SOREN RADEMACHER

Embedded Linux SWE

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About

Startup-seasoned software engineer with 9+ years of experience building high-performance systems in embedded Linux, Rust, and real-time simulation. Specialized in hard tech environments, with extensive experience writing safety-critical flight control software and programming large-format 3D printers. Proven versatility, with a track record of leading and delivering projects ranging from procedural 3D geometry tools to touchscreen GUIs and full-stack web apps.

Proficient

Rust | Python

Past Experience

Lua | JavaScript | C | HTML5/CSS3 | Java | C# | 8086 Asm | SQL

Tools

Linux | systemd | Bash | Git | OpenGL | SQL | Blender | Rerun | Jira | Git{Hub,Lab} | GDB, Valgrind, Flamegraph, Etc.

Education

B.S. Mechanical Engineering
2013-2018 | NCSU

Minor in Computer Science
2013-2018 | NCSU

Work Experience

Airhart

2022-2025 | Lead Flight Software Engineer

- Wrote a modular **flight control** system that was deployed on two semiautonomous manned aircraft. Zero in flight bugs over a lifetime of 1000+ hours of simulated operation and 25 hours of real test flights. *- Rust, Linux*
- Built a **simulation environment** to test the flight controller and algorithms. Multiple high-frequency, precisely timed, unsynchronized data streams sourced from a ground truth model based on telemetry from a flight simulator. *- Rust, X-Plane*
- Developed **tools for live debugging** of our distributed system by monitoring multicast UDP traffic. *- Rust*
- Wrote **recording and playback** software to handle of gigabytes of live sensor data. *- Rust*
- Built several projects to interface with off-the-shelf sensors via their **proprietary protocols** in Rust: ADSB, Comm Radio Control, Rotax Engine Data, GPS, Digital Joystick.*- Rust, RS-232, CAN*

Carbon

2021-2022 | Senior Research Scientist
2018-2021 | Integration Engineer
2014-2018 | Integration Intern

- Developed a **web-based GUI** for prototype printers to improve experiment reproducibility and documentation. Backed by git, it captures and tracks all aspects of the print process: the firmware, the 3D model, tunable process parameters, and outcomes. It provides searchable print outcomes so that any experiment can be repeated. *- Rust, SQL, HTML5/CSS3, Lua, JavaScript*
- Developed a suite of software tools to **modify 3D geometry** after slicing and an algorithm to procedurally add texture to arbitrary 3D models. Patent pending. *- Rust, Bevy, WGPU*
- Wrote a **touchscreen GUI** for our prototype printers (later replaced by the first bullet). *- C, C++, wxWidgets, OpenGL.*
- Contributed to algorithm design for **automatic support generation** software based on a novel SDF technology. *- C++*
- Wrote print preparation GUI. *- Python, wxWidgets, OpenGL*
- Developed microcontroller-based 'Light Engine' Calibration tool. *- Python, C*
- Developed algorithms to procedurally modify geometry to improve print performance. *- Python*