

# 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, Program Compilers, Internet Architecture, Principles of Data Science, Data Engineering, Machine Learning.

## Technical Skills

**Languages:** Python, Go, C/C++, Java, JavaScript, TypeScript, Ruby, SQL, Shell, Assembly, HTML/CSS.

**Tools:** Git, Docker, Kubernetes, Unix/Linux, AWS, Google Cloud Platform, PostgreSQL, MongoDB, REST, GraphQL.

**Libraries:** NumPy, Pandas, OpenCV, PyTorch, PyQt, React.js, Next.js, Rails, Django, FastAPI, Selenium.

## Experience

### Software Engineer Intern — Seamless Learning — University of California, Berkeley

February 2025 – July 2025

- Engineered a serverless Python and Google Cloud Platform framework to automate assignment extension requests processing for 5,000+ students in UC Berkeley CS/EECS courses, reducing manual workload by 90% for course staff.
- Spearheaded migration to containerized GCP Cloud Functions 2nd Gen, consolidating 3 task function handles into a single endpoint to boost reliability and performance; implemented a full CI/CD pipeline with GitHub Actions to automate testing and deployment, eliminating manual release errors.
- Built Gradescope API integration for a Ruby on Rails core application, enabling assignment syncing and extension posting while leveraging SQL caching to ensure fast retrieval, data consistency and accuracy.

### Software Engineer Intern — Lexius

May 2024 – August 2024

- Engineered an on-device C application for Axis cameras to securely stream video to AWS Kinesis, eliminating the need for open network ports and mitigating critical remote access vulnerabilities.
- Architected a Docker-based cross-compilation pipeline to automate building and deploying applications for Axis cameras; integrating AWS IoT Core's x509 authentication into the build process for secure device provisioning.
- 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

- Conducted a data-driven analysis of machine learning model serving frameworks (KServe, Seldon Core, BentoML), guiding the team's selection of a production solution to accelerate future model deployment cycles.

### Computer Science Tutor — De Anza College

Jun 2022 – Jun 2023

- Tutored 100+ students one-on-one in C++, Java, and Python, covering data structures and algorithms concepts.

## Projects

### Edstem.py | Python, asyncio, aiohttp, websockets | [github.com/bachtran02/edpy](https://github.com/bachtran02/edpy)

- Authored the first open-source asynchronous Python wrapper for EdSTEM API (1M+ users), providing developers with a streamlined interface to build real-time applications and third-party integrations.
- Reverse-engineered EdSTEM's internal WebSocket pub/sub system to decode undocumented events and extract low-level payloads (i.e thread, comment) for custom API methods.
- Built and deployed a webhook service using the Edstem.py library to stream course notifications from EdSTEM to Discord platform, currently serving over 500 students across multiple UC Berkeley communities.

### 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.