

Kieran Vlahakis

📍 Pasadena, California ✉ kieranagio@caltech.edu 🌐 kieran-vlahakis.com in Kieran Vlahakis

EDUCATION

California Institute of Technology (Caltech)

Applied and Computational Mathematics B.S. (GPA: 4.1)

Pasadena, CA

Sept 2022 - June 2026

Relevant Courses: Probability and Statistics, Stastical Inference, Environmental Economics, Machine Learning

WORK EXPERIENCE

Head Teaching Assistant

Caltech, Computing and Mathematical Sciences

Pasadena, CA

April 2025 – June 2025

- Directed a team of five, aligning weekly responsibilities and ensuring consistent execution of tasks
- Designed and implemented a scheduling system that maximized student access and TA coverage
- Acted as the primary liaison between students, TAs, and the instructor

Researcher - Numerical Methods and Numerical Analysis

Caltech, Prof. Oscar Bruno

Pasadena, CA

June 2024 – Aug 2024

- Developed a partial differential equation (PDE) solver using the rectangular-polar method
- Extended framework to more general settings, increasing method versatility across applications
- Achieved $\sim 50\%$ reduction in computation time through program refinement and system profiling

Researcher - Computer Vision

Caltech, Dr. Ashish Mahabal

Pasadena, CA

June 2023 – Aug 2023

- Assessed contrast tuning effects on zero-shot segmentation performance, informing preprocessing strategies
- Benchmarked performance across prompting modes (coordinate vs. unprompted), identifying optimal cases
- Tuned hyperparameters to double segmentation accuracy, supporting deployment in real-world settings

Operations Coordinator

Satcom Technologies Ltd

Lusaka, Zambia

Feb 2021 – May 2021

- Prepared and processed official documents for the National Institute for Scientific and Industrial Research
- Handled stock inventory for over \$50 000 worth of company equipment
- Coordinated transport logistics for personnel and equipment to multiple field sites under tight timelines

EXTRACURRICULAR ACTIVITIES

Student-Faculty Conference Co-chair

Caltech, Applied and Computational Mathematics (ACM)

Pasadena, California

Jan 2024 – June 2025


- Liaised between faculty and students to align program objectives with student needs
- Analyzed data across internal and peer institute programs to identify differences with ACM degree option
- Presented findings to students and faculty, fielding questions and proposing actionable solutions

PROJECT EXPERIENCE

Nystrom Method: A PDE solver for the 2D Laplace equation using the method of fundamental solutions

Stylized Sequence Generation: An AI poetry generator

ADI Method: A finite difference PDE solver for the 2D Heat equation

All projects can be found [here](#) 

SKILLS

Programming Languages: Python, MATLAB, Java, C, R, \LaTeX

Technologies and Tools: Microsoft Suite, PowerPoint, Excel, Dropbox, Data Analysis