

MacCallister Higgins

MacCallister Higgins is a full-stack robotics engineer and entrepreneur with a track record of spinning up and delivering new projects with a variety of team sizes. He co-founded a company that deployed self-driving cars across the country, developed physical awareness technology for manned and autonomous military aircraft, and most recently has been architecting the next-generation of drone delivery systems for Amazon. In academia he performed research in the field of Human-Robot Interaction, Unmanned Autonomous Systems, and built mesh networks for NASA.

SKILLS

C++, C, Python, Linux, Robot Operating System (ROS1 and ROS2), LIDAR, RADAR, Localization, Perception, Mapping, Data Fusion, UAVs, Self-Driving Cars, Git, Docker, Electron

EXPERIENCE

Amazon Prime Air – Senior Interdisciplinary Systems Engineer

January 2021 – Present

- Developed Technical Roadmap and models for the long-term evolution of the Amazon Prime Air drone delivery system.
- Developed and wrote full-system CONOPs (Concept of Operations) for future iterations of the Prime Air drone delivery system.
- Performed trade studies by building proof-of-concept software implementations of proposed features, creating system models, and deep diving into all aspects of the system across hardware, software, and human organizations.

Bluespace – Senior Roboticist and Autonomy Engineer

December 2019 – January 2021

- Built and managed engineering team focused on delivering a next-generation autonomy product capable of high speed transport.
- Responsible for developing both the architecture and direct implementation of **localization, perception, mapping, low-level controls, hardware buildouts, and navigation software.**

Voyage – Co-Founder

FEBRUARY 2017 – October 2019

- Responsible for developing both the architecture and direct implementation of **localization, perception, mapping, low-level controls, hardware buildouts, private wireless networks, distributed infrastructure sensors, and navigation code on the autonomy team.**
- Helped shape the earliest days of the Voyage spin-out, contributing to fundraising, recruiting, team organization, and more.

- First person on the ground in new deployments, evaluating the technical feasibility of the Voyage service, coordinated with mapping partners and community stakeholders, handled the logistics behind building remote operations centers and new teams, and handled directed engineering projects specific to the Voyage growth story.
- Helped lead the team to **over 50 employees and \$60 Mil raised**.

Udacity – *Senior Software Engineer*

AUGUST 2016 – FEBRUARY 2017 (spun-out to Voyage)

- One of three engineers on the small core engineering team on the world's first Open Source Self-Driving Car, which **drove from Mountain View to San Francisco (handled surface streets, traffic lights, rain, pedestrians, and other vehicles) 100% autonomously**.
- Wrote code that touched every aspect of the system (perception, controls, localization, mapping, and path planning).
- Guided the team with insight into the best practices of robotics architecture and design.

Sierra Nevada Corporation – *Military Aircraft Software Engineer, Science and Technology Research Team*

JULY 2015 – AUGUST 2016

- Wrote code and designed systems that allowed aircraft to be flown in Degraded Visual Environments (DVE) such as dust, rain, snow, and fog.
- **Responsible for the design and development of real-time radar/LIDAR control, sensor processing, spatial and temporal algorithm development, and image generation software** for military and commercial aviation.

NVD – *Drone Software Engineer and Co-Founder*

SEPTEMBER 2014 – OCTOBER 2016

- **Developed a real-time air traffic control and path planning system that utilized cellular and satellite communications technology, and was capable of controlling any number of autonomous aircraft without human intervention; creating optimal paths around obstacles, elevation changes, weather concerns, no-fly zones, and even other moving aircraft.**
- Lead operations, fundraising, and business development efforts to grow to 11 employees and individual contributors.
- Wrote code for embedded linux systems and Android phones, designed custom hardware, and built out the drone communications pipeline.

EDUCATION

University of Nevada, Reno – *Computer Science and Engineering*

Focused on intelligent systems, robotics, and unmanned aerial vehicles. **Interned for Flirtey as their first technical employee, the first company to make drone deliveries in the United States.**

AWARDS

- Recruited as Presidential Scholar, the highest scholarship awarded to entering freshmen. Selected for an undergraduate research position.
- Overall winner of \$50,000 Sontag Entrepreneurship Award at the University of Nevada, Reno for drone/UAV startup company Nevada Dynamics.