DANIEL HARRINGTON

dmharrington03@gmail.com
github.com/dmharrington03
linkedin.com/in/dmharrington03

Portfolio: danielharrington.me/
Boston, MA
+1 407-718-4419

EDUCATION

B.Sc. Physics and Mathematics, Tufts University (in progress–May 2026)

Relevant Coursework: Quantum Mech. I, Real Analysis I, Linear Algebra, Mathematical Aspects of Data Analysis, Calculus I-III, Electronics, Differential Equations

Spring 2024 Coursework: Quantum Mech. II, Real Analysis II, Quantum CS, Thermal Physics

EXPERIENCE

Tufts Nanophotonics Group (PI Aseema Mohanty) – Research Assistant (Fall 2023—)

- Working to develop techniques to control electric field distribution in a multimode waveguide through phase-modulated mode superposition for addressible excitation of epitaxially grown quantum dot single-photon emitters.
- Characterization and simulation of photonic circuits involving ring resonators and thermo-optic modulators to select and manipulate transverse spatial modes.

National Institute of Standards and Technology – Summer Undergraduate Research Fellow (Summer 2023)

- Investigated passivation effects of polymers on $MoS2$ monolayers for FET photodetection applications
- Characterized polymer effects via Raman, PL, and THz spectroscopy (time-resolved/time-domain)
- Operation and alignment of Class 4 lasers and optics to improve SNR for THz setup
- Identified $O2$ -passivated S vacancies could be impacting our photoconductivity data, presented solutions based on literature to quantify sample homogeneity
- Data analysis/presentation for colloquium, helped write and prepare publication (under review)

Tufts SEDS Club – Radio Telescope Team Lead, Board Member (Fall 2022—)

- Lead project to develop and construct a 3-meter educational radio telescope for public use
- Develop full-stack software for user observation scheduling, data analysis/storage, dish rotator control
- CAD/build hardware, lead and teach team of ~10, manage ~$9k budget

Tufts Hillel Community Action Partners Club (Spring 2023)

- Develop/lead weekly STEM sessions with middle schoolers (e.g. 3D design, bridge builds, chem demos)

PROJECTS   See Portfolio Site

- **Waveguide Simulations –** FDTD sim of EM wave propagation in 2D waveguides; Python/meep
- **Physics Simulations –** Fluids, EM waves, N spring systems, 3D projection, and more; C++/SFML, JS
- **Exoplanet Data –** NASA data analysis, computed planetary metrics, regression; Python

SKILLS

Software: Python (Pandas, numpy, matplotlib, meep), C/C++, JS, CAD (Fusion360), Mathematica, web development (React, Flask), SQL, Git, Office, LaTeX, Linux/MacOS/Windows

Hardware: Electronics, soldering, laser safety/operation, prototyping (3D printing, laser cutting, woodworking, etc.)