# **ALLEN FRAIMAN**

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Portfolio: www.afraiman.com

#### **EDUCATION**

Boston University College of Engineering B.Sc., Mechanical Engineering, Robotics

GPA: 3.98/4.00 (Dean's List)

Boston, MA May 2026

#### **SKILLS**

Mechanical: 3D Printing, Laser Cutting, Soldering, Lathe, Milling, Wire EDM, Belt Sander

Design Software: SolidWorks, AutoCAD, Autodesk Inventor, Creo, Fusion360, OnShape, Rhino3D, KiCAD

Programming Software: Python, MATLAB, C, Arduino IDE, HTML, CSS

#### **EXPERIENCE**

BioRaster Boston, MA

Optical Systems Engineer

Sep 2024 - Present

- Configure and calibrate an Ocean Optics IDRaman Microscope for Raman spectroscopy-based antibiotic susceptibility testing (AST) applications.
- Automate and refine AST via Surface-Enhanced Raman Spectroscopy (SERS) procedure to enhance reproducibility of results.
- Manage laboratory inventory, ensuring all necessary equipment and materials are acquired while staying within the company budget.

## Regeneron Pharmaceuticals

Rensselaer, NY

May 2024 - Aug 2024

Manufacturing Engineering Intern

- Implemented process analytical technology (PAT) to automate downstream protein purification processes, ensuring compliance with federal regulations and Good Manufacturing Practice (GMP) standards.
- Developed a prototype for a single use manufacturing process, resulting in annual savings of approximately \$8 million.
- Presented the project at a company-wide poster exposition and a departmental conference.

#### **Boston University**

Boston, MA

Undergraduate Research Assistant, Albro Laboratory

Jan 2024 - May 2024

- Explored the application of Raman spectroscopy in detecting early indicators of osteoarthritis through cartilage health analysis.
- Enhanced the MATLAB Raman processing code by integrating multivariate analysis techniques to include subchondral bone components.
- Assessed the effectiveness of Raman spectroscopy in measuring advanced glycation end-product (AGE) crosslinks.

### **Boston University**

Boston, MA

Undergraduate Research Assistant, Ziegler Laboratory

Jan 2023 - May 2023

- Conducted experiments to determine the feasibility of Surface-Enhanced Raman Spectroscopy (SERS) for rapid antibiotic susceptibility on a team of 3 members.
- Handled bacteria and antibiotics leveraging various laboratory equipment including a centrifuge, infrared spectrometer, Raman spectrometer, automated pipette.
- Wrote MATLAB script templates enabling seamless transformation of spectrometer data into professional graphs for presentations and publication purposes.

## **PROJECTS**

#### **Room Occupancy Monitor**

- Led the design and assembly in a cross-disciplinary team of four to create a room occupancy monitor.
- Created the design using CAD software such as SolidWorks and OnShape.

#### RFID Kevcard Door Lock

- Assembled a practical RFID door lock system employing a servo motor and a pulley mechanism.
- Integrated keycard access and configured the mechanism with Arduino.