, this process works even when the input data and the desired output are *far* from each other.

The process always involves a function with a number of unknown parameters whose are estimated from data: in short, a *model*.

In this book, we're interested in models that are not engineered for solving a specific narrow task, but can be automatically adapted to specialize themselves for any one of many similar tasks using input and output pairs-in other words, general models trained on data relevant to the specific task at hand.

This chapter is about how to automate generic funciton-fitting.

## 5.2 Learning is just parameter estimation

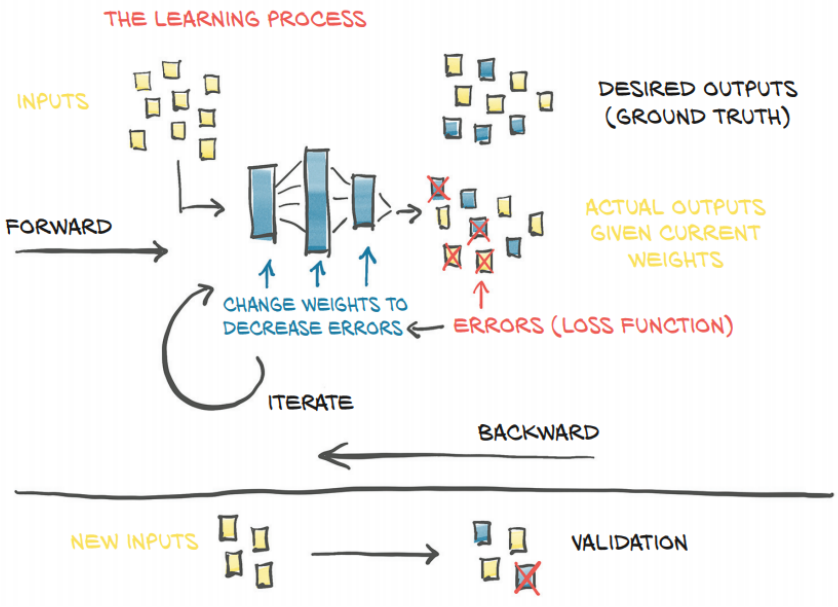


**Figure 5.2** Our mental model of the learning process