Kevin Kellar

Computer Science Undergraduate (Graduating Spring 2021)
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Objective

Seeking embedded software engineering roles targeting performance and safety critical applications

Education

California Polytechnic University
San Luis Obispo, CA

B.S. in Computer Science
Fall 2017 - Present

- Major GPA: **3.9** — Cal Poly Cumulative GPA: **3.9** — Expected graduation **Spring 2021**
- Exceeded in **Algorithms**, **Operating Systems**, **Computer Architecture**, and **Microcontrollers**

Work Experience

Zipline International
South San Francisco, CA

Embedded Software Engineering Intern
March-October 2020

- **Iterated on design documents** to consider implementations, iterate on requirements, and develop a test plan
- Tested embedded projects with unit tests, acceptance testing with hardware, **log data analysis notebooks**
- Developed functionality to allow **two batteries** to communicate (CAN) and share a charger to **safely charge**
- Improved **timing logic for the vehicle nodes'** telemetry task to measure at a consistent and verifiable intervals
- 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
- Thirteen weeks of **systems programming** experience targeting real time **embedded** operating system
- Extensive work with test driven development, using **cmocka** and **bazel build system** to build and test targets

Dynamic Robotics Laboratory
Oregon State University

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

- Designed **Cassie Trajectory Editor**, a tool to manipulate walking gaits for the bipedal robot Cassie
- Wrote C in Ubuntu Linux to link with C++ libraries such as **MuJoCo Physics Simulator** and **GLFW**

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
Python Extensive work with **Matplotlib**/Pandas to prove functionality, using batch processing and summary plots
C++ Limited experience with **C++ style OOP**, smart pointers, and data structures, as well as **OpenGL and GTest**
Unix Comfortable with bash scripting programs sed/grep, primarily for **integration testing** systems-level software
SSH Built a **home file server**: experience with ssh server setup, ssh tunneling, and RSA key setup
Chinese Early-intermediate level conversational competency in **Mandarin**, experience with many sentence structures
Git Developed **dozens of public and GitHub projects**, including rebase conflict resolution and code reviews

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*