



Corwin A. Perren

Education

Jun. 2019 **B.S. Computer Science — Oregon State University, Corvallis, OR.**
GPA: 3.21 | Focus: Mobile, Embedded, and Connected Robotics

Experience

- Jan. 2019 – **Avionics Test Engineering Intern, SpaceX**, Hawthorne, CA.
Mar. 2019 Wrote software in Python for automation of avionics hardware test systems. Performed circuit debugging on test system hardware. Validated test software performance per aerospace standards. Automated Jira work ticket generation for two internal avionics teams to improve product investigation, test, and repair workflows.
- Sept. 2013 – **Student Automation Engineer/Automation Engineer, Sinnhuber Aquatic Research Lab**, Corvallis, OR.
Present **Team Lead (2014–Present)**
Direct 2–4 engineering students automating research tasks with custom electronics, software, and mechanical designs.
- Denso Robot Pick and Plate Updates/Maintenance/Documentation (2018–Present)**
Modified Denso pick and plate software for enhanced calibration from control pendants and for use of new pick needles. Performed maintenance and calibration of robots after full battery failure on all four units resulted in arm lockouts. Currently writing manuals and creating video guides for calibration procedures.
- Shuttlebox Behavior System Redesigns (2013–2014, 2017–Present)**
Delivered 14 redesigned control boards for a Pavlov-based zebrafish behavioral training system. Designed an enhanced second revision with improved lighting scheme and shock circuitry. Assisted in development of front-end PyQt PC control software as well as firmware modifications for new boards. Currently assembling and testing 48 second generation units.
- ZScan Processor (2017–2018)**
Designed software to split, rename, and perform network transfers of high-resolution images of 96-well plates with automated computer vision barcode file name assignment.
- Pick and Plate (2013–2016)**
Designed and assembled the electrical and software aspects of a custom plating robot used to autonomously pick up zebrafish embryos and place them into a 96-well plate. Final product was approximately 1/50 the cost and 1/125 the size of previous generation units.
- Dechorionator (2015–2016)**
Designed a custom motion and pump controller using Altium Designer to perform controlled chorion removal on zebrafish embryos. Also assisted in embedded C++ firmware development using ATxmega micro-controllers.
- Apr. 2016 – **Student Software/Electronics Engineer, CEOAS Ocean Mixing Group**, Corvallis, OR.
May 2018 **Robotic Oceanographic Surface Sampler (2016–2018)**
Assisted with the development, assembly, and debugging of kayak software, ground station software, firmware, and electronics for a small fleet of autonomous water sampling kayaks. Gained field experience on two multi-week ocean research cruises deploying, maintaining, and repairing kayaks at Petersburg and the LeConte Glacier in Alaska.
- Sept. 2012 – **Member, OSU Robotics Club, Oregon State University**, Corvallis, OR.
Jun. 2019 **Software Team Lead — Mars Rover Team (2017–2018)**
Led software team and senior design project team members to develop and integrate the robot software, multi-monitor ground station software, and firmware necessary for a custom remotely operated Rover to win 1st place in the Canadian International Rover Challenge. Also performed PCB assembly, wiring, and circuit/system debugging.
- Emergency Software Team Lead — Mars Rover Team (2017)**
Wrote emergency ground station software in 9 days to remotely control and show Rover status over a serial radio link after the team lost their lead. Competition was the University Rover Challenge.
- Electrical Team Lead — Mars Rover Team (2013–2014)**
Led a team of electrical members to design, develop, manufacture, wire, and program all needed electronics for an autonomous Rover that competed in the Sample Return Robot Challenge. Embedded control boards were designed with Mentor Graphics PADS containing ATxmega micro-controllers. Firmware was written in embedded C++.
- Lab Manager (2016–2017) | Web Developer/Sysadmin (2016–2018)**

Skills

Most Python | PyTest | PyQt | Embedded C/C++ (Atmel Studio) | Linux | PCB Assembly | Circuit Design/Debugging/Testing
Some Git | x86 C/C++ | HTML/CSS | Javascript | OpenCV | C++ Qt | SQL | Google App Engine | Altium Designer
Least PHP | NodeJS | Android Development | Google App Script | x86 Assembly | Java | Haskell | Matlab

Hobbies/Interests

Robotics | Home Automation | Homelab | Amateur Radio | Motorcycling | PCB Design | Electric Vehicles