Joey-Tai Phung

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Education

University of California, Berkeley Aug. 2023 – Dec. 2025
B.S. in Electrical Engineering and Computer Sciences *GPA: 4.0*

Skills

Software: C/C++, Python, CUDA, Java, Go, OCaml, ROS2, SQL, RISC-V
Developer Tools: Git, VS Code, Visual Studio, IntelliJ, Linux, GDB, Valgrind
Relevant Coursework: Operating Systems & System Programming, Programming Languages & Compilers, Computer Security, Internet Architecture & Protocols, Deep Neural Networks, Machine Learning, Computer Vision & Computational Photography, Robotics, Efficient Algorithms & Intractable Problems, Signals & Systems, Optimization Models in Engineering, Designing Information Devices & Systems, Adv. Programming with C & C++

Project Experience

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 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.

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

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.