Alexander Prokey

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Education

Northeastern University, Boston, Massachusetts
Candidate for B.S. in Mechanical Engineering, **GPA:** 3.31   *May 2025*

Relevant Courses: CFD, Flight, Material Science, FEA/FEM, Systems and Controls, ME Design, Heat Transfer

Activities: AeroNU (NU Launch Initiative), ASME, Delta Kappa Epsilon Fraternity

Professional Experience

Propulsion Engineer Co-Op
Specter Aerospace, Peabody, Massachusetts   *January 2024 – June 2024*
- Owned the design, build, and testing of liquid cooling and exhaust quenching systems for air breathing hypersonic engines
- Designed isolator pitot probe section for complex shape scramjet engine
- Supported engine testing by machining flanges and fixtures using 3-axis CNC mill
- Developed a MATLAB tool to analyze flight characteristics of air breathing hypersonic engines

Product Development Engineer Co-Op
Neptune Medical Inc, Burlingame, California   *January 2023 – June 2023*
- Prototyped, built, and iterated a small diameter catheter for novel procedures, successfully employing and miniaturizing Neptune Medical's patented technology.
- Designed fixtures and performed testing in order to demonstrate the catheter's market potential, then presented these findings to various industry insiders in tandem with Neptune Medical executives.
- Drafted and submitted FDA Quality System documentation including Equipment Specs, MPIs, DCOs, and CAD Drawings.
- Produced reports, spreadsheets, and other relevant material to transfer project upon my departure.

Failure Analysis Engineer Co-Op   *January 2022 – July 2022*
Insulet Corporation, Acton, Massachusetts
- Performed Root Cause Analysis investigations on over 150 OmniPod Dash insulin delivery systems
- Utilized microscopes, multimeters, RF shielding, digital calipers and custom tooling in a BSL-2 laboratory environment in order to determine component-level failures
- Created detailed findings reports in compliance with FDA medical device reporting regulations
- Stimulated continuous product improvement by communicating critical feedback to manufacturing division

Skills

Software: Solidworks (CSWA, FEA, Flow Sim), Abaqus, Ansys, SimuLink, HSMWorks, OnShape, AutoCAD
Programming: MATLAB, Arduino, HTML, Elementary C++
Prototyping: 3D Printing (SLA, FDM, LCD), 3-Axis CNC Mill, Silicone Molding, Drill Press, Basic Manual Lathe
Languages: Native English speaker, intermediate Spanish and elementary Portuguese

Projects

Little Exploration Rover – *Undergraduate Capstone Project*   *June 2024 - December 2024*
- Collaborated with 5 teams members to create a lightweight, cost effective, screw propelled Mars rover prototype
- Developed complete rover multi-voltage electrical architecture
- Designed and built rover chain and sprocket powertrain in accordance with ASME standards
- Conducted ice material property testing using Instron 6800 series

Home-Made Remote Controlled Car – *Personal Project*   *July 2022 – January 2023*
- Used Solidworks to design and 3D print rack and pinion steering system, planetary gear wheels, final drive transmission for DC motors, custom RF controller and chassis components
- Configured Arduino Uno to drive dual 12V DC drive motors, operate stepper motor for steering system, and communicate with controller via RF transceiver
- Configured Arduino Nano to transmit throttle and steering inputs via RF transceiver to Arduino Uno