Aaron Brunckhurst | Software Engineer

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Skills

Languages: C, C++, C#, Python, JavaScript

Embedded Systems: Raspberry Pi, Raspberry Pi Pico, Microcontrollers, CAN, I2C, UART, SPI, AT-Commands

Frameworks: ROS2, Unity3D, WPF, .NET, OpenCV

AI / Cloud: LLM Toolcalling, Google Cloud, Computer Vision

Tools: Git, Linux, CMake, Solidworks, VSCode, Visual Studio

Experience

Think Circuits — **San Jose, California**

Software Engineer — *July 2025 – Present*

- Developed perception, motion planning, and control logic in Python and ROS2, enabling a forklift to achieve semi-autonomous navigation within one month.
- Led development of an IP68-rated weatherproof camera system, applying experience in embedded systems and CAD design to deliver solutions that met client requirements on an accelerated timeline.
- Performed reliability testing on hardware in preparation for a 50,000-unit production run, ensuring consistent performance under expected operating conditions.

PinpointAVL (Student Startup, University of California, Santa Cruz - UCSC) — **Santa Cruz, California**

Co-Founder - Lead Software Engineer — *2021-Nov, 2024*

- Developed custom hardware to track real-time vehicle positions, used on 19 UCSC campus loop buses. Developed firmware in C for Raspberry Pi Pico microcontrollers, server in C#/.NET Core.
- Engineered a passenger counting solution to track the number of onboard passengers, allowing the agency to plan routing based on real usage data. Implemented CAN communications and data storage aspects.
- Led a team of 5 software engineers in creating adaptive software that accommodated rapidly changing hardware requirements, integrated with LTE modems, GPS, SD card storage, and CAN communication.
- Led hardware-in-loop testing for the main system, enabling in-lab simulation of bus routes and full system testing. This approach identified most logic errors before deployment.
- Won first place in the UCSC Launchpad 2022 competition, winning a $10,000 prize out of 19 competing teams. Prepared the demo for the pitch deck and produced slides. News coverage

University of California, Santa Cruz — **Santa Cruz, California**

Grader: Principles of Computer Systems Design — *Spring 2023*

- Utilized CrowdGrader's computer vision tools to efficiently grade assignments for a class of 300 students.

Projects

Slugbotics Robotic Arm: **Lead Developer, Vision Systems** – Led the development of computer vision and LLM integration for the Slugbotic's Robotic Arm project. Built object recognition system using Python and OpenCV. Used CopiliaSim for physical simulation. Integrated Llama 3.2 with toolcalling for conversational task direction.

West Valley College (WVC): **Maker Space** – Led the creation of a campus makerspace by securing school funding, enabling 3D printing classes and supporting student projects.

Confab Agora: **Real-time Communication Platform** – Developed a real-time chat application using C# and WPF. Implemented user authentication, secure user data storage on a SQL database, and text and voice transmission with UDP and TCP.

Education

Bachelor of Arts in Computer Science (Honors) — **Santa Cruz, CA**

University of California, Santa Cruz — *2021–2023*

Relevant Coursework: Computer System Design, Open Source Programming, Parallel Programing, Computer Architecture

Associate of Science in Computer Information System (Honors) — **Santa Clara, CA**

Mission College - Relevant Coursework: Mobile Game Design, Linux fundamentals — *2015–2021*

Associate of Arts in Science & Math (Honors) — **Saratoga, CA**

West Valley College - Relevant Coursework: Java: Data Structures & Algorithms, Python Programming — *2015–2021*

Interests

3D printing, Virtual Reality, Computer Vision, Space Exploration, Hiking