Adam Ebrahim

4042 Water Willow Lane, Hoover, AL 35244 | (205)-541-2074 | adamaebrahim@gmail.com
www.linkedin.com/in/adam-ebrahim-120799214 | Website: adamebrahim.tech

Education

Duke University, Durham, NC — August 2021 – Current (Expected May 2025)
A. James Clark Scholar

- Majors: *BSE in Electrical and Computer Engineering, Double Major in Computer Science* (GPA: 4.0)
- Courses: Data Structures/Algorithms, Computer Architecture, Microelectronics, Operating Systems, Signals/Systems

Work Experience

Boundless Science (Startup) — May 2023 – July 2023
Embedded Systems/Software Engineering Intern

- Led the design, creation, and debug of an embedded systems device using Arduino microcontrollers, PCBs, and other electrical components/chips to generate ultrasound waves capable of driving transducers.
- Wrote Arduino software to provide a UI for users to program the device to output desired ultrasound parameters.
- Worked on low-level programming of registers, SRAM, and firmware for different chips and embedded devices.
- Performed hardware testing of electrical components and debugged unexpected behavior.
- Created an object tracking module in Python/OpenCV that uses image preprocessing techniques and interpolation to detect, track, and take measurements of in-focus aerosol droplets from videos without significant slowdown.
- Created Python script for customizable data visualization, speeding up company analysis of animal testing results.

Duke University Code+ — May 2022 – July 2022
Full-Stack Software Engineer Intern

- Developed a web application for Duke University with a React.js frontend to enable students to build their class schedules for future semesters more easily and efficiently while being able to visualize relevant data.
- Created REST backend API in Ruby on Rails to store selected courses in a database for future access.
- Designed relational database table structure using PostgreSQL to hold user data and course information.
- Automated processes for parsing XML files and updating the database with the most recent course changes.

Projects/Activities

AI Squat Assist Device

- Building a device that uses Mediapipe's Holistic machine learning model and Tensorflow GPU inference to monitor a squat in real-time while providing visual/audio cues, form improvement feedback, and other analysis.
- Developed squat-state transition logic based on angles between inferred limb landmarks.
- Implemented real-time cues based on pose inference to notify user when they reach proper squat depth.
- Utilizing NVIDIA Jetson Nano microprocessor with CUDA, Python, Mediapipe, Tensorflow, and OpenCV.

Workout Generator Website

- Developing a React/Redux web app to generate custom, weekly workout routines based on user-input settings.
- Built a RESTful backend API using Golang to access exercise info stored in a database.
- Created backend logic to return an individualized weekly workout plan utilizing exercises from the PostgreSQL database with generated sets/reps, rest times, and more.
- Utilized CI/CD pipelines to ensure the app functions smoothly in development and production environments.

Arduino Robot

- Used an Arduino microcontroller and other electrical components to build a functioning robot that could perform line following, object detection, color sensing, and communication with other robots.
- Discovered best practices for writing efficient Arduino code and for wiring/working with sensors.

Skills

- **Languages**: Java, Python, C, Arduino, Golang, JavaScript, Lua, Ruby, SQL, HTML/CSS
- **Frameworks/technologies**: Git, React/Redux, OpenCV, Microprocessors, TensorFlow, Ruby on Rails, Postgres