MATTHEW TSAI

310-997-7106 — mtsai1@berkeley.edu — linkedin.com/in/m-tsai — github.com/matt-tsai

EDUCATION

University of California, Berkeley May 2023
Bachelors in Computer Science

RELEVANT COURSE WORK

Computer Security	Database Systems	Probability Theory	Artificial Intelligence
Algorithms	Data Structures	Machine Learning	Machine Structures

SKILLS

Languages	Python	C	MySQL	**Frameworks**	Git	Spark
	Java	Go	RISC-V		Node.js	AWS Lambda

WORK EXPERIENCE

Google May 2022 - August 2022
Software Engineer Intern
- Migrated, refactored, and expanded on open-source security **go-tpm** and **go-tpm-tools** to make the library more readable, aligned with the specification and flexible to cover the remaining 50% of tpm use cases. Designed secure back-compatibility for legacy code with code deprecation in mind.
- Collaborated with the Google Cloud Security team to design session encryption/decryption protecting against passive interposers and to work around breaking changes of the migration.
- Reviewed code from open source contributors on the tpmdirect branch and gave constructive feedback.
- Wrote a contribution guide to encourage and ease entry into open source development.

Twilio May 2021 - August 2021
Software Solutions Engineer Intern
- Analyzed client product architecture and blueprinted potential technical visions using Twilio APIs.
- Optimized customer experiences for specific use cases along with ensuring product security and customer privacy. Shadowed calls and gave technical feedback on customer questions; worked mostly with growth and enterprise companies, including NYSE: COTY, NASDAQ: LULU.

PROJECTS

Encrypted File Sharing System November 2021 - December 2021
- Designed and implemented an end-to-end encrypted file sharing system in Go with a zero-trust default architecture. The system was intentionally built on a vulnerable server to run penetration tests on the system.

Exploiting Memory Vulnerabilities August 2021 - September 2021
- Implemented stack smashing exploits, buffer overflows, and ROP in vulnerable C files with inputs written Python. Made the vulnerable program run a shell script and accessed private data.
- Used integer conversion, string formatting vulnerabilities, buffer overflow to bypass canary testing.

Gitlet April 2020 - May 2020
- Wrote a version control system in Java completely from scratch that mimics the core functionalities of Git: branch, merge, commit, checkout etc.

EXTRACURRICULAR

UC Berkeley EECS Dept. January 2020 - Present
Database Systems TA, Academic Intern, CS Scholar Tutor
- Responsible for holding office hours to debug database projects in Java and help on problem sets.
- Hold exam-prep recitation for students that cover database concepts: B+ Trees, Query Optimization, Parallel Query Processing, Transactions and Concurrency, Distributed Transactions, Recovery, etc.