Chia-Lun (Charles) Tsai

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EDUCATION

University of Illinois, Urbana-Champaign — Champaign, IL
Master of Computer Science — Aug. 2024 – Dec. 2025 (Projected)
- **Currently Taking**: Programming Languages and Compilers | Compiler Construction | Distributed Algorithms

National Yang Ming Chiao Tung University (NYCU) — Hsinchu, Taiwan
Bachelor of Science in Computer Science — Sep. 2019 – Jun. 2023
- **GPA**: Overall **4.11**/4.30
- Received excellent entrance scholarship each semester, awarded to only **10 out of 200** students, with a requirement to maintain a GPA in the top 25%
- **Relevant Coursework**: Operating Systems Capstone | Parallel programming | Advanced Programming in the UNIX Environment | Architecture for Scale-out Systems | Intro. to Databases | Intro. to Algorithms

WORK EXPERIENCE

NVIDIA Corporation — Taipei, Taiwan
Software Security Intern — Jun. 2022 – Dec. 2022
- Enhanced test coverage **from 40% to 80%** by implementing over 20 Python and Bash penetration tests on unreleased firmware
- Increased the number of fuzzing tests **from 0 to 15** by initiating tests on unreleased chips and simulating them on FPGAs
- Accelerated error analysis for all errors **from several hours to 10 minutes** over several months by developing an automated program to identify error-prone modules in the GitLab pipeline

PROJECTS

Self-Studied MIT 6.5840 (Distributed Systems) | Go — Jun. 2024
* Completed all 5 labs, including implementing a fault-tolerant Raft consensus algorithm, a distributed database, and a scalable architecture using sharding
* Deepened understanding of distributed systems concepts such as fault tolerance, replication, consistency, and scalability

Bare Metal Programming in C | C, ARM assembly — Jun. 2022
* Developed a basic operating system from scratch on bare-metal Raspberry Pi 3b+
* Implemented a simple shell, bootloader, interrupt service routine, context switch, virtual memory, and file system supports FAT32 format

UNIX Programming course programs | C++ — Feb. 2022
* Created an "lsof-like" tool, replicating most functionalities of the Linux "lsof" command
* Designed a system call monitor, with capabilities to display call logs in-terminal or save to a file
* Built a mini libc library and a toy debugger for hands-on experience with system utilities

BBS chatting room | C, C++ — Sep. 2021
* Built a BBS-like chatting system that supports account creation and multi-user interaction using C, C++, and Linux socket interfaces

HONORS AND AWARDS

Scholarship for Exchange Program to Chalmers University of Technology	Jan. 2023
2 Bronze Awards, ICPC Asia Taipei Regional Programming Contest	Nov. 2020 – Nov. 2021
3rd Place, National Traffic Management Creative Competition	Aug. 2021

PROGRAMMING SKILLS

Advanced : C, C++

Intermediate : Go, TypeScript, JavaScript, Python

Other Tools / Frameworks / Platforms : Vim, Git, GDB, Linux, Ubuntu, FreeBSD, Agile

Extracurricular: Information Officer of Computer Science Student Association, Guitar Club Curriculum Coordinator