Bach Tran

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Education

University of California, Berkeley **December 2025**

Bachelor of Arts in Computer Science - ***GPA: 3.85***

Relevant Coursework: Data Structures, Machine Structures, Operating Systems, Software Engineering, Computer Security, Internet Architecture, Principles of Data Science, Data Engineering, Artificial Intelligence & Machine Learning.

Technical Skills

Languages: Python, Golang, C/C++, Java, JavaScript, Shell Script, Ruby on Rails, SQL, NoSQL, HTML/CSS.
Tools: Git/GitHub, Docker, Unix/Linux, AWS, Google Cloud Platform, PostgreSQL, MongoDB, Streamlit, REST, GraphQL.

Experience

Software Engineer Intern - *Seamless Learning — University of California, Berkeley, CA* **February 2025 – July 2025**

- Developed a lightweight Python + Google Cloud Platform framework for automated tracking and approval of student extension requests, actively supports 5,000+ students across UC Berkeley CS/EECS courses.
- Spearheaded platform migration to GCP Cloud Functions 2nd gen, consolidating 3 task function handles into a single containerized HTTP server, simplifying deployment and improving maintainability via GitHub Actions CI/CD.

Software Engineer Intern - *Lexius, CA* **May 2024 – August 2024**

- Developed an on-device C program for Axis security cameras to stream live video to AWS Kinesis, enabling secure, real-time remote access and monitoring without exposing network ports.
- Engineered a Docker-based cross-compilation workflow to streamline building and deploying apps on Axis cameras, with secure AWS IoT Core device authentication using x509 certificates.
- Built a Golang tool for RTSP stream discovery, scanning 10+ URLs/sec and reducing manual validation time by 75%.

AI/Big Data Intern - *MoMo, Vietnam* **Aug 2022 – Sep 2022**

- Delivered comprehensive comparative evaluation of machine learning model serving frameworks (KServe, Seldon Core, BentoML), contributing to the team's selection of a scalable solution for production deployment.

Computer Science Tutor - *De Anza College, CA* **Jun 2022 – Jun 2023**

- Tutored 100+ students one-on-one in C++, Java, and Python, covering data structures and algorithms concepts.
- Organized career-growing, technical events featuring speakers from top tech companies for 200+ students.

Projects

Edstem.py | *Python, asyncio, aiohttp, websockets* | github.com/bachtran02/edpy

- Designed and implemented a client library for EdSTEM, an educational Q&A platform with 1M+ users, enabling third-party platforms to ingest real-time course and thread activity.
- Reverse-engineered EdSTEM's internal pub/sub system to decode undocumented WebSocket events and extract low-level payloads for custom API methods.
- Deployed a Python webhook service that streams Ed post notifications to Discord platform, achieving 99% uptime.

GradescopeSync | *Python, Beautiful Soup, GitHub Actions* | github.com/bachtran02/GradescopeSync

- Engineered a web scraper to extract structured assignment data from Gradescope's authenticated interface, improving deadline visibility and task organization for STEM students.
- Orchestrated a CI-based scheduler with GitHub Actions to automate daily SMS delivery of assignment summaries, maintaining 99% reliability without manual input.

Pintos Operating System | *C, GDB, x86 architecture*

- Implemented system call handlers bridging user programs and kernel, supporting core process life-cycle operations including creation, termination, and context switching.
- Enabled multi-threading on a single-core system by implementing thread management syscalls, priority-based scheduling, and synchronization primitives (locks, semaphores, condition variables).
- Enhanced the file system to support dynamic file growth via non-contiguous block allocation and a buffer cache with a clock-based eviction strategy, optimizing disk utilization and I/O performance.

Achievement

4th place in California, 2021 International Collegiate Programming Contest - Pacific Northwest region.