

Richard Liu

Graduate student at UIUC with a passion in cybersecurity, in particular in embedded software, reverse engineering, and emulation.

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DoD Secret Clearance

EXPERIENCE

Trail of Bits, New York, NY — *Software Engineer Intern*

DEC 2024 - JAN 2025

Optimized and improved the efficiency of pwndbg, a Python GDB debugging plugin used by numerous developers. Used Python profiling tools to identify and resolve underlying performance issues. Improved startup time by 15% and loading time of several key functionalities by over 85%.

Battelle Memorial Institute, Columbus, OH — *Cyber Security (Software) Intern*

MAY 2024 - AUGUST 2024

Leveraged hardware capabilities to develop fuzz testing tools using Python to discover vulnerabilities. Reverse engineered firmware on mobile chipsets. Gained an in-depth understanding of the bluetooth protocol stack.

Sandia National Labs, Albuquerque, NM — *R&D Software Intern*

MAY 2023 - DECEMBER 2023

Engineering debugging tools for low level binary exploitation with Python. Reverse engineered embedded systems with Ghidra and documented the findings. Performed dynamic analysis through creative use of diagnostic memory primitives and crash vectors.

QEMU — *Google Summer of Code*

JUNE 2022 - SEPTEMBER 2022

Developed a snapshot/restore fuzzer for QEMU. Integrated Libfuzzer test harness and coverage information from within QEMU.

EDUCATION

B.S. in Mathematics & Computer Science — *University of Illinois at Urbana-Champaign*

AUGUST 2021 - MAY 2024

3.9/4.0 GPA

M.S. in Computer Science — *University of Illinois at Urbana-Champaign*

AUGUST 2024 - MAY 2026 (expected)

SKILLS

Python
C
Linux

AWARDS

eCTF: Led UIUC team to second place in nationwide embedded security competition

CSAW: Placed second nationwide in undergraduate division of CTF

Links

Linkedin:
linkedin.com/in/richard-liu-4775571a7

Personal Website: rliu.dev