Richard Liu

rjliu@protonmail.com | +1 (408) 386-2085
Santa Clara, CA | github.com/richyliu
rjliu.com | linkedin.com/in/richard-liu-4775571a7

Experiences

Reve – *Software Engineer*
Aug 2026 - Present — Palo Alto, CA

Trail of Bits – *Software Engineer Intern*
Oct 2025 - Dec 2025 — New York, NY (remote)

- Audited and instrumented Google's V8 runtime to uncover potential memory-safety and sandbox-escape vulnerabilities in WebAssembly stack switching and JS builtins
- Reverse-engineered engine internals and developed proof-of-concept exploit paths (stack metadata corruption, builtin misdispatch), producing detailed security findings and recommendations

Trail of Bits – *Software Engineer Intern*
Dec 2024 - Jan 2025 — New York, NY (remote)

- Profiled and optimized pwndbg, a popular Python GDB plugin, reducing startup time by 15% and cutting load time for core functionality by 85% for thousands of users worldwide.

Battelle Memorial Institute – *Cyber Security Intern*
May 2024 - Aug 2024 — Columbus, OH

- Designed and implemented a distributed over-the-air fuzzing system, scaling fuzz testing across multiple devices and leading to 10x increase in fuzzing throughput.
- Developed Python-based fuzzing tools targeting embedded wireless stacks; reverse-engineered Bluetooth chipsets to expose internal commands for better fuzz testing integration and testing.

Sandia National Labs – *R&D Software Intern*
May 2023 - Dec 2023 — Albuquerque, NM

- Reverse-engineered embedded firmware with Ghidra to discover security vulnerabilities in binaries.

Education

University of Illinois Urbana-Champaign – *M.S. in Computer Science*
Aug 2024 - May 2026 | GPA: 3.9/4.0 — Champaign, IL

- Research topics: Embedded firmware, fuzz testing, cyberphysical/OT security
- Projects include a libfuzzer + QEMU integration written in C for binary-only firmware fuzzing, a ZeroMQ device model for QEMU to enable generic peripheral interactions, and a firmware-in-the-loop integration between Halucinator and OT-Sim written in Python and C.

University of Illinois Urbana-Champaign – *B.S. in Mathematics & Computer Science*
Aug 2021 - May 2024 | GPA: 3.9/4.0 — Champaign, IL

Technical Skills

- **Expert**: Python, C, fuzz testing, OOP, JavaScript, data processing, Assembly (x86, ARM, MIPS, RISC-V), Git
- **Proficient**: Docker, IoT, TCP/IP, Kubernetes, Cloud infrastructure, PostgreSQL