ALLEN FRAIMAN

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Portfolio: www.afraiman.com

EDUCATION

Boston University College of Engineering — Boston, MA
B.Sc., Mechanical Engineering, Robotics — May 2026
GPA: 3.99/4.00 (Dean's List)

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

Forecast Diagnostics — Boston, MA
Research Associate — Sep 2024 - Present

- Develop a commercial methodology for rapid antibiotic susceptibility testing (AST) via Surface-Enhanced Raman Spectroscopy (SERS) for the purpose of treating time sensitive life-threatening infections.
- Optimize procedure by integrating a gold nanoparticle-plated filtration system and substrate, reducing run time from 24–48 hours to 3 hours.
- Manage laboratory inventory, ensuring all necessary equipment and materials are acquired while staying within the company budget.

Regeneron Pharmaceuticals — Rensselaer, NY
Manufacturing Engineering Intern — May 2024 - Aug 2024

- 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 Keycard 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.