

## Professional Experience

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### 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

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### Tomato-Picker

Using Python to implement a recommender system that predicts if a user will like a movie 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.

### **Data-Visualization-Website**

Used D3.js and HTML to build an informational website featuring interactive data visualizations about Coronavirus testing in the United States.

### **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**

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

**B2 German Language Certification** - Goethe Institut

## **Leadership & Involvement**

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### **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**

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