DYLAN JACOBS

PROFILE

Swarthmore engineering student with extensive experience in software development, numerical methods, mechanical and electrical engineering, and machine learning.

PHONE: (503) 704-4583
EMAIL: djacobs2@swarthmore.edu
WEBSITE: https://dylan-jacobs.github.io/
GITHUB: https://github.com/dylan-jacobs

SKILLS & INTERESTS

Programming: Python, MATLAB, Java, C#, Kotlin, C++
Relevant Coursework:
- Electrical circuit analysis
- Mechanics
- Ordinary & partial differential equations
- Data structures and algorithms

Other technical experience:
- Numerical methods
- Mechanical engineering design
- Electrical circuit analysis
- GIT
- 3D CAD design

Extracurriculars: Swarthmore Varsity Soccer, Swarthmore College Computer Society (SCCS)

LANGUAGES

English – Native
Spanish – Fluent

AWARDS

Donna Prentice Memorial Scholarship
American Society of Civil Engineers
February 2024

National Merit Scholarship
April 2023

2nd Place National Constitution Team
April 2023

Global Seal of Biliteracy (Spanish)
April 2022

EDUCATION

Swarthmore College – Bachelors of Science in Engineering
September 2023 – Present
Engineering and Applied Mathematics Double Major | GPA: 4.0

RESEARCH EXPERIENCE & INTERNSHIPS

Computational Fluid Dynamics (CFD) Research | Swarthmore College
January 2024 – present
Utilizing principles of computational fluid dynamics and modern and classical numerical methods to research high-order accuracy approximation algorithms of time-dependent partial differential equation (PDE) models such as the Vlasov-Fokker-Planck plasma system. Implementing and researching various PDE-solving methods, including classes of Runge-Kutta (RK) and implicit-explicit (IMEX) methods. Currently developing a novel low-rank, structure-preserving, highly accurate method for the Vlasov-Fokker-Planck equation in cylindrical coordinates.
Presented research poster at Swarthmore Sigma Xi poster session.
Dr. Joseph Nakao (Swarthmore College) – jnakao1@swarthmore.edu

Electrical Engineering Research | Swarthmore College
December 2023 – May 2024
Researched electrical and aerospace science behind oscillatory wind-energy devices to develop a novel, small-scale wind-energy harvester. Used Arduino and MATLAB to record and analyze voltage from electromagnetic induction, simulating the wind-energy harvesting device's expected power output.
Dr. Emad Masroor (Swarthmore College) – emasroo1@swarthmore.edu

Software Engineer Intern | Oregon Health and Science University
June 2022 – August 2022
Developed a mobile Android application in Kotlin that collects audio data from a Bluetooth stethoscope. The project's eventual goal is to use this data to develop a machine-learning algorithm to detect pathological heart murmurs. Attended weekly project updates and machine learning meetings, during which I prepared presentations and led discussions regarding the project and artificial intelligence.
Dr. Clara Mosquera-Lopez – mosquera@ohsu.edu

Data Analyst Intern | Oregon Health and Science University
January 2021 – June 2021
Analyzed body temperature data using statistical models in Python to predict the time and date of female patient parturition. I also attended weekly machine-learning presentations, during which I learned about the implementation and application of artificial intelligence models.

PROJECTS

FireSale - https://play.google.com/store/apps/details?id=com.jacobstechnologies.smartfood&hl=en&gl=US
August 2020 – June 2021
Used Java and AWS to develop an Android app to reduce food waste by allowing foot retailers to advertise excess food to hungry local consumers at markdowns.

AI Python Stock Trading Algorithms – https://github.com/dylan-jacobs/quant-trading-algorithms
March 2022 – February 2023
Created Python algorithms to trade stocks based on various quantitative metrics.

Generative Adversarial Network (GAN) - https://github.com/dylan-jacobs/image-generating-GAN
January 2022 – June 2022
Implemented Python AI algorithm—trained on abstract art datasets—to create original computer-generated abstract artwork. Samples on GitHub linked above.