
PLURALSIGHT

Neural Networks

Welcome!

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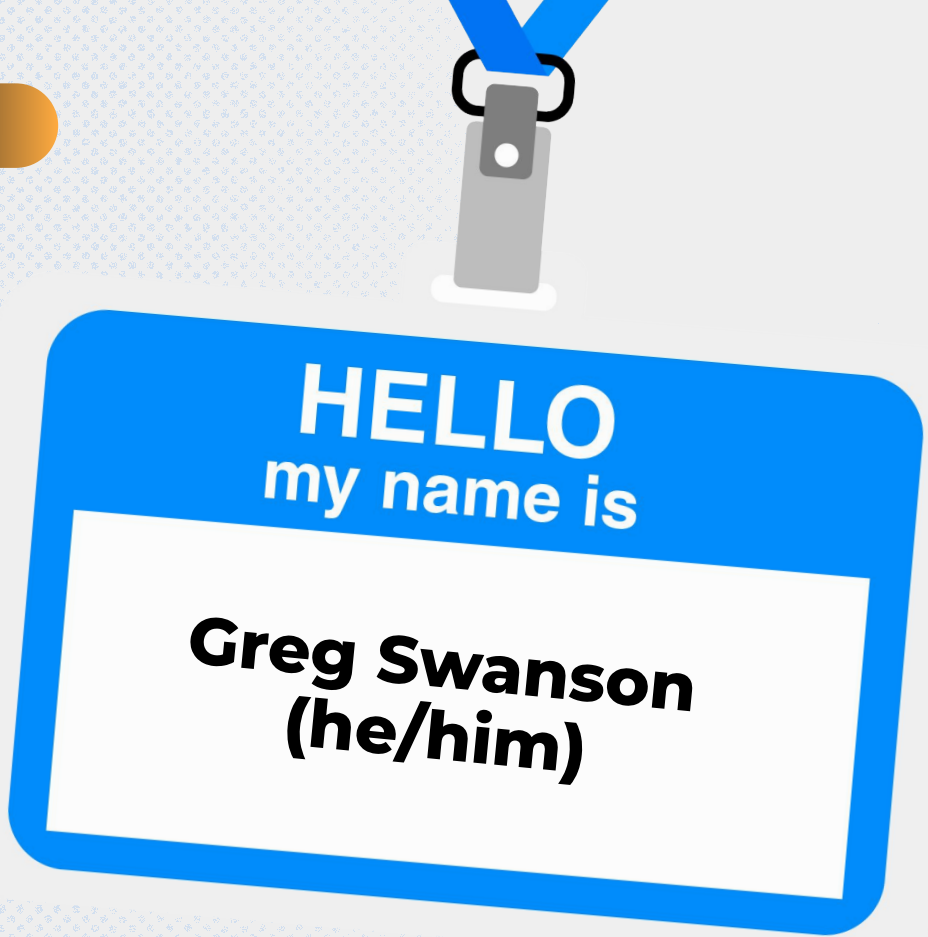
Instructor, Pluralsight



About Me:

- Lead Data Scientist for Storyblocks
- Teaching Programming and Data Science related topics for the last 5 years
- I live in Utah & love getting out in the Wasatch Mountains as much as I can

Prerequisites

This course assumes you

- Experience programming in python
- Comfort with algebraic formula notation
- Familiar with test/train splits in ML
- Familiar with basic metrics for measuring classification and regression performance
- Understanding of calculus (especially derivative & gradient)
- Bonus: Understanding of gradient descent

Why study this subject?

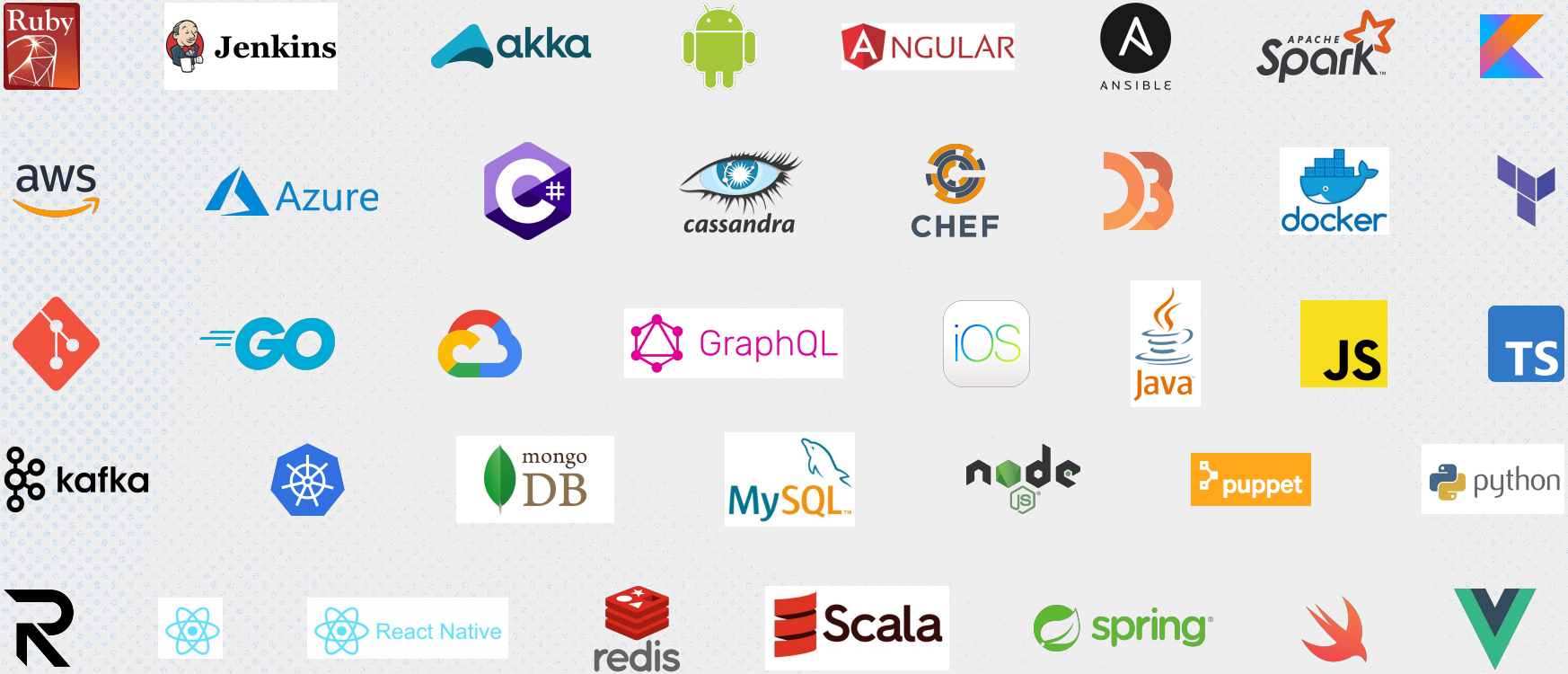
- This class establishes the foundations of building neural networks with python.
- Neural Networks are a family of ML models that achieve state of the art (SOTA) performance on a variety of tasks.
- They especially excel in working with complex “unstructured data” where they currently outperform all other known model types.

Note!

- **This course does include:**
  - Conceptual descriptions of neural networks and their key components
  - Hands-on experience working with Neural Networks

- **This course does NOT include:**
  - More advanced neural network architectures such as Recurrent Neural Networks (RNNs), Convolutional Neural Networks (CNNs), Generative Adversarial Networks (GANs), or Transformers

We teach over 400 technology topics.



My pledge to you:

I will..

- Make this course interactive
- Ask you questions
- Ensure everyone can speak
- Create an inclusive learning environment
- Use an on-screen timer for breaks

...also, if you have an accessibility need, please let me know!

Objectives

At the end of this course, you will be able to:

- Describe a “universal function approximator” and explain why this is a useful feature for a machine learning model to have.
- Describe an Artificial Neural Network in detail.
- Build and train an Artificial Neural Network in Python & Tensorflow (Keras)

Agenda

- What is a Neural Network?
- Building a simple Neural Network
- Network Architectures
- Practice Exercises
- Advanced Applications Demo

Schedule Breakdown

9:05 AM PDT: Class Start

- Intros
- Lecture & Exercises

10:30 AM PDT: Break

- Lecture & Exercises

12 PM - 1PM PT: Lunch & Survey

- Lecture & Exercises

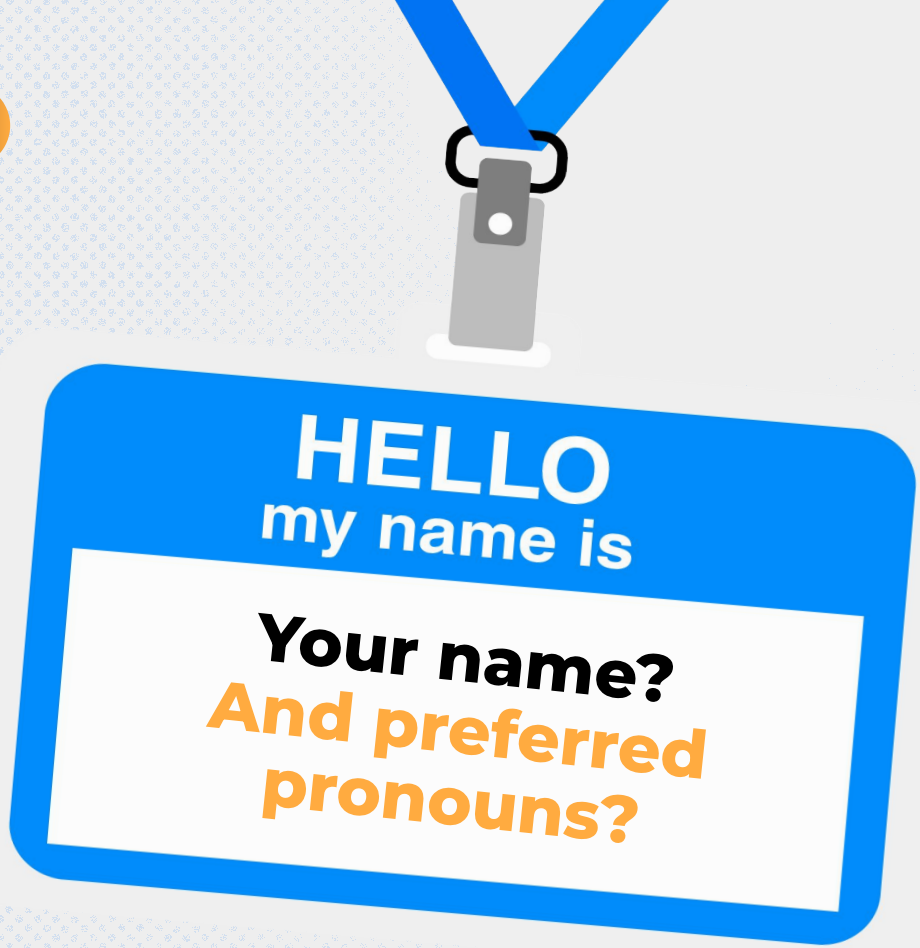
3 PM PDT: Break

- Lecture & Exercises

4:45 PM PDT: Class Wrap Up

How we're going to work together

- You'll have a copy of all the course materials shortly
  - We'll be using Jupyter notebooks/VSC
- You'll be following along in the notebook



Student Instructions

- We got acquainted in the first class, so let's start with some polls:
- What have you been learning since we last met?
- What's the difference between regression and classification?

Set up the environment

- Repo is here:
  - https://github.com/gregworks/Intro-to-Neural-Networks/tree/main
- Open with colab here:
  - https://colab.research.google.com/?utm_source=scs-index

Survey!

https://www.surveymonkey.com/r/T2BVLJZ

Thank you!

If you have any additional questions, please ask!If