APOORVA THANVANTRI

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EDUCATION

California Institute of Technology 2022-2026
Major: Computer Science GPA: 4.2/4.3

Selected Coursework: Networks, Algorithms, Deep Learning, LLMs for Reasoning, Machine Learning & Data Mining, Applied Linear Algebra, Machine Learning Theory, Multivariable Calculus, Probability & Statistics, Operating Systems, Relational Databases

EXPERIENCE

Caltech - Rigorous Systems Research Group December 2024 - Present
Student Researcher *Pasadena, CA*

- Optimizing power scheduling for fleets of electric vehicles by learning convex representations
- Training input convex neural networks to classify feasible power schedules for optimal performance on downstream tasks
- Certifying model reliability by solving linear programs

Amazon Web Services (AWS) September 2025 - December 2025
Software Developer Engineer Intern *Arlington, VA*

- Managing cloud computing resources for inactive accounts using Kotlin & Typescript
- Wrote workflows for efficiently handling deletion and restoration of user access

J.P. Morgan - Machine Learning Department June 2024 - Aug 2024
Quantitative Research Summer Analyst *New York, NY*

- Developed predictive models to estimate the occurrence of prepaid mortgages
- Wrote optimized SQL queries to filter relevant mortgage data for databases of 30 billion loans
- Trained decision tree model with 10+ engineered features using Sklearn, achieved 90%+ accuracy over 20 mortgage related factors

Caltech - Climate Modeling Alliance June 2023 - Aug 2023
Student Researcher *Pasadena, CA*

- Modeled atmospheric processes, focusing on cloud microphysics and bulk terminal velocity of precipitation particles
- Developed and implemented new parameterizations utilizing mathematical modeling techniques
- New parameterizations for bulk velocity were shown to match recorded data with higher accuracy

PUBLICATIONS

Improving EV Aggregate Flexibility with End-to-End Learning
Apoorva Thanvantri, Christopher Yeh, Nicolas Christianson, Adam Wierman
Under review at Learning for Dynamics and Control Conference 2026

TEACHING EXPERIENCE

CS 38: Algorithms April 2025 - June 2025
Teaching Assistant

- Held weekly office hours for 80+ students and aided in the writing and grading of proof-based problem sets

ACM 104: Applied Linear Algebra September 2024 - December 2024
Teaching Assistant

- Held weekly office hours to assist with writing proofs and debugging computational linear algebra code for 100+ students

CS 2: Data Structures January 2024 - March 2024
Teaching Assistant

- Held weekly office hours to teach 200+ students concepts related to algorithms and data structures and aided with debugging code

PROJECTS

Job Scheduling Simulator Jan 2025 - June 2025

- Developed job scheduling simulator for future students to use in CS 143: Networks to allow students to compare performance of different scheduling policies
- Simulates any preemptive schedule based on multiple customizable prioritization functions
- Accounted for multiple restrictions (transfer speeds, processing speeds, location restrictions)
- Tracked metrics such as mean response time, energy consumption, power usage, and more