



SOREN RADEMACHER

EMBEDDED LINUX SWE

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📍 Chapel Hill, NC

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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*

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