

# Andrew Reilley

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 [github.com/reilleya](https://github.com/reilleya)

## Education

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**Massachusetts Institute of Technology (MIT)**

*Bachelor of Science in Electrical Engineering and Computer Science (6-2)*

June 2019

Cambridge, MA

## Experience

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**Markforged**

September 2022 – Present

*Manager (Software Engineering)*

Waltham, MA

- Led a team of 3-7 engineers, tasked with building on-device software in TypeScript for a new generation of 3D printers.
- Hired bright engineers as the company grew, retained top talent as the company cut back. Grew engineers from fresh graduates into capable, independent team members. Promoted 3 engineers when appropriate.
- Built process that allowed us to ship the software for a new printer platform and numerous new material releases on time. Pushed new releases weekly, and features even faster with staged rollouts.
- Fostered healthy, exciting team culture, resulting in my team having a score 20 percentage points higher than the company average on an engagement survey.
- Worked with stakeholders to produce data-driven, short- and long-term roadmaps for the team.
- Acted as a technical sounding board for the team as we navigated the design of new features. Kept the discussion moving when strong opinions clashed. Represented my team in broader engineering discussions.
- Encouraged engineers to perform cost-benefit analysis of tech debt, and made space to tackle it if worthwhile, resulting in higher print success rate, 40% faster/cheaper CI pipelines, and more testable printer workflows.

June 2019 – September 2022

*Software Engineer II*

Watertown, MA

- Was the first IC on a greenfield TypeScript IoT application for a new generation of printers. Applied lessons learned from working on legacy printer platform to design and implement foundational modules, including:
  - Device firmware communication and updating
  - Network management
  - Connection to our web application
  - Print job life cycle and state machine
  - Automatic calibration routines
- Led the effort to get the new application onto its first hardware platform, the FX20. Handled timelines and prioritization to make sure the system could launch on time, and then improve in future updates.

## Projects

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**openMotor** | *Rocket Motor Design and Simulation Software*

- Developed openMotor, internal ballistics simulation software for designing solid rocket motors.
- Built with Python, PyQt, NumPy and SciPy. Uses the Fast Marching Method to compute propellant regression and estimate motor performance.
- Has received contributions from 10+ other users, 500+ stars, 30k+ downloads.

**Contraption** | *Filament Winder*

- Designed and built Contraption, a low-cost filament winding machine for automatically making carbon fiber tubes.
- Wrote software for generating toolpaths for the machine and streaming them to its controller in TypeScript.
- Featured on Hackaday, spawned a community around building forks of my design.

**RMTS** | *Data Acquisition System for Rocket Motors*

- Designed RMTS, a wireless ignition and data acquisition system for testing solid rocket motors.
- Circuit design in KiCad, firmware written in C++, interface software developed with Python and PyQt.
- Sold 75+ to fellow rocketeers.

## Technical Skills & Interests

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**Programming:** Python, TypeScript, JavaScript, C/C++, OpenGL/GLSL, Assembly, Qt, HTML/CSS

**Technology:** Git/Github, AWS, Linux, Yocto, Jira

**Fabrication:** CAD, 3D Printing, Circuit Design, KiCad, Lathe/Mill, Soldering

**Interests:** Digital Fabrication, Composites, Aerospace, Robotics