

Tim Xie

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EDUCATION

University of California, Berkeley

May 2027

B.A. Computer Science, Statistics, Applied Mathematics

GPA: 4.00/4.00

Coursework: Computer Vision, Operating Systems, Internet Architecture, DS&A, Convex Optimization, Stochastic Processes, Perception, Neuroscience, Graphics & Imaging, Numerical Linear Algebra[†], Machine Learning, Artificial Intelligence, Security, Algorithms, Analysis, Computer Architecture, Discrete Mathematics. [[†]graduate level]

Teaching (GSI/TA): CS 61A (Structure and Interpretation of Computer Programs), Data 8 (Foundations of Data Science, Head TA).

EXPERIENCE

Apple

May 2025 – August 2025

Software Engineer Intern (Apple Silicon, Linux Kernel/Core Team)

Cupertino, CA

- Optimized SoC bring-up & Linux silicon validation infrastructure, improving boot times by 305% with multithreading & parallelism.
- Implemented NAND based booting for bootloader, Linux kernel and root filesystem, with custom NVMe namespaces.
- Extended Linux performance test suite to support additional ARMv8 & custom Apple SoC CPMU event counters, adding **perf** monitoring support and improving interrupt handler to support custom performance based interrupts.

Berkeley Artificial Intelligence Research

May 2024 – May 2025

Undergraduate Machine Learning Researcher

Berkeley, CA

- Worked with document understanding, agents, task vectors and activation steering; advised by Roei Herzig & Prof. Trevor Darrell.
- Built multi-agent framework with multimodal tool use, using parallelized manager-worker structure and particle filter process.
- Integrated layout detection models with custom document extraction infrastructure and agentic framework for multi-hop queries.
- Implemented model alignment with additional token-level confidence term in GRPO to selectively backtrack during generation.

CubeTime

Jan 2022 – Present

Founder & Lead Software Engineer

Auckland, New Zealand

- Built speedcubing utility app with 200,000+ users, 15,000,000+ sessions with 4.8/5.0 rating from 800+ reviews across 150 countries.
- Developed and productionized full-stack web app combining 8 regional speedcubing non-profits, serving 1,500+ local competitors.
- Optimized statistical analysis in Swift by 100x via C++ extensions, reduced iOS app memory usage by 50x with AOT-compilation.

Youther

Dec 2022 – Feb 2023

Software Engineer Intern

Sydney, Australia

- Integrated new frontend with existing backend, ensuring consistent user experience throughout Android, iOS and web platforms.
- Developed core iOS app using SwiftUI app lifecycle with repository design pattern and assisted development in NextJS backend API with Prisma & MongoDB; refined user experience with efficient optimistic UI & extensive caching, with 3x faster load times.
- Performed extensive A/B testing in Sydney/New South Wales regions; Optimized interfaces, improving Day 7 Retention by 20%.

PROJECTS

ClimateHack.AI 2023

- Created machine learning pipeline for ClimateHack.AI 2023 with custom ResNet based model to predict solar panel generation with 20x improvement in memory efficiency over default dataset and achieves 2200+ inferences/s.

CubeCV

- Engineered and fine-tuned machine learning models to segment a Rubik's Cube and detect the state through a video stream, producing a solution to solve scrambled state, using OpenCV (C++), DINO, LangSAM and classical CV methods.

R-DPI

- Built low level mouse customization tool on Linux with QT GUI and low level asynchronous event handler for USB-HID protocol.

Swift Teleoperate

- Built Swift/UIKit app to wirelessly teleoperate a LeRobot SO-101 robot arm with ARKit Motion Capture information, using ikpy inverse kinematics calculations and smoothly interpolating joint positions.

Busy Bean Café

- Developed full-stack point of sale web application with stocking management system and pre-ordering functionality; implemented statistical analysis of sales and finance trends, report generation and automated stock alerts, resulting in 20% increase in sales.
- Backend written with Python Flask; hosted on Microsoft Azure Cloud with MS SQL; utilized GitHub Actions CI/CD.

HONORS

- 2nd Place Overall at ClimateHack.AI 2023 Worldwide Finals, 1st Place in Qualifying Round.
- Top 20 Nationally in New Zealand Informatics Olympiad & New Zealand Chemistry Olympiad.

SKILLS

C, C++ [SFML, OpenCV], Swift [SwiftUI, UIKit], Python [Flask, Numpy, Pandas, OpenCV, sklearn, PyTorch], Java, Go, Lua, Javascript/Typescript, Svelte [SvelteKit], Prisma, Kysely, SQL [Postgres], Lisp, TCL/Expect, Bash, Linux, Docker, Git