DYLAN JACOBS

PROFILE

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

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

SKILLS & INTERESTS

Programming: Python, Kotlin, C#, Java, MATLAB
Technical specialties:
- Numerical methods
- Mechanical engineering design
- Electrical circuit analysis
- GIT
- 3D CAD design

Data analysis: MATLAB, Python, Excel
General skills: Critical thinking, creativity, hard work
Other involvements: 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
Euclidean Cup Math Award
June 2023

EDUCATION

Swarthmore College
September 2023 – Present
Engineering Major – GPA: 4.0

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.

WORK & RESEARCH EXPERIENCE

Computational Fluid Dynamics (CFD) Researcher | Swarthmore College
May 2024 – present
I am utilizing principles of computational fluid dynamics and numerical methods that I learned under Swarthmore Applied Mathematics Professor Joseph Nakao in the spring of 2024 to research high-order accuracy approximation methods of time-dependent partial differential equation (PDE) models such as the Vlasov-Fokker-Planck plasma system. I have implemented in MATLAB various PDE-solving methods, including classes of Runge-Kutta (RK) methods, implicit-explicit (IMEX) methods, weighted essentially non-oscillatory (WENO) algorithms, and other 1D/2D spatial/temporal discretizations. Dr. Nakao and I are currently developing a novel low-rank, highly accurate PDE solving algorithm in cylindrical coordinates.
Dr. Joseph Nakao (Swarthmore College) – jnakao1@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.

Other References
Dr. Ryan Ku (Swarthmore College) – rku1@swarthmore.edu
Dr. Emad Masroor (Swarthmore College) – emasroo1@swarthmore.edu