Fletcher Porter

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I'm a jack-of-all-trades engineer with particular skill in mechanical design and software development. I love to get my hands dirty in every piece of a system. I find joy in having a broad understanding of everything and intimate knowledge of a few things I get to own.

Education

Aalto University · MS Mechanical Engineering · Expected June 2024
- Specializing in Mechatronics

University of California, Santa Barbara (UCSB) · BS Mechanical Engineering · Sept. 2019
- Exchange study in 2017–2018 at Lunds Tekniska Högskola in Lund, Sweden

English · Native speaker **Finnish** · A2

Certified SolidWorks Associate (CSWA) · Jan. 2020

Experience

Aalto Fluid Power Lab · Research Assistant · Oct. 2022 – Present
- Developed control systems for industrial hydraulics with Beckhoff TwinCAT
- Integrated CAN and EtherCAT buses into a single system
- Developed communication with external software with TCP sockets
- Designing a shaft to integrate an ABB motor into an industrial hydraulic system

Oblong Inc. · Software Developer · Dec. 2020 – March 2022
- Qualified new hardware for a complex, embedded, multimedia, hardware/software device
- Debugged audio issues involving Linux, PulseAudio, Cisco hardware, and Oblong's hardware
- Developed polyglot software in Python, Go, Bash, C++, C, Ruby, JavaScript, and TypeScript

NASA Jet Propulsion Laboratory · Robotics Intern · Summers 2018, 2016, and 2014
- Developed a system to study robotic mobility for missions to icy moons
- Designed in CAD a mechanical system to offload gravity with minimal lateral forces
- Prepared engineering drawings of mechanical components to send to vendors to machine
- Designed an electrical system to distribute power to microprocessors that control the system
- Wrote automatic control programs and documentation in Python and Arduino C
- Developed a proposal for a probe to bore ~20 km into Europa's icy crust
- Co-authored "A deep subsurface ice probe for Europa" in IEEE Aerospace Conference 2017

Tetra Bio Distributed · Software Engineer, Board Secretary · April 2020 – Jan. 2021
- Developed a software display to show respiration descriptors of COVID-19 patients to doctors
- Wrote drivers for a pressure and a flow sensor for an embedded Linux system
- Made signal processing tools to turn sensor data into patient state descriptors useful to doctors

Hawkes Group, UCSB · Undergraduate Researcher · March 2019 – Sept. 2019
- Iteratively designed in CAD a fixture to hold tools on the end of a soft, vine-like robot
- Built these fixtures by making them on a 3D printer and assembling them
- Developed models for jump height of a carbon fiber-bow jumping robot

Capstone Course Design Project, UCSB · Student Engineer · Sept. 2018 – June 2019
- Designed in SolidWorks from requirements a stair-climbing dolly that carries heavy payloads
- Machined most custom components by hand on a mill and lathe from drawings I made

A portfolio of my work can be found at http://portfolium.com/fporter/portfolio