

# Joey-Tai Phung

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## EDUCATION

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**University of California, Berkeley**

*B.S. in Electrical Engineering and Computer Sciences*

Aug. 2023 – Dec. 2025

GPA: 4.0

## SKILLS

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**Software:** C, Python, Java, Go (Golang), OCaml, C++, ROS, SQL, RISC-V

**Developer Tools:** Git, GitHub, GDB, Visual Studio Code, Microsoft Visual Studio, IntelliJ, WSL, Linux, Valgrind

**Relevant Coursework:** Operating Systems & System Programming, Computer Security, Programming Languages & Compilers, Deep Neural Networks, Machine Learning, Computer Vision & Computational Photography, Robotics, Internet Architecture & Protocols, Efficient Algorithms & Intractable Problems, Signals & Systems, Optimization Models in Engineering, Designing Information Devices & Systems, Adv. Programming with C & C++

## PROJECT EXPERIENCE

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**PintOS | C**

Jan. 2025 – May. 2025

- Engineered a system call handler to manage the user-kernel interface, implementing process control (exec, wait, fork), file I/O, and command-line argument passing with strict pointer validation to ensure kernel integrity.
- Built a preemptive, priority-based thread scheduler with support for priority donation and implemented synchronization primitives including locks, semaphores, and condition variables.
- Developed a thread-safe, hierarchical file system using an indexed inode model for extensible files and a write-back buffer cache to minimize I/O latency.

**A Secure File Sharing System | Go**

July. 2025

- Architected a secure, multi-user, stateless file-sharing system using layered cryptographic primitives to guarantee data confidentiality and integrity against malicious servers, ensuring seamless and secure synchronization across multiple user devices.
- Devised a secure, segmented file architecture using individually encrypted blocks, a design specifically engineered to enable seamless file sharing, user revocation, and efficient append operations.
- Implemented an access control model with invitation-based sharing and transitive revocation, using key rotation to defend against revoked-user adversaries.
- Designed a robust authentication system using a salted PBKDF (Argon2Key) for master keys and a HashKDF for distinct sub-keys, which then secured all data.

**Chinese Checkers Pro | ROS, Python**

Oct. 2024 - Dec. 2024

- Developed a Python implementation of Chinese Checkers, incorporating an AI player utilizing Minimax and Alpha-Beta Pruning algorithms, along with an interactive user interface for seamless gameplay and visualization.
- Programmed a Sawyer Robot to accurately detect, classify, pick, and place game pieces using a realsense2 camera, a combination of computer vision techniques and neural networks, AR Tag localization, and MoveIt for arm control.

**Build Your Own World | Java**

Apr. 2024 - May. 2024

- Implemented algorithms such as Delaunay triangulation and Kruskals for pseudo-random map generation based on user-input seeds.
- Engineered core game mechanics, including saving/loading functionality, user navigation, and interactive features like toggling room and ambient lighting to enhance user engagement.

## WORK EXPERIENCE

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**MESA Math and Physics Tutor | Diablo Valley College**

Feb. 2022 - May. 2023

- Provided personalized academic support to 20+ students, simplifying challenging concepts with clear communication and patience.
- Guided students in developing healthy habits, such as effective time management and strategic test-taking skills.

**In-N-Out Associate | Pleasant Hill, CA**

Nov. 2021 - Jun. 2022

- Consistently provided high-quality service in a fast-paced environment, ensuring customer satisfaction by addressing inquiries, resolving complaints, and maintaining a welcoming atmosphere.
- Worked effectively with team members to manage high customer volumes, demonstrating strong communication and interpersonal skills to maintain efficiency and positive morale.