Cameron Ake

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Education

Harvey Mudd College — Claremont, CA
B.S. Computer Science and Mathematics – Cumulative GPA: 4.00 / 4, Dean's List — *Expected May 2028*

Thomas Jefferson High School for Science and Technology — Alexandria, VA
High School Diploma – GPA: 4.629 / 4, National Merit Scholar — *May 2024*

Internship Experience

Data and Software Engineering Intern, Fermat Capital Management — May 2026 – Aug. 2026
- Developing full-stack web application to automate custom workflows, linking to Anthropic models via AWS Bedrock and Google/Box APIs
- Deploying scripts to get EP curves from databases onto Fermat's web application, for on-demand risk analysis
- Automating manual querying processes currently used by R&D team for risk analysis

Researcher, Harvey Mudd College Dept. of Mathematics — May 2025 – Aug. 2025
- Modeled and analyzed quantitative stack-sorting polytope attributes using SageMath in Python
- Proved all stack-sorting polytopes are simplices and all $Ln1$ polytopes have relative volume 1
- Co-authored final paper published in the American Journal of Combinatorics (doi.org/10.63151/amjc.v4i.35)

AI Engineering Intern, M.C. Dean — June 2023 – Aug. 2023
- Built LSTM models to predict category and priority values for database inputs
- Presented and compiled final report to Chief Systems Engineer, recommending integration into database UI

Project Experience

TTRBot | cameronake.com/ttr-demo
- Engineered custom graph structure, helper algorithms, and heuristics for bots to play the game *Ticket to Ride*
- Developed full-stack web application to set hyperparameters for GA and breed bots from scratch
- Created bot that typically performs 20 points better than the game publisher's best bot

Bayesian Optimization | cameronake.com/bo-demo
- Created full-stack Bayesian optimization web demo built from scratch (only using NumPy math operations)
- Used GPR with user-set target black-box function, parameters, and acquisition function

Monte Carlo Options Pricing | cameronake.com/mcop-demo
- Created web demo of Black-Scholes and Monte Carlo options pricing, with user-set parameters
- Simulated GBM on stock prices to compute average payoff of option and compare to Black-Scholes-computed price

Leadership Experience

Mentor & Knott's Head, Harvey Mudd College Residential Life — Apr. 2025 – Present
- Delivering structured support for freshmen through transition to college, as part of a team of 5
- Planning programming, including leading organization of freshman class Knott's amusement park trip

Grader & Tutor, Harvey Mudd College Dept. of Computer Science — Aug. 2025 – Present
- Grading assignments and tutoring: Intro CS (Python); Data Structures and Program Development (C++)

Skills

Languages: Python, Java, C/C++, SQL, JavaScript, HTML/CSS, R, MATLAB, Racket, Prolog
Libraries: TensorFlow, PyTorch, NumPy, Pandas, Matplotlib, Seaborn, Scikit-Learn, SQLAlchemy
Tools: Git, Regex, REST APIs, LaTeX, Excel, GDB, Jamovi, Node.js, Pyodide, Claude Code, VS Code, Jupyter

Coursework: Bayesian Statistics, Real Analysis, Complex Analysis, Machine Learning, Artificial Intelligence, Data Structures/Program Development, Computability and Logic, CS Principles and Practice, Computer Systems Research, Probability and Statistics, Differential Equations, Discrete Mathematics, Linear Algebra, Multivariable Calculus