

Redwood City, California  
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# Tim Samuelson

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## EXPERIENCE

### Senior Software Engineer, Platform

Carbon, Inc.

Apr 2023 — Present

Redwood City, CA

- Implementing A/B system updates for Carbon's deployed devices.
- Software lead for AO Backpack, Carbon's latest 3D printing automation product.
- Led the redesign of Carbon's bringup process for device setup, enabling global manufacturing and on-site device servicing. Resulted in \$500,000 savings and reduced escalations by 95%. Developed in Python with supporting Shell scripts, React/TypeScript for UI, and Ruby for integration with our fleet management system.

### Software Engineer, Platform

Carbon, Inc.

Apr 2022 — Apr 2023

Redwood City, CA

- Developed internal research tools to enable cross-functional teams across multiple organizations to rapidly explore new improvements to Carbon's 3D printing technology.
- Key contributor to a critical upgrade of our worldwide 3D printer fleet, seamlessly transitioning from Ubuntu 16.04 to 20.04 using an over-the-air software update to ensure performance and reliability.

### Graduate Research Assistant

Stanford University

DeSimone Research Group, Advanced Printer Concepts Team

Jan 2021 — Mar 2022

Stanford, CA

[clip3dgui.readthedocs.io](https://clip3dgui.readthedocs.io)

- Software and embedded systems developer for 3 separate in-house advanced CLIP 3D printers. Implementing advanced and novel 3D printing techniques using C++ with the Qt framework for GUI implementation.
- Collaborated with team of researchers to tailor printer system and software for their needs. The platform is currently being used to conduct research on high-resolution and high-speed 3D printing, development of biodegradable materials, 3D printed microparticles, and microneedles for vaccine deployment.

## EDUCATION

### Master of Science, Mechanical Engineering, Stanford University

Mechatronics Depth Area, GPA: 4.00

Sep 2020 — Mar 2022

*Relevant Coursework:* Smart Product Design Fundamentals/Applications/Practice (ME218A/B/C), Engineering Design Optimization, Principles of Robot Autonomy, Collaborative Robotics, Nano and Micro Electromechanical Systems

### Bachelor of Science, Mechanical Engineering, Missouri University of Science & Technology

Mechanical Design & Analysis Emphasis, Graduated *magna cum laude*

Aug 2016 — May 2020

## SKILLS

**Programming Languages** C++, Python, C, BASH Scripting, Ruby, TypeScript

**Tools & Technologies** Git, Bazel, Protobuf, LaTeX, Linux/Unix Systems

## PROJECTS

### Relay Robots — Embedded Systems, Robot Autonomy, Signal Conditioning

Designed and constructed 3 robots with team to autonomously run a relay. Coded in C with hierarchical state machines that controlled PWM signals to DC motors for locomotion, IR based navigation, and system operation. Full mechanical, circuit, and software design.

## PATENTS

G. E. Lipkowitz, T. Samuelson, J. M. DeSimone, M. T. Dulay, and E. S. G. Shaqfeh. "Methods and systems for making polymeric microstructures." WIPO WO2023177815A1. (2023), [Online]. Available: <https://patents.google.com/patent/WO2023177815>.

## PUBLICATIONS

G. E. Lipkowitz, T. Samuelson, K. Hsiao, B. J. Lee, J. M. DeSimone, *et al.*, "Injection continuous liquid interface production of 3d objects," *Science Advances*, 2022. doi: 10.1126/sciadv.abq3917.

K. Hsiao, B. J. Lee, T. Samuelson, J. M. DeSimone, *et al.*, "Single-digit-micrometer-resolution continuous liquid interface production," *Science Advances*, 2022. doi: 10.1126/sciadv.abq2846.