Dylan Jacobs | djacobs2@swarthmore.edu | (503) 704-4583

Portfolio: https://dylan-jacobs.github.io **GitHub**: https://github.com/dylan-jacobs **LinkedIn**: https://linkedin.com/in/dylan-t-jacobs/

Education

Swarthmore College, Philadelphia, PA Aug 2023—May 2027
Bachelors of Science in General Engineering & Bachelors of Arts in Applied Mathematics
Electrical Engineering **Teaching Assistant** for Electrical Circuit Analysis (ENGR 011) Aug 2025—present
Relevant coursework:

- Electronic circuit analysis & applications, Digital signal processing, Data structures & algorithms in C++
- Ordinary & Partial differential equations (PDEs), Numerical PDEs, Real Analysis, Tensor decompositions
- Thermo-fluid mechanics, Electromagnetism, waves and optics with biomedical applications.

Overall GPA: 3.97/4.00

Research and work experience

Advanced Materials Intern & Research Assistant – US Naval Research Laboratory, Washington, DC May 2025-Aug 2025

- Measured thermal diffusivity and specific heat of thermoelectrics and semiconductors using laser flash analysis (LFA).
- Built Arduino-controlled LN_2 dispenser with closed-loop thermocouple monitoring, enabling automated LFA experiments
- Created graphical-user-interface and data-logging system interfacing between LN_2 dispenser and lab computer.
- Developed LFA and Seebeck analysis experiments to improve the lab's measurement procedure for near-IR-transparent and high-resistance samples; wrote standard operating procedures for the LN_2 dispenser and LFA.
- Taught myself fundamentals of nanomaterials science & solid-state physics to better understand the semiconductor growth process, the applications of my experiments, and to better communicate and present research updates to NRL scientists and engineers.

Applied Mathematics Research Assistant – Swarthmore College Mathematics, Philadelphia, PA Jan 2024-present

- Utilizing principles of computational fluid dynamics and numerical methods to research high-order accurate methods for partial differential equations (PDEs), plasma/kinetic models in MATLAB.
- Developing low-rank, structure-preserving integrator for Vlasov-Fokker-Planck plasma equation in cylindrical coordinates.
- Poster presentations: 2025 SIAM NNP conference, 2024 & 2025 *Sigma Xi* Swarthmore poster sessions.

Electrical Engineering Research Assistant – Swarthmore College Engineering, Philadelphia, PA Nov 2023—May 2024

- Researched electrical/aerospace technology behind wind-energy devices to develop oscillatory wind-energy harvester.
- Used Arduino, MATLAB & ViscousFlow to simulate air vortex-shedding & oscillatory electrical induction power output.

Software Engineering Summer Intern - Oregon Health and Science University, Portland, OR Jun 2022—Aug 2022

- Used Kotlin to develop Android app that analyzes audio data from a Bluetooth stethoscope to detect heart murmurs.
- Presented machine-learning paper to the lab's reading group.
- Attended and presented weekly project updates and machine learning meetings

Projects

Analog Circuit and PCB Design: used Fusion360 to design and fabricate printed circuit boards (PCBs) Aug 2025—Dec 2025

- Combined MOSFETs, sensors, actuators, op-amps, comparators, audio amplifiers, and other integrated circuits
- Projects included audio equalizers, temp-controlled fans, light-optimizing solar panels, & regulated DC power supplies.

AI Python Stock Trading: trained neural network on technical indicators to trade stocks using Alpaca API, link Feb 2025
Generative Adversarial Network (GAN): Image-generating model trained on web-scraped art, link Apr 2022—Feb 2023
FireSale: Used Java, AWS backend to build Android app to simultaneously reduce food waste and hunger, link 2020—2021

Technical & Professional Skills

Technical: PDE solvers, numerical methods, embedded systems
Programming: Python, MATLAB, Java, C++, HTML/JavaScript, LaTeX
Software: VSCode, MATLAB, Arduino, Git, SolidWorks, AutoCAD, MS Office
Languages: Spanish (Fluent), Global Seal of Biliteracy (2022), **Citizenship:** USA, Ireland

Swarthmore Varsity Men's Soccer Aug 2023—present
Electrical Engineering Teaching Assistant: (Electrical Circuit Analysis ENGR 011) Aug 2025—present

Awards and Scholarships

Delaware Valley Engineers Undergraduate Scholarship, Delaware Valley Engineers Society Feb 2025
Donna Prentice Memorial Scholarship, American Society of Civil Engineers Feb 2024
National Merit Scholarship, National Merit Scholarship Corporation Apr 2023