

Alex Gushulak

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PERSONAL PROJECTS

Employee Directory Web Application

August 2022

- Developed node web app that allows a user to add, view, and search employees in a MySQL database
- Used React to create a filtered search box to elegantly display specific employee data.
- Implemented a registration and login system that restricted permissions on certain pages in the application.

Gamma/Hadron Telescope Data Classifier (Machine Learning)

October 2022

- Used scikit-learn to implement classifiers (KNN, SVM, Naive Bayes, Log Regression) on Gamma telescope data set

PROFESSIONAL EXPERIENCE

Volta Labs, Inc

Cambridge, MA

Thermal Engineer [Full Time]

June 2021 — Current

- Leading thermal R&D on **Digital Microfluidic** platform for **Next Gen DNA Sequencing Sample Prep**.
- Developed python GUI to input CSV data, modify plot settings, and display thermal calibration graphs.
- Improved functionality of heater control system by modifying C++ classes and control logic.
- Modified 3D Printer Controller firmware to control heaters with custom temperature sensors.

Bosch - Electric Vehicle Thermal Systems

Waltham, MA

Mechanical Engineer [Co-op]

January — October 2019

- Wrote LabVIEW and MATLAB programs to monitor and analyze components (pumps, valves, HXs, heaters).
- Implemented LIN communication protocol in LABVIEW to enable testing of propriety valve and firmware.

American Institute of Aeronautics & Astronautics (AIAA) at NU

Boston, MA

Organization Vice President

September 2017 — June 2019

- Lead NU's 20 person space shot rocket team: responsible for overall project, specialized in simulations.
- Developed MATLAB scripts to automate analysis of rocket simulation data.
- Managed 120+ member chapter with \$46,000 annual budget and eight aerospace projects.

Northeastern University

Boston, MA

Engineering Department Tutor

May 2017 — December 2019

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

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

July — December 2019

- Designed control system that allowed a quadriplegic user to control a baseball pitching machine.
- Wrote arduino script uses gyroscope and switch data to control power and position of motors.

EDUCATION

Northeastern University

Boston, MA

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

September 2016 – December 2019

- **Awards:** Capstone Innovation Award, Magna Cum Laude — **Leadership:** Vice President of NU Aerospace

TECHNICAL SKILLS

- Python, Pandas, Matplotlib, C++, Java, Javascript, React, Express, Version Control (Git, BitBucket)