Introduction

- No AI Background
- No specific computing resources
- Not AGI

History

- 1940s: artificial neuron
- 1950s: perceptron
- 1960s into 80s: AI Winter
- 1980s (late): neural networks + shallow networks (maybe 1 hidden layer)
- 1990s: Mild AI Winter
- 2000s: Deep Learning Explosion

(1) Computing Power (GPU)
(2) Dataset size (Big Data)
Learn the representation

Hand-Engineered Features

\[ \text{NN} \]

\[ \text{ML} \]

\[ \text{AI} \]

ML
- Supervised (labeled data)
- Unsupervised (not labeled)
- Reinforcement (delayed label)
- Hybrid
Common Tasks

- Regression (predict house sale price)
- Classification (yes/no outputs)
- Clustering (grouping of similar inputs)
- Generation (image, audio, ...)