Kevin Kellar

Computer Science Undergraduate (Graduating Spring 2021)
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Objective

Seeking embedded software engineering roles targeting safety critical and performance critical applications

Education

California Polytechnic University
San Luis Obispo, CA

B.S. in Computer Science
Fall 2017 - Present

- **President's/Dean's List** — Major GPA: **3.9** — Cal Poly Cumulative GPA: **3.9** — Expected graduation **Spring 2021**
- Exceeded in **Autonomous Mobile Robots**, **Algorithms**, **OS**, **Computer Architecture**, and **Microcontrollers**

Work Experience

Zipline International
South San Francisco, CA

Embedded Software Engineering Intern
March 2020-Present

- **Responsible** for new software features on **autonomous commercial drone delivery** battery smart chargers
- Built and tested safety critical embedded projects in **C and C++**, with unit tests and **log analysis notebooks**
- Individually built functionality for **two batteries** to communicate (CAN) and share a charger to **safely charge**
- Owned development and testing for multiple **urgent charger software hotfixes**, released to global operations
- Improved **timing logic for the vehicle nodes'** telemetry task to measure at a consistent and verifiable intervals
- **Iterated on design documents** to iterate on requirements, propose various solutions, and develop a test plan
- Implemented an analog driver using the manual and µC/OS-II **semaphores and mutexes** for safe multitasking

Apple | Special Projects Group
Santa Clara, CA

Software Engineering Intern
Summer 2019

- Designed a **failure analysis tool** to detect dead software nodes, and summarize findings in a markdown report
- Experience with **profiling tools** (i.e. flamegraphs) for visualizing relative execution time during an application
- Developed embedded software targeting a real-time platform tested using **cmocka** and **bazel build system**
- Built 13 weeks of **systems programming** experience with code reviews from stakeholders and team members

Dynamic Robotics Laboratory
Oregon State University

Research Experience for Undergraduates (REU)
Summer 2017 & Summer 2018

- Individually implemented **Cassie Trajectory Editor**, a tool to manipulate gaits for the bipedal robot Cassie
- Developed C in Ubuntu Linux to link with C++ libraries such as **MuJoCo Physics Simulator** and **GLFW**
- Built tools to apply Steam's OpenVR C++ SDK for using Vive object trackers for robot localization in real time

Skills

C **Fluent.** Extensive work with **POSIX systems programming** as well as **MCU-style** driver & task development
Test Built systems/embedded software using **C test-driven development**, mock objects, cmocka, and GTest
MCU Developed **analog acquisition drivers** for Microchip SAME70 and TI MSP423, and drivers for hardware timers
RTOS Implemented application tasks on the preemptive **Micrium µC/OS-II** as well as an internal RTOS for Apple
Bus Wrote MSP423 **I2C, UART and SPI drivers** & work with CAN/CANOpen protocols for communication
Debug Strong w/ **embedded tools** find sneaky defects: GDB, Valgrind, **Clang Sanitizers**, and the Ozone debugger
Build Experience with **Bazel Build**, GNU Make, SCons and CMake for building and testing projects with many targets
Unity Published an Virtual Reality chemical modeling simulation using **Steam's OpenVR Plugin** and C# scripting
C++ Limited experience with **C++ style OOP**, smart pointers, and data structures, as well as **OpenGL and GTest**
Chinese Early-intermediate level conversational competency in **Mandarin**, experience with many sentence structures

Honors & Awards

Competitions

2019 **2nd Prize**: Roborodentia: Cal Poly's Autonomous Robotics Competition — *Cal Poly, SLO*
2018 **1st Prize**: Roborodentia: Cal Poly's Autonomous Robotics Competition — *Cal Poly, SLO*
2018 **2nd Prize**: Winter SLOHacks: Developed a networked Android application — *Cal Poly, SLO*