

ALLEN FRAIMAN

New York, NY | 347-254-2844 | allen.fraiman@gmail.com | **Portfolio:** www.afraiman.com

EDUCATION

Boston University College of Engineering
B.Sc., Mechanical Engineering, Concentration in Robotics
GPA: 3.99/4.00

Boston, MA
May 2026

SKILLS

Mechanical: 3D Printing, Laser Cutting, Soldering, Lathe, Milling, Wire EDM, Belt Sander
Design: SolidWorks, AutoCAD, Autodesk Inventor, Creo, Fusion360, OnShape, Rhino3D, KiCAD
Programming: Python, MATLAB, C, Arduino IDE, HTML, CSS, ROS2, G-Code, Cellario

INDUSTRY EXPERIENCE

Regeneron Pharmaceuticals

Robotics Engineering Intern

Rensselaer, NY
May 2025 – Aug 2025

- Programmed and operated the Integrated Laboratory Automation System (ILAS) within the Quality Control Automation team to execute automated biologic and binding assays.
- Created Cellario protocols to coordinate liquid handlers, robotic arms, incubators, and plate washers.

Regeneron Pharmaceuticals

Manufacturing Engineering Intern

Rensselaer, NY
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 single use Raman flow cell prototype resulting in annual savings of approximately \$8 million.
 - Presented project at company-wide poster exposition and departmental conference.
-

RESEARCH EXPERIENCE

Forecast Diagnostics

Research Associate

Boston, MA
Sep 2024 – Present

- Produce commercial methodology for rapid antibiotic susceptibility testing (AST) via Surface-Enhanced Raman Spectroscopy (SERS) for treating time sensitive life-threatening infections.
- Test novel method that reduces standard antibiotic testing time from 24–48 hours to 4 hours.
- Manage laboratory inventory, ensuring all necessary equipment and materials are acquired.

Boston University, Albro Laboratory

Undergraduate Research Assistant

Boston, MA
Jan 2024 – May 2024

- Explored application of Raman spectroscopy in detecting early indicators of osteoarthritis through cartilage health analysis.
- Enhanced MATLAB Raman processing code by integrating multivariate analysis techniques to include subchondral bone components.

Boston University, Ziegler Laboratory

Undergraduate Research Assistant

Boston, MA
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.
 - Wrote MATLAB script templates enabling seamless transformation of spectrometer data into professional graphs for presentations and publication purposes.
-

PROJECTS

Automatic Pizza Cutter

- Designed and assembled a 3-degree-of-freedom automated system to precisely cut prop pizzas into 8 equal slices.
- Controlled the system with stepper motors and timing belts, integrated with G-code execution via Arduino.

ROSBot

- Interfaced with the robotic system through ROS2 and implemented PID control to enable real-time environmental sensing.
 - Developed Python modules to control core robot functions, including motor operation, and camera integration via OpenCV.
-

PUBLICATIONS

Fraiman, A., & Ziegler, L. D. (2025). Ultra-rapid, quantitative, label-free antibiotic susceptibility testing via optically detected purine metabolites. *Talanta*, 292, 127907. doi:10.1016/j.talanta.2025.127907