

**Education**

Tufts University, Medford, MA

Bachelor of Science in Biomedical Engineering and Biotechnology

Expected May 2026

**Relevant Courses**

- Organic Chemistry, Biochemistry, Molecular Biotechnology, Drug Delivery, Biomed Concepts at Tissue, Organ, Systems Scales I & II

**Research Experience – Dr. David Kaplan's Lab, Intestinal Tissue Engineering Group**

June 2023-Present

- Modeled the small intestine's architecture using silk fibroin scaffolds to study the role of villus structures in iron absorption efficiency, employing ELISA and immunostaining to quantify ferritin levels.
- Investigated the gut-brain axis by co-culturing hiNSCs and Caco-2 cells within 3D tissue-engineered scaffolds to model intestinal-neural interactions.
- Encapsulated patient-derived organoids to explore their potential for reimplantation, studying intestinal physiology
- Developed in vitro intestine tissue models to analyze inflammatory bowel disease responses to drug therapies.
- Published findings on a bioreactor system enabling physiologically relevant studies of the human intestine and host-microbe interactions.
- Lab Skills: Cell Culture, Pipetting, SDS-Page, Gel-Electrophoresis, Transformation, Western Blot, Assay Development, Silk Formulation.

**Publication**

September 2024

*Set Up and Utilization of a Three-Dimensional In Vitro Bioreactor System for Human Intestinal Studies and Microbial Co-Cultures***Journal Club**

- Presented and critiqued cutting-edge biomedical literature in a team setting, refining analytical and communication skills.

**Technical Skills:** MATLAB programing language and Microsoft Office Suite**Shadowing and Work Experience****Cardiac Surgery Shadowing, Brigham and Women's Hospital, Attending Physician: Dr. Sary F. Aranki, MD**

January 2025-Present

- Shadowed full mitral valve repair and CABG procedures, gaining exposure to surgical techniques and patient monitoring.

**Brigham and Women's Hospital Cardiac Surgery Step Down Unit Patient Care Assistant (PCA)**

February 2024-Present

- Provide compassionate patient care to patients recovering from cardiac surgery operations

**Tufts Medical Center Kidney and Blood Pressure Center**

October 2022-May 2023

- Observed nephrology consultations, gaining insights into managing kidney conditions, blood pressure, and compassionate care.

**New England Medical Associates, Norwood, MA**

March 2023

- Shadowed an internal medicine practitioner, gaining insights into diverse medical conditions and comprehensive patient care.

**Teaching & Mentorship Experience****STEM Ambassador (Engineering Ambassadors Network)**

August 2024-Present

- Mentor underrepresented students in STEM disciplines, fostering inclusivity and enthusiasm for biomedical sciences.
- Design and deliver engaging workshops to inspire future STEM leaders.

**Teaching Assistant for General Chemistry 1 and 2 Laboratory**

September 2024-Present

- Lead lab sessions, grade assignments, and provide support to students in understanding complex chemistry concepts.

**Teaching Assistant for Biomedical Concepts at the Molecular, Protein and Cellular Scales I**

September 2024-December 2024

- Lead lab sessions and assist students with various molecular biology and engineering techniques.

**Equity Learning Assistant for Intro to Computing in Engineering, Tufts CEO**

January 2024-May 2024

- Led laboratory sections focused on equitable coding and ethical engineering practices.

**Volunteer Experience****Y2Y Harvard Square Youth Homeless Shelter**

January 2025-Present

- Support and guide homeless youth, helping them access essential services and develop life skills.

**Timmy Global Health Medical Brigade**

March 2024

- Set up clinics and delivered healthcare to rural and indigenous residents alongside a local partner organization

**Tutor (Tufts Leonard Carmichael Society)**

January 2023-Present

- Tutor middle and high school students in understanding fundamental topics such as basic math

**Community Engagement and Extracurricular Activities****Resident Assistant**

August 2024-Present

- Foster a supportive and inclusive living environment, promote community building, conflict resolution, and student well-being

**Louis Stokes Alliance for Minority Participation (LSAMP) & Undergrad Research Symposium**

September 2023-Present

- Leverage resources for research and academic growth, and presented findings on 3D intestinal scaffolds impact on nutrient absorption.

**Biomedical Engineering Society (BMES)**

January 2023-Present

- Collaborate with peers to explore advancements in BME and attend workshops on innovative engineering solutions.

**Minority Association of Pre-Health Students (MAPS)**

September 2022-Present

- Help mentor and advocate for increasing representation of underrepresented groups in medicine.

**Society of Hispanic Professional Engineers (SHPE)**

September 2023-Present

- Attend regional and national STEM conferences to network and explore professional development.

**Project: Nanoparticle-Mediated Drug Delivery for Treatment of Atherosclerosis**

November 2024-December 2024

- Conducted research and presented a video on nanoparticle-based statin delivery for targeted treatment of CAD

**LANGUAGES (Speak, Read, Write, Understand)**

- English, Arabic, Spanish