

HANJIE WU

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WORK AND RESEARCH EXPERIENCE

Stellar Cyber Inc. — Security Engineer Jun. 2023 – Present

- Created an **autonomous SOC agent** that reviews alerts, queries event logs, and investigates incidents, accelerating analyst triage by **10x** while maintaining over **90% accuracy**.
- Developed **10+ machine learning- and Sigma rule-based detections** that identify attack behaviors in Windows Event Logs, network traffic, and other data sources.
- Performed penetration tests against cloud services, agent sensor software, and websites, identifying **20+ vulnerabilities and RBAC policy violations**.

Lime — Security Engineer Intern Jun. 2022 – Aug. 2022

- Wrote **40+ mobile security test cases** to verify compliance with the OWASP Mobile Application Security Verification Standard, then automated the tests and integrated them into the CI/CD pipeline to improve security throughout the application development process.
- Built tools to visualize AWS assets and identify vulnerabilities in cloud infrastructure.

Zhejiang University — Research Assistant Jul. 2021 – Jan. 2022

- Built CodeQL-based tools to analyze control flow in the Linux kernel network stack.
- Discovered the **Use-After-Cleanup vulnerability pattern** in Bluetooth and other network stacks.
- Uncovered **30+ previously unknown bugs** that were acknowledged and fixed by the Linux community.

Tencent Technology — Security Research Intern Mar. 2020 – Aug. 2020

- Built a **symbolic-execution test framework** for message handlers in 5G firmware and tested **100+ functions**.
- Identified **two vulnerabilities in Samsung 5G baseband firmware** that enabled code execution without user interaction; reported them to the vendor, reducing users' risk of compromise.

PUBLICATION

- Lin Ma, Duoming Zhou, **Hanjie Wu**, Yajin Zhou, et al. "When Top-down Meets Bottom-up: Detecting and Exploiting Use-After-Cleanup Bugs in Linux Kernel." 2023 IEEE Symposium on Security and Privacy.

EDUCATION

Carnegie Mellon University, Pittsburgh, PA, USA Jan. 2022 – May 2023

Master of Science in Information Security GPA: 3.79/4.0

Coursework: Embedded Systems, Operating System Design, Secure Coding, Reverse Engineering

Zhejiang University, Hangzhou, China Sep. 2017 – Jun. 2021

Bachelor of Engineering in Software Engineering GPA: 3.77/4.0

Coursework: Principles of Computer Systems, Operating Systems, Compiler Principles, Computer Networks

PROJECT EXPERIENCE

PebPeb: x86 OS Kernel Feb. 2023 – May 2023

Developed an x86 operating system supporting paging, interrupts, scheduling, user-mode threads, system calls, and paravirtualization.

Weewasm: JIT-Enabled WebAssembly Runtime Mar. 2023 – May 2023

Built a WebAssembly interpreter with foreign function interface support and **just-in-time compilation for x86**.

VMware Tools Penetration Testing Mar. 2021 – Jun. 2021

Reverse engineered the VMware Tools guest-host interface, developed an **AFL-based fuzzer**, and discovered **two VM escape vulnerabilities**.

LLVM-Based Pascal Compiler Feb. 2020 – Apr. 2020

Built a Pascal compiler in C++ using **LLVM**, with native code generation and C interoperability.

TECHNICAL SKILLS

Programming Languages: C++, x86/ARM assembly, Python

Security Research: Vulnerability research, fuzzing, symbolic execution, V8 exploitation

Debugging and Emulation: GDB, Ghidra, QEMU, Unicorn, x64dbg