

# Ethan Russell

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## SUMMARY

CREATIVE, SELF MOTIVATED, AND PASSIONATE ENGINEER INTRINSICALLY DRIVEN TO DREAM UP AND PRODUCE THINGS THE WORLD HAS NEVER SEEN BEFORE.

## EDUCATION

### UNIVERSITY OF PUGET SOUND

B.S. IN COMPUTER SCIENCE

Graduated May 2017 | Tacoma, WA

## SKILLS

Embedded Software Development (C, C++, STM32)

PCB design and layout (Altium)

Software programming (Java, Qt, .Net/C, Go)

Power electronics and motor control

CNC/manual machining

Linux/Unix

Computer Graphics (Blender, Photoshop, Sony Vegas)

Photography, Videography

## WORK EXPERIENCE

### FREEFLY SYSTEMS | ROBOTICS ENGINEER

July 2017 - Present | Woodinville, WA

- Involved in system+electrical design and software development. Products include:
  - *Astro*, a drone aimed at industrial applications: Electrical design, firmware development, and validation of a high reliability field-oriented brushless motor drive.
  - *Industrial gimbal drone payload*: Owned the electrical and software design and development, and production processes for a new gimbal framework, and PX4 aircraft integration for Astro.
  - *MoVI Carbon*, a 5-axis gimbal: Developed control system using the onboard ARM-M4/F7 STM32 series processors and implemented software support for the existing ecosystem: MoVI controller, MoVI Wheels
  - *Alta X*: Motor telemetry module: in response to a crash and recall, reverse-engineered a protocol for proprietary off-the-shelf motor drives and developed an electrical and software package for communicating with the aircraft.
  - *MoVI Pro*: Owned firmware development of MoVI Pro and controllers including a major software revamp that introduced many new features for existing customers

### UNIVERSITY OF PUGET SOUND | SCIENCE SUPPORT ENGINEER

Sep. 2013 - May 2017 | Tacoma, WA

- Supported the sciences at UPS by designing and maintaining research equipment
- Projects include:
  - *String winder*: designed, fabricated, and programmed a computer controlled guitar string lathe for a research project, and the supporting equipment and software for analysis. Co-authored paper with findings.
  - *Nitrogen Generator*: designed, fabricated, and programmed a computer controlled pressure-swing-absorption system for replacing nitrogen dewars in the UPS Chemistry department
  - *CNC Plasma Cutter*: built a CNC plasma cutter for use in the machine shop

### DIGIWEST, LLC | ENGINEER/TECHNICIAN

Summer 2014 | Portland, OR

- Involved with assembly, development, testing, and packaging of the Digiwest BlueMAC traffic data collector hardware
- Found a critical bug in software that caused excessive power draw. Modified existing design to use smaller batteries/solar panels
- Designed and prototyped a version of the BlueMAC product for use in NEMA TS2 cabinets

### FIRST | TECHNICAL MENTOR

Fall 2012 | Portland, OR

- Worked with high school students to help them design, manufacture, program, and test a 120 pound robot for the 2012 FIRST Robotics Competition

### MENTOR GRAPHICS | SOFTWARE DEVELOPMENT INTERN

Summer 2011 | Wilsonville, OR

- Built a FIRST robotics system simulator built on top of Mentor Graphics' Systemvision Software package
- Used VHDL-AMS to model mechanical, electrical, and Labview software systems as a tool for students to test software before a working FIRST robot was built

### ROUTEWARE, INC. | SPECIAL PRODUCT ENGINEER/CONSULTANT

Fall 2011 | Beaverton, OR

- Designed, programmed, prototyped, and mass-produced a human-interface device built into garbage trucks to decrease touch-screen wear