Attendance:
tiny.cc/event-attendance

App Dev League

Day 3: Intro to AI/ML

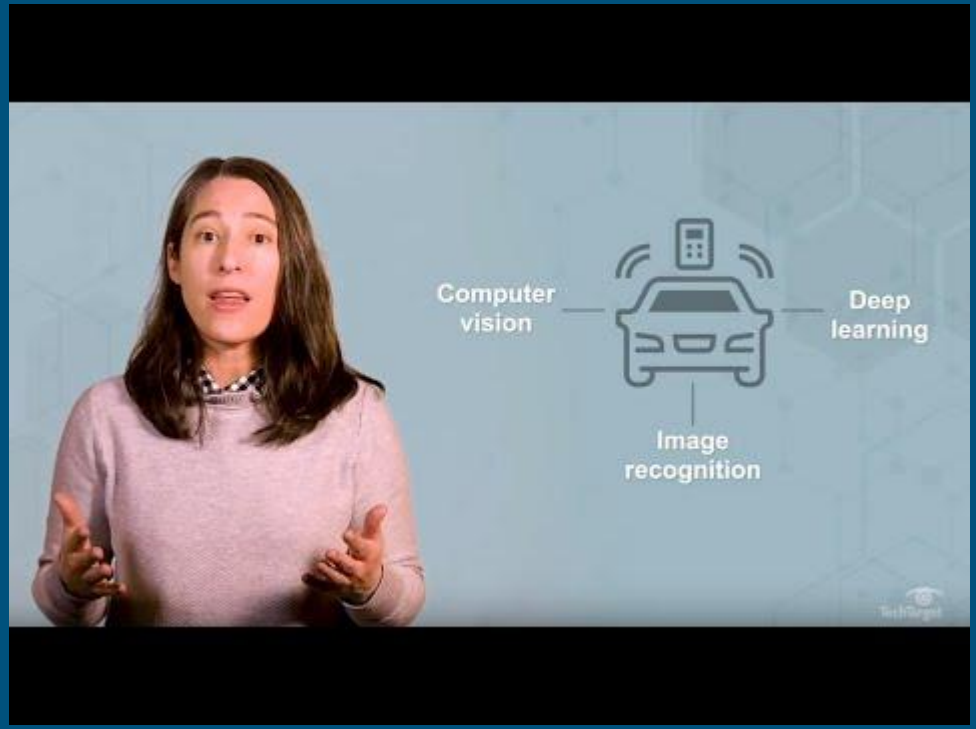
Agenda

1. Review AI/ML
2. Neural Networks
3. Kahoot
4. Project

AI/ML Review

Artificial Intelligence

“Artificial intelligence (AI) is the ability of a computer or a robot controlled by a computer to do tasks that are usually done by humans because they require human intelligence and discernment.”

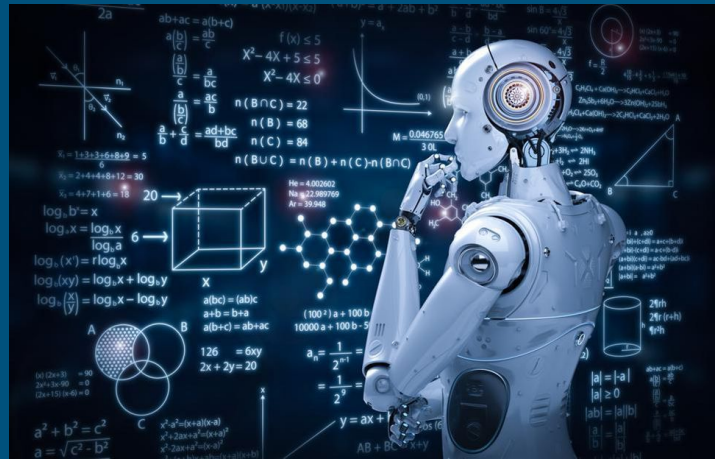


AI Review

- Human intelligence shown in machines
- Machinery that learns from experience
- Examples: Google/Siri assistant, self-driving cars, recommendation algorithms

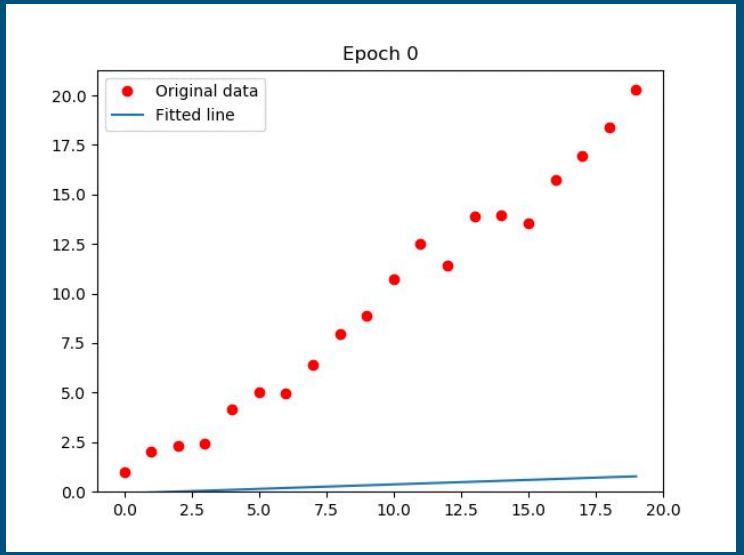
ML Review

- Machine Learning is the study of algorithms which improve through the use of data
- ML is a part of AI, which is the broader category
- Many different ML models such as:
  - Linear Regression
  - Random Forests
  - Neural Networks
  - CNNs



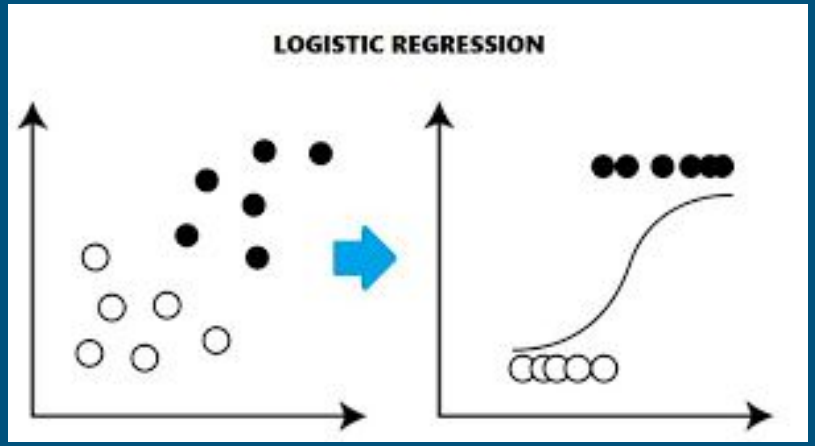
Linear Regression

- ➔ Line of best fit
- ➔ Predict future values
- ➔ y = mx+b



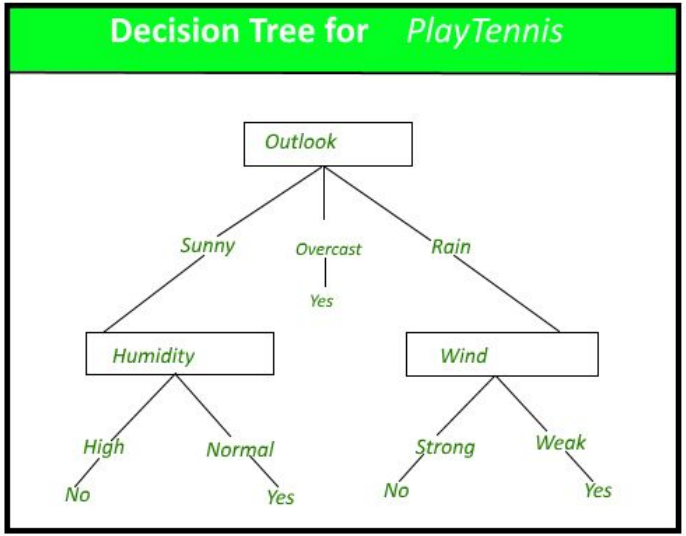
Logistic Regression

- ➔ Multiple classes
- ➔ Predict future values
- ➔ More complex than linear



Decision Tree

- ➔ Yes/No tree
- ➔ Predict future data using this criteria
- ➔ A random forest model uses many decision trees and combines them to get more accurate predictions



Neural Networks

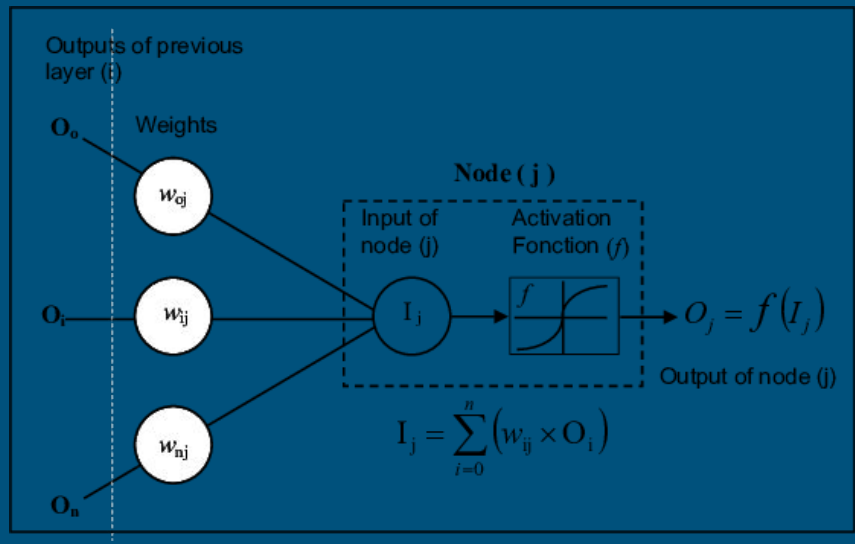
2

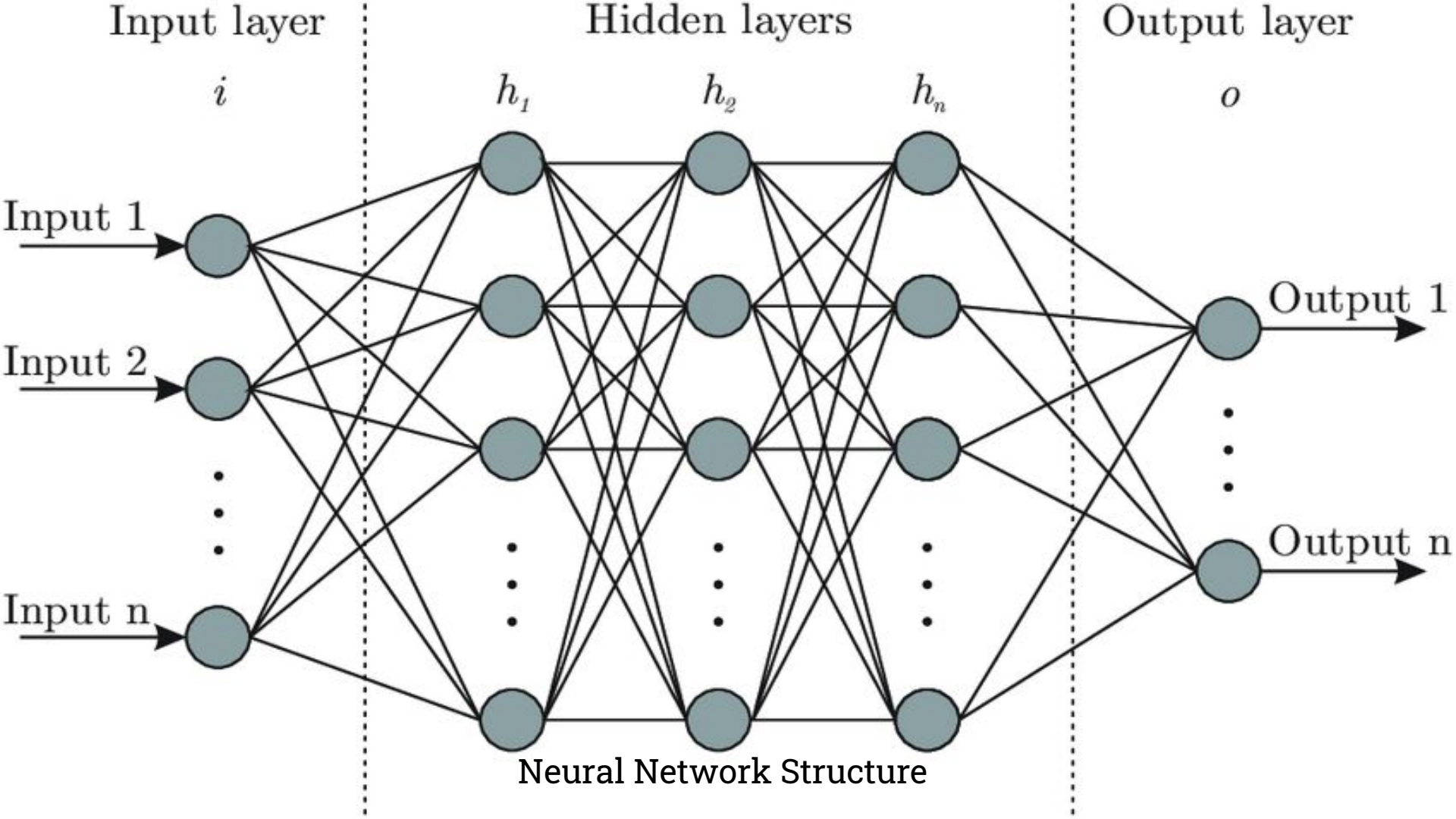
Neural Networks

- A neural network is a type of ML model meant to simulate the function of a brain
- A neural net is comprised of many neurons which are connected to create layers
- A neuron has an input, decider, and output

Neurons

- ➔ Each neuron takes in all the inputs and weighs them
- ➔ It then adds all the inputs and uses the sum in an activation function





Neural Network Structure

Layers

- Input layer
  - Gets the data
  - Sends to hidden layers
- Hidden Layer(s)
  - Not necessary, however, this layer does all the computation
- Output Layer
  - Produces results for all the inputs

Forward/Back Propagation

- Forward Propagation
  - This process gets the Neural Network output values based on the input
  - Uses a complex algorithm to calculate the cost value
- Back propagation
  - Determines how changing the weights impacts the cost of a Neural Network
  - Very complex

Activation Functions

- Activation functions help Neural Nets identify patterns in data
- Sigmoid:
  - Non-linear function that is used for binary classification
  - Produces a value between 0-1
  - Used on the output layer
- Softmax
  - Similar to Sigmoid, but used for multi-class
- Relu
  - Linear function used on input and hidden layers

Kahoot

kahoot.it

3

Project

Predicting chance of a heart attack using a Neural Network

4

More Resources

Tensorflow Curriculums

Andrew Ng Coursera Course

THANKS!

ANY QUESTIONS?

You can find more info @

- https://www.appdevleague.org
- https://linktr.ee/AppDevLeague