Redwood City, California
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Tim Samuelsen

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Experience

Senior Software Engineer, Platform **Apr 2023 — Present**
Carbon, Inc. 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 **Apr 2022 — Apr 2023**
Carbon, Inc. 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 **Jan 2021 — Mar 2022**
Stanford University Stanford, CA
DeSimone Research Group, Advanced Printer Concepts Team 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 **Sep 2020 — Mar 2022**

Mechatronics Depth Area, GPA: 4.00

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 **Aug 2016 — May 2020**

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

Skills

Programming Languages **C++**, **Python**, C, BASH Scripting, Ruby
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. Samuelsen**, 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. Samuelsen**, 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. Samuelsen**, J. M. DeSimone, *et al.*, "Single-digit-micrometer-resolution continuous liquid interface production," *Science Advances*, 2022. DOI: 10.1126/sciadv.abq2846.