

SARA M. POLLARD

Sara.Pollard@tufts.edu • (240) 731-4588

EDUCATION

Doctoral Candidate in Biomedical Engineering | GPA 4.0

Tufts University School of Engineering, Medford, MA

BS in Biomedical Engineering | Magna cum laude | May 2025

Tufts University School of Engineering, Medford, MA

PUBLICATIONS

Pollard, R; Pollard, S.; and Streit, S. (2021) "Predicting Propensity to Vote with Machine Learning" arXiv. [PDF](#)

Pollard, S. "Penny Powers: Covert Hero of the Twentieth Century." (2021) SocArXiv. [PDF](#)

EXPERIENCE

Doctoral Researcher, Tufts University SilkLab, Medford, MA | 2023–Present

Developing a passive silk-paper wearable for optical dopamine sensing in sweat using paper microfluidics, silk fibroin stabilization, and smartphone-readable colorimetry. Building an uncertainty-aware, on-device analysis pipeline for privacy-preserving biochemical monitoring and clinical treatment-response studies.

Research Assistant, Tufts University SilkLab, Medford, MA | 2023–2025

Developed an ML image processing pipeline using TensorFlow to analyze data from soft biosensitive sensors. Designed a mobile app, prepared biosensitive inks. Awarded Tufts Summer Scholar Fellowship.

Intern, Materialize Bio, Medford, MA (2025)

Performed statistical analysis on animal study, mechanical testing, and device validation data to inform evidence-based research decisions. Partnered with interdisciplinary teams to ensure precise data interpretation and clear documentation.

TA for Engineering Systems II (ES2) and Biomechanics (BME11), Tufts University School of Engineering, Medford, MA (2023 to 2025). Mentored, taught, assessed, and supported undergraduate learning by holding office hours, grading problem sets, and teaching python and MATLAB and biomechanical engineering.

Research Assistant, Comprehensive Student Research Training Program, Uniformed Services University of the Health Sciences (USUHS), Walter Reed, Bethesda, MD. (Summer 2022).

Engler Lab: Coded in Python to develop a ML tool to predict heart failure survival rate in patients with cardiovascular disease. Shadowed in Walter Reed's Prosthetics and Orthotics Department and Occupational Therapy Department. Trained/certified in HIPAA and lab animal handling.

Flagg Lab (Summer 2021). Passaged and managed HL-1 cardiomyocytes and BV-2 microglia cells, and assisted running western blots to gain an understanding of how berry flavonoids impact oxidative stress. Coded in C++ and Arduino to increase the DAC unit's speed for the lab's dynamic clamp.