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Chapter 1

ML

- Structured data (i.e. DB, excel, CSV)

- Testing : Input -> Target

    Supervised learning : Train model via Target, Adjusting parameters

    Unsupervised learning : No Target (I.e. clustering groups), Hard to evaluate results

    Reinforced learning : Trains “Agent”, Agent receives compensation, status quo. Objective of the agent is to receive most compensation. (i.e. Q-learning, SARSA, DQN, AlphaGo)

- How models set rules

    1.5 * x + 0.1 = TARGET
    weight intercept

- If input does not object to rules -> loss function -> adjust weight/intercept

minimize loss -> optimization algorithm

DL (= stacked artificial neural network)

- Unstructured data (i.e. image, video, sound, translate)

Chapter 3

Linear Regression

- y = a * x + b

  adjusting weight, intercept

Gradient Decent

- BackPropagation
    - diff(y_hat, y) -> update w, b
      for every data : calculate error and fix w, b -> epoch (usually 10~1000)

    - loss function

      SE = (y-y_hat)^2

      squared error function : get minimum value -> derivative

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A. partial derivative by w(weight)

differential = -(y-y_hat) * x

update weight via differential

w = w + (y-y_hat)*x

B. partial derivative by b(intercept)

differential = -(y-y_hat)

update weight via differential

b = b + (y-y_hat)

Gradient : these differentials

for data (forpass -> backprop -> update weight, intercept ->)