

Adrian Duffey

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EDUCATION

Northeastern University, Boston, MA

Expected Graduation: 2022

Candidate for Bachelor of Science in Mechanical Engineering, General Music Minor

GPA: 3.66

Courses: Thermal System Analysis & Design, System Analysis & Control, Fluid Dynamics, Thermodynamics, Mechanical Engineering Computation & Design, Measurement & Analysis with Thermal Science Application, Dynamics, Electrical Engineering, Engineering Mechanics of Materials

Activities: Vice President of Beta Gamma Epsilon Engineering Fraternity, Intramural Soccer, ASME

WORK EXPERIENCE

Abcam FirePlex, Cambridge, Massachusetts

July 2020 – December 2020

Manufacturing Engineer

- Designed 25 novel parts over 8 assemblies
 - Began with abstract desires of the engineering team and refined them into tangible ideas
 - Iterated prototypes over multiple design reviews and presentations
 - Communicated with vendors to ensure OEM part adaptations conformed with company needs
 - Evaluated functionality of prototypes with performance tests and failure analysis
 - Developed projects to propel manufacturing capabilities past current limitations and assist colleagues
- Optimized existing designs to push prospective projects forward
 - Multi-layered microfluidic chip mold for silicone injection molding
 - Vacuum manifold for use with 96-well microplate
 - Adapter part for use with stand-up incubator shaker
- Operated 1st generation machines in the manufacturing line learning current process
- Constructed 2nd generation machine pneumatics and wiring panel during ongoing build
- Produced technical drawings for quotation at CNC Machining industries in China

Seventh Sense Biosystems, Medford, Massachusetts

July 2019 - December 2019

Mechanical Engineer

- Evaluated prototype medical devices, observing failure and performance
- Analyzed raw data with RStudio and presented findings to the team and company
- Fabricated test fixtures for performance evaluations or experiments
- Developed adaptations to be incorporated into the new generation of devices
 - Began with a problem statement, formulated solutions through ideation
 - Fabricated prototypes by designing 3D printed molds for silicon injection
 - Adapted designs until desired outcomes were met
- Ran failure tests and preventative maintenance on manufacturing equipment in an ISO 7 clean room
- Measured vacuum levels with NI-DAQ sensors coded in Python
- Administrated external clinical trials in a CLIA blood lab
- Tested over 70 devices on myself, donating over 15 cc's of blood to push company product forward

SKILLS

Applications: SolidWorks, PreForm, AutoCAD, MATLAB, Microsoft Excel

Programming: RStudio, Python (Pandas, NumPy, PRAW), C++, Arduino

R&D: 3D printing, Injection Molding, Silicone Molding, Laser Cutting, UV Cure Adhesive

Electrical: Soldering, Crimped Quick Connections (Molex, Anderson Powerpole), Din Rail Terminal Blocks

Machining: Drill Press, Band Saw, Miter Saw, Belt Sander, Oscillating Multi Tools

Lab Skills: Pipetting, Repeaters, Centrifuges, Cytometers, Microscopes, Pressure Pots, Vacuum Chamber

VOLUNTEER EXPERIENCE

- Pilgrim Church, Dorchester, MA: Organizing thrift stores, maintaining the church, and helping with community lunch
- Boston Marathon: Supervising the bus loading stations to transport runners to the starting line