



Carson Loyal

Software Engineer Swift Performance

Mobile, AL (CST), United States

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↪ [LinkedIn](#), [GitHub](#),
[Portfolio](#)

Skills

Swift



Linux



Docker



Git



C++



Python



Real Time Computing



Simulation Development



CI/CD



Hobbies

Running, weight training,
basketball, learning new
technology, traveling

Profile

Innovative programmer with and passionate problem solver striving to make the world a more unified and connected place.

Education

MS Mechanical Engineering, Auburn University, Auburn

May 2021 — December 2023

Graduated Magna Cum Laude from the GPS and Vehicle Dynamics Laboratory under Dr. David Bevly.

Mechanical Engineer, Auburn University, Auburn

August 2017 — May 2021

Graduated Summa cum laude as well as participated in undergraduate research for the GPS and Vehicle Dynamics Laboratory.

Employment History

Simulation Software Engineer, Trimble Inc., Denver (Remote)

September 2022 — Present

Lead the planning and execution of a new robotic platform integration. Developed and delivered new robotic platform in production simulation environment including software interfaces for external use (C++/C#/Python). Lead the design, development and implementation of a novel parallel computing terrain coverage application focused on performance, accuracy and robustness. Achieved 0.01 meter level accuracy of 900 square meter area in 16ms computation time.

Simulation Lead/Research Assistant, Auburn University, Auburn

May 2021 — December 2023

Lead the development and execution of autonomous racing vehicle simulation (C++/C#) for testing and autonomy stack development. Gained skills in robotics hardware and software with ROS based systems. Exercised presentation skills, team work, and project planning. Mentored a new lab member until proficient.

Research and Development Specialist, Mercedes-Benz U.S., Tuscaloosa

January 2020 — May 2020

Involved in various research and development projects, contributing to the design and development of innovative solutions. Assisted in the development of experiments to test hypotheses, resulting in more accurate and reliable research results

Software Projects

Bolt Companion (watchOS)

March 2023 – Present

Developed and implemented a watchOS app in pure Swift for workout tracking. Developed backend services in Firebase to sync workouts in real time and frontend UI for user interaction.

Cryze (Android)

March 2023 – Present

Cryze is a companion bridge for the Wyze Video Doorbell Pro and other Wyze Gwell based cameras. The goal of Cryze is to put people's sensitive data back in their control. Cryze software stack: an Android application implementing reverse engineered Wyze protocols, a Python Websocket server for bridging data outside of Android, and a client application for raw video data on the user side in Python.

Project Auto (iOS)

July 2022 – Present

Project Auto was started to bring modern technology and convenience to every type of car on the road at an affordable price. Think a Tesla app for any car on the road. Software: Python backend for data storage/user management, embedded C++ for real-time vehicle monitoring and communication with LTE and GPS, and pure Swift and SwiftUI iOS application for user facing interaction.

MyHouse Concept (iOS)

October 2020 – March 2021

MyHouse is a platform for tracking member attendance and participation for social and professional organizations. A proof of concept front end was developed to demonstrate ease of use, clarity of information, and low barrier to entry for onboarding new organizations and members.