

Professional Experience

Project ALPhA

Machine Learning Research Fellow

Davidson, NC

Sep 2020 - Present

- Implementing a detector system for use with the Active Target Time Projection Chamber at the Facility for Rare Isotope Beams
- Studying the reaction between Magnesium-22 and an alpha particle to simulate similar reactions that occur in stars
- Collaborating with physicists at the Facility for Rare Isotope Beams to create scientifically accurate models
- Using Tensorflow and Python within Jupyter notebooks to develop machine learning models to filter data and determine the number of reaction products from events

Project ALPhA

Web Developer

Davidson, NC

May 2020 - Aug 2020

- Used Dash, Javascript, and Python to build out a web-based visualisation tool for machine learning research data
- Used Flask to create routes for Dash visualisation content delivery to the tool
- Used Flask to transfer context data across pages and deliver accurate analytics to users
- Leveraged existing machine learning models to build plots for Collinear Parton Distribution Functions
- Spearheaded codebase review with team to refactor depreciated files and methods

Flashmaps

iOS Developer

Davidson, NC

Jul 2020 - Aug 2020

- Used SwiftUI to develop an MVP for a mobile flash card application
- Implemented gesture recognition to prompt animated feedback for users
- Conducted research into Firebase Realtime DB and Cloud Firestore to handle efficient storage of images and text data
- Developed custom solutions to handle user entry of colours for cards
- Integrated camera and gallery functionality to allow for custom user generated media

Bluebonnet Data

Data Fellow

South Bend, IN

Mar 2020 - May 2020

- Interacted with the VoteBuilder platform to aggregate target demographic data for potential voters
- Used Python to clean data and build models for predicting election outcomes
- Worked with team to restructure and streamline the data infrastructure to better enable ongoing research efforts

Johns Hopkins University Applied Physics Lab

Cybersecurity Intern

Laurel, MD

Jun 2016 - Aug 2016

- Researched and compared different versions of the Common Vulnerability Scoring System (CVSS)
- Modeled the strengths and weaknesses of CVSS versions using Excel
- Co-authored a white paper covering the analysis and findings generated throughout the summer

Additional Projects

Checkbox

Using PostgreSQL, Express, React, and Node.js to create a to-do list application that stores each task in a database and allows for adding, editing, deleting, and "checking off" of tasks.

Book-Worm

Using Python to implement a recommender system that predicts if a user will like a book given a CSV file of rating data. Using Tensorflow to develop a Neural Collaborative Filtering model, Amazon S3 to store processed data, and Amazon SageMaker to deploy the trained model through an endpoint.

Wiki-Woof

Using Python to create a web scraping tool that queries Wikipedia pages for image URLs and collects them in a text file. Using subsequent URL data to build, train, and test an image classifier that takes in both a broad category and a user provided image and returns whether the image is related to the category or not.

Schelling-Model

Used C to create a simulation of Schelling's Model of Segregation, an agent-based economic problem about housing.

Image-Segmenter

Used Java to develop an Image Segmenter using a disjoint set forest.

Education

Computer Science B.S. - Davidson College: Spring 2021 Graduation

B2 German Language Certification - Goethe Institut

Leadership & Involvement

Davidson 1972

Treasurer

Davidson, NC

Jan 2019 - Present

- Organising large and small scale events including luncheons and general body engagement events
- Managing an operational budget of over \$5,000
- Raising awareness and promoting organisational efforts via merchandise designs, newspaper articles, and events

Tutor Doctor

Math Tutor

Davidson, NC

Nov 2019 - Present

- Developing lesson plans and study materials to provide comprehensive assistance to math students of varying levels

Davidson College: Mathematics & Computer Science Department

Homework Grader

Davidson, NC

Feb 2020 - May 2020

- Provided detailed feedback and explanations on Calculus homework sets to students after evaluating solutions

Davidson College Women's Novice Club Crew

Coxswain

Davidson, NC

Aug 2018 - Dec 2018

- Led practices and conducted strategy meetings ahead of regattas as a member of the team.

Skills

Python • C • Java • Javascript • Swift • Flask • GCP • AWS • Tensorflow • Jupyter