Samuel W. Crane

Medford, MA | (336) 675-9232 | scraneco@gmail.com | My Portfolio | /scrane11

Currently seeking full time employment in Robotics/Embedded Software Engineering in the Boston area.

Education:

B.S. in Computer Engineering, *University of North Carolina at Charlotte* **December 2023**
GPA: 3.68 | **Relevant Coursework:** Embedded Systems, Artificial Intelligence for Robotics, VLSI

Work Experience:

Butlr - Systems Test Engineer Contractor **January 2024 – June 2024**
- Spearheaded the design, review, and execution of **over 10 comprehensive test plans**
- Generated dashboard visualizations of sensor data retrieved via the MQTT protocol (Python)
- Analyzed sensor data with statistics to **correct sensor errors and variance by >250%**
- Collaborated with 2 other teams to determine objectives and testing requirements

iRobot - Systems Test Engineering Intern **July 2022 – December 2023**
- Developed **1,500+ lines of Python** code with object-oriented programming (**OOP**) to automatically evaluate robot performance across 5 tests using 6DOF data from a Ground Truth System (GTS) while providing modularity, maintainability, and readability
- Optimized the existing evaluators **speed by 26x** while improving its accuracy (Python)
- Integrated a GTS software into a **PyTest** automated robot testing software to automate 5 tests
- Triggered a GTS to start and stop capturing **within 20 ms** using logging firmware (C)
- Designed and troubleshooted software for robots in design challenges with 10 interns

UNCC - Undergraduate Research Assistant **June 2021 – August 2021**
- Implemented and documented a dual camera SLAM algorithm in **ROS C++ with Ubuntu Linux**
- Recorded and presented data using real time SLAM algorithms and SSH remote connections
- Simulated environments using **Gazebo** to evaluate SLAM-based navigation algorithms

Projects and Skills:

Solar Panel Cleaning Robot
- Senior Capstone Project to design and build a robot to clean rows of solar panels in a desert
- Integrated OpenCV to quantify cleanliness of solar panels for autonomous cleaning routines
- **Managed the team for 8 months** while designing, fabricating, and programming the robot

Bluetooth Keyboard
- Successfully brought a unique 36-key keyboard concept to life, incorporating user-centric design principles for improved ergonomics and typing experience
- 2-Layer PCB Design (EasyEDA), Programming Microcontroller Firmware (C/C++), Soldering

Petri Dish Robot
- Created a robot to autonomously traverse the grid of a petri dish underneath a camera, increasing accuracy and cutting down time required to analyze one dish by 75%
- Arduino programming base, stepper motor control, CAD (Autodesk Inventor)

Programming Languages: Python (Intermediate), C/C++ (Intermediate), TypeScript (Beginner), Git

Awards & Leadership Experience:

Active member of IEEE RAS Charlotte Chapter **August 2019 – May 2023**
- Vice President August 2021 – May 2023
- **Placed 1st** in the IEEE SoutheastCon Hardware Competition April 2022

Boy Scouts of America Eagle Scout Award **May 2015**