Contents

Advanced Machine Learning

First Lecture

A *well-posed learning problem* occurs when a computer program learns from experience E, w.r.t some task T and some performance measure P. learning occurs if its performance on T, as measured by P, improves with experience E.

Stages of intelligent systems:

1. Expert systems (1960s–1980s)
2. Unsupervised learning (1980s–1990s)
3. Data-driven learning (2000s)

This course will focus on the third stage. Increases in flexibility and model expressiveness correspond to exponential increases in the number of parameters and computational complexity, in terms of FLOPs and dataset size.

Second Lecture

The second lecture recaps a number of basic ML concepts such as SGD, Losses, Regularization, etc...

We skip these notes since they are already covered in so many previous courses, they are to be considered trivial at this point

Backpropagation

We take notes on backpropagation since it is usually always expressed in a different formalism in every course.