

Alex Gushulak

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WORK EXPERIENCE

Volta Labs

Thermal Engineer [Full Time]

Cambridge, MA

June 2021 — Current

- Integrated open source thermal HW (C++) with backend system (Python) for deployment at customer site.
- Improved open source firmware by writing thermal controller logic and modifying system reboot process.
- Implemented changes to backend logic that logged & handled safety-critical errors from the thermal controller.
- Led upgrade of entire 12 instrument fleet (opentrons + custom module) with new sw/firmware/hardware.
- Built Python GUI that automatically plotted graphs and made data entry easier for research associates.
- Created python scripts that automated the analysis of thermal measurements and created data visualizations.
- Wrote data acquisition and control software (python) for custom temperature data acquisition hardware.

SharkNinja

R&D Engineer [Full Time]

Cambridge, MA

Jan. 2020 — May 2021

- Led R&D of heated appliance (Ninja ST101) from initial concept to UL/IEC certification and manufacturing.
- Modified commercial software (C++) to validate new control system concepts and enable testing and product validation for other functions (life cycle testing, safety certification testing, culinary exploration).
- Eliminated extra thermal safety features in product resulting in \$250,000+ saved across 100,000+ units sold.

Bosch - Electric Vehicle Thermal Systems

Mechanical Engineer [Co-op]

Waltham, MA

Jan. — Oct. 2019

- Wrote LabVIEW and MATLAB programs to monitor and analyze components (pumps, valves, HXs, heaters).
- Implemented LIN communication protocol and designed control scheme to enable system testing of valves.

American Institute of Aeronautics & Astronautics (AIAA) at NU

Organization Vice President

Boston, MA

Sept. 2017 — June 2019

- Lead NU's 20 person space shot rocket team: responsible for electrical, mechanical, and propulsion sub-teams.
- Managed 120+ member chapter with \$46,000 annual budget and eight aerospace projects.

Northeastern University

Engineering Department Tutor

Boston, MA

May 2017 — Dec. 2019

- Tutored upper level Thermodynamics, Fluid Mechanics, and Heat Transfer courses.

Adaptive Control of a Baseball Pitching Machine (Senior Capstone Project)

July — Dec. 2019

- Designed control system (Arduino) that integrated motion control, user input, and system logic.
- Project placed 1st at the Northeastern University Senior Capstone Competition.

EDUCATION

Northeastern University

Mechanical Engineering, B.S., Mathematics Minor (GPA: 3.77)

Boston, MA

Sept. 2016 – Dec. 2019

- **Awards:** Capstone Innovation Award, Magna Cum Laude — **Courses:** Statistics and Stochastic Processes

OTHER

- **Languages:** Javascript, Typescript, Python, C++, HTML, CSS
- **Technologies:** Git, React, Express, MongoDB, MySQL, JWT
- **Skills:** REST APIs, Postman, Data Visualization, NVIM
- **Software:** Photoshop, Illustrator