

Education

The University of Alabama – Tuscaloosa, Alabama

May 2022

GPA: 4.0/4.0

BS in Electrical Engineering - Minors in Math and the Randall Research Scholars Program

Experience

GREEN BANK OBSERVATORY

Electrical Engineering Intern, May 2019 - August 2019

- Reduced radio astronomy data loss by up to 50% by excising interference at high time resolutions through **machine learning**
- Utilized **Amazon Web Services** S3 to manage a >20 terabyte dataset and deployed the trained ML model using Sagemaker
- Created a multi-class semantic segmentation model to classify data as desired signal, unwanted signal, or fast radio bursts
- Created a data annotation and formatting pipeline from scratch for **TensorFlow/Keras**
- Gained experience with fourier transforms, **signal processing**, and FPGA programming

UA ECOCAR

Machine Learning Subteam Lead, September 2018 - Present

- **Manage** a team of 10 undergraduate students to apply machine learning towards automotive autonomy
- Created a customized deep learning **object detection** algorithm to determine driver awareness state using **TensorFlow**
- Determined optimal computing, camera, and sensor hardware for given cost and functionality constraints
- Experimented with stoplight and stop sign detection to create residential autonomy
- Gained experience with CAN communication, signal processing, and automotive radar sensor fusion

NATURALLY FUNDAMENTAL

Creator, April 2018 - Present

- Started a science education platform featuring interactive visualizations focusing on engineering
- Created an online presence and UI environment using HTML, CSS, Javascript and D3.js.
- Wrote articles and graphs featured on Y.Combinator News and Reddit with >17,000 unique page views

THE ORBITAL MECHANICS SPACE PODCAST

Research Assistant, May 2016 – August 2016

- Researched and edited space-related articles for a preeminent spaceflight podcast
- Helped create an audiobook for *Ignition! – An Informal History of Liquid Rocket Propellants*

Skills

- Proficient in **Python**, TensorFlow, and Keras
- Experience with **AWS**, Fortran, Qt, MATLAB, Java, Scikit-Learn, C#, and **Microsoft SQL**
- Web Development using JavaScript, HTML, and CSS
- Data Analysis and Visualization – **D3.JS** and Pandas
- Writing and Editing

Relevant Projects and Awards

- Electric Longboard
 - Built a li-ion powered longboard from scratch. Spot-welded 18650 cells together with nickel strips, designed and built the power distribution system, and hand-made the longboard deck from plywood. Experimented with a clear, Kydex battery enclosure.
- DIY Carputer
 - Currently creating a driving augments and car head unit replacement for my car. Object detection inference on a forward-facing camera to detect stop signs, lane-drifting, and obstacles, bluetooth music playback, and navigation. **Qt5** interface running on a raspberry pi connected to a capacitive touchscreen.
- DIY Electronics
 - Constructed airplanes and a custom aerial video drone. Learned the basics of circuitry and soldering.
- Fall 2018, Spring 2019 Dean's List
- Eagle Scout and Former SD Boys State Governor