Brandon Wong

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EDUCATION

University of California, Berkeley Aug 2021 – May 2025

Bachelor of Arts in Computer Science *GPA: 4.0*

- **Coursework**: Data Structures and Algorithms, Advanced Algorithms, Computer Architecture, Operating Systems, Computer Graphics, Computer Vision, Internet and Networks, Computer Security, Linear Algebra, Data Science
- **Honors**: HSF Scholar, Chin Scholar, Rosenhouse Scholar, Elks National Foundation Scholar, UPE

TECHNICAL SKILLS

Programming Languages: Python, C, Go, C++, Java, Rust, Node, HTML/CSS, JavaScript, Bash/Shell, GLSL
Libraries: React, Express, SvelteKit, Flask, MongoDB, NumPy, Pandas, PyTorch, OpenGL
DevOps & Tools: Linux/Unix, Git, CMake, Unit Testing, Ginko, Jira, Jenkins, Docker, Splunk

EXPERIENCE

Software Engineer Intern May 2024 – August 2024

Tesla, Vehicle Software *Palo Alto, CA*

- Implemented a **Python** diagnostics tool to streamline access to rear display activity by reverse-engineering **C++** firmware and streaming logs via **Splunk**, reducing debugging time by roughly **66%**
- Developed a **Jira** bot to automate report generation for **200+** vehicle issues per week, using **Python** and **Jenkins** API, reducing issue investigation time by an average of **20%**
- Extended **Python**-based internal testing infrastructure to support rear displays, used daily by **90+%** of vehicle software engineers

Software Engineer Intern Jun 2023 – Aug 2023

HookTheory (Music Software Startup) *San Francisco, CA*

- Designed and implemented a chord progression suggester by applying a trie data structure to efficiently capture **50k+** chord progressions and their chord probabilities in **Python** and **JavaScript**, resulting in a **33+%** increase in chord variation, expanding the tool's creative potential for users
- Reduced script runtime from 2 hours to 6 minutes (**2000+%** speedup) by applying data cleaning techniques to optimize suggestion algorithms
- Co-led the development of an interactive map interface with **React.js** and MapBoxGL, optimizing the display of **50k+** data points, scaled to 500k+ users, receiving a **90+%** customer approval rate

PROJECTS

File Sharing System | *Go, Ginkgo, System Design, Cryptography* Apr 2025

- Designed and implemented a secure file-sharing system from scratch in **Golang**, utilizing cryptography (RSA, Digital Signatures, HMAC, Hybrid Encryption, etc) to ensure data confidentiality, integrity, and authentication
- Wrote **3000+** lines of test cases using **Ginkgo**, covering roughly **80%** of attacks written by course staff
- Shipped secure user auth, encrypted file storage, and revocable sharing in under 3 weeks

StarDust (Supernova Simulation) | *C++, GLSL* Apr 2024 – May 2024

- Developed a 3D interactive supernova simulation, building on an N-body physics engine written in **C++**
- Integrated Smoothed Particle Hydrodynamics (SPH) to model realistic fluid dynamics within the simulation
- Designed and implemented **GLSL** shaders for volumetric rendering and dynamic color-to-particle mapping, significantly improving the visual quality and realism of the simulation

Pintos OS | *C, x86 Assembly, Docker, Linux, Git* Sep 2023 – Dec 2023

- Implemented complex multi-threaded OS features, utilizing concepts such as data races, locks, and semaphores
- Debugged and maintained a large-scale codebase, writing robust unit tests in **Perl** and **C** to ensure high test coverage for edge cases and concurrency bugs
- Collaborated and coordinated with 3 students on detailed design reviews, ensuring timely and correct feature delivery