Joseph Serra

joseph.serra@joproject.net | 541-731-2952 | linkedin/jserra7d5 | github/jserra7d5

Interested in internships in the **electrical & computer engineering industry**.

Education

Oregon State University September 2023 – June 2027
- Honors B.S. in Electrical and Computer Engineering
- Institutional GPA: 3.91

Experience

Web Development Tech / OSU Ag. Science April 2025 – Present
- Using ArcGIS Pro and Google Earth Engine to create soil data maps to be integrated into a website for the Cascade-Siskiyou National Monument.
- Interactive maps planned to be created using R and implemented with JavaScript frameworks.

Team Mentor / FRC Team 753 July 2023 – Present
- Remote mentoring for Mountain View High School's robotics team.
- Providing guidance on robot control theory and electrical system practices.
- Volunteering at FRC events to support all attending FRC teams with control system issues.

Shift Manager / McDonald's July 2021 – January 2025
- Skilled multitasking under pressure; cash management; SERV Safe certified.
- Management of all employees & operations in the restaurant for several hours at a time.
- Maintained composure and compassion for customers in all types of situations when issues arose.

Projects

Custom Oscilloscope April 2025 – June 2025
- Team lead in the development of a USB-powered 4-channel 16-bit Oscilloscope.
- Writing GUI code in Kotlin, Teensy 4.1 board firmware in C++, all PCB design done in Altium Designer.
- Project report & technical documentation being written up in LaTeX.

USB-C Breadboard Power Delivery PCB January 2025 – March 2025
- Custom circuit board that can be slotted into the power rails on a breadboard to provide two different rails of 1.8/3.3/5/7.5/9/12/15/20 Volts in any combination from a PD-capable USB-C port.
- No microcontroller or firmware programming needed, designed to be plug & play.
- Leverages the USB-C Power Delivery protocols, negotiating 20V@3A over the USB-C CC1/CC2 lines and steps voltage down to independently selected voltage per-rail using a 3-switch binary system with LED indicators.
- PCB CAD completed in Altium Designer. PCB manufacturing & SMD assembly complete. System functionality verification with a load generator pending.

Autonomous Heavylift Utility Drone December 2024 – Present
- 3D-printed Airframe designed in Fusion 360.
- Flight controller & logic loop code written in C++ and running on a Teensy 4.0.
- Leveraging PID controllers & Kalman filtering to respond to & fuse sensor data.
- Designed to lift ~15lbs, with a modular design in mind for future drone additions.
- Autonomous navigation, landing, target tracking, and obstacle avoidance are planned.

Technical Skills

Languages: C/C#/C++, Java, Python, JavaScript, Arduino C, Verilog HDL, AVR Assembly
Software: Fusion 360, Altium Designer, Quartus, ModelSim, MS Office, VS Code, JetBrains IDEs
Hardware: FPGAs, Raspberry Pi, Arduino, ESP32, RoboRIO, ATmega Boards
Open-Source Software Contributions: PathPlannerLib

Awards

- OSU Dean's Honors List for all 5 terms to date.