



# SOREN RADEMACHER

MECHANICAL DESIGN ENGINEER

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## WORK EXPERIENCE

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### Airhart

2022-2025 | Lead Flight Software Engineer

- Co-led the engineering team that integrated the cockpit on our second vehicle.
- Designed and fabricated several novel force feedback yoke mechanisms.
- Served as a Flight Test engineer monitoring systems while in the air.
- Oversaw brake and throttle mechanism design.
- Designed and setup the in-house machine shop.
- Cut molds and helped with carbon fiber layups for interior cockpit panels.

### Carbon

2021-2022 | Senior Research Scientist

2018-2021 | Integration Engineer

2014-2018 | Integration Intern

- Designed, drew, and assembled 2 novel polymer resin based 3D printers:
  - FLIP: Achieved industry-leading speeds in terms of rate of volume produced.
  - FLIP-Mini: A novel process to print highly viscous and abrasive UV curable dental crown paste.
- Designed 'Print Heads' for 'XLM': The first implementation of US10792868B2.
- Designed 'Proto-3': A printer which achieved sub  $10\mu\text{m}$  layer thickness while maintaining a relatively high throughput.
- Manufactured parts for prototype printers using HAAS VF-2 and a Hardinge manual lathe.
- Ran experiments tuning process parameters on prototype printers.
- Developed a process for small batch manufacturing of silicone coated film.
- Experimented with methods for web handling of reciprocating polymer films.

### Patents

(2021). Apparatuses for additively manufacturing three-dimensional objects (United States Patent No. US20210308943A1). U.S. Patent and Trademark Office.

(2020). Additive manufacturing method and apparatus for the production of dental crowns and other objects (WIPO Patent No. WO2020256825A1). World Intellectual Property Organization.

(2020). Method and apparatus for three-dimensional fabrication (United States Patent No. US10792868B2). U.S. Patent and Trademark Office.

## ABOUT

A generalist engineer specializing in hard tech startups. I have a strong background in **high-performance software for embedded Linux** and **mechanical design for prototyping**. I worked at Carbon for 9 years, during which the team grew from 10 to over 400. There, I designed and built cutting-edge large-format additive manufacturing technologies. I joined Airhart as the first employee. I was involved in all aspects of the company: strategy, marketing, fundraising, etc. Engineering contributions consisted of both hardware and software development for our autonomous control system, which was installed in a 4-seat aircraft. Alongside our CEO, I completed a cross-country flight in the aircraft in February 2025.

## TOOLS

- CNCs
- Lathes
- Metal Work
- 3D Printers
- Laser Cutters
- Solidworks
- Onshape
- HSMWorks CAM
- Metrology Equipment

## EDUCATION

B.S. Mechanical Engineering  
2013-2018 | NCSU

Minor in Computer Science  
2013-2018 | NCSU