

5437 Wilkins AVE
Pittsburgh PA 15217

ZHIYUE LYU

(412) 352-9513
cr3taceousguy@gmail.com

EDUCATION

Pittsburgh, PA	Carnegie Mellon University	Aug. 2023 – May. 2025
<ul style="list-style-type: none">• M.S. in Information Security. GPA: 3.63/4.0.• Core Courses: Distributed Systems; Network Security; Browser Security; Network Forensics; Cloud Security.		
Xi'an, China	Xidian University	Sep. 2019 – Jun. 2023
<ul style="list-style-type: none">• B.E. in Cyberspace Security. GPA: 3.8/4.0.• Core Courses: Computer and Program Design; Data Structure and Algorithm Analysis; Database; Operating Systems; Computer Networks; Modern Cryptography; Software and System Security; AI Security.		

PROFESSIONAL EXPERIENCE

Security Researcher, Intern	Huawei Technologies Co., Ltd.	Jul. 2022 – Jan. 2023
<ul style="list-style-type: none">• Optimized C/C++ code hardening on Linux by leveraging GCC Gimple transformations to address ASLR challenges, using code segment randomization to improve system security.• Developed anti-debugging measures and neural network-based control flow obfuscation, embedding security features directly within executables to resist reverse engineering and conceal control flow transitions.• Enhanced buffer overflow defenses by modifying GCC's AST and Gimple for complex C/C++ scenarios, including pointer escape handling for features like inheritance and STL libraries. Achieved <5% performance impact and <3% memory expansion, balancing security with performance in large-scale applications.		
Security Engineer, Intern	Venustech Group Inc.	May. 2022 – Jul. 2022
<ul style="list-style-type: none">• Simulated the work of a penetration tester. Conducted targeted code reviews in PHP, Java, and Python to identify high-risk vulnerabilities, including SQL injection, XSS, and RCE, as part of bug bounty programs.• Developed a Web CTF challenge using Python Flask, designing an online toy shop with login, sign-up, and shopping pages. Integrated two vulnerabilities: one exploiting SQL injection to log in as an existing user, and another leveraging a CSRF attack to hijack admin cookies, allowing the attacker to purchase the flag.		

ACADEMIC PROJECT

Distributed Bitcoin Miner (June. 2024 - Sep. 2024)
<ul style="list-style-type: none">• Developed a distributed Bitcoin mining system using Go, leveraging its concurrency model with goroutines and channels. Designed and implemented a custom Live Sequence Protocol on top of UDP to reduce latency.• Created a scalable client-server architecture that dynamically allocated tasks to miners, achieving a 4x improvement in efficiency compared to sequential mining and processing up to 100,000 hashes per second.
Mobile-APP Fingerprints on Encrypted Network (Jan. 2024 - May. 2024)
<ul style="list-style-type: none">• Led enhancements to the FLOWPRINT model, boosting mobile-app fingerprinting in encrypted traffic.• Achieved app recognition accuracy of 85.77% and precision of 98.86% for detecting unseen apps, surpassing previous model performances.• Expanded model's utility to browser traffic, effectively distinguishing web activities.
White-Box Cryptography Algorithm Based on Neural Networks (Mar. 2022 – Oct. 2022)
<ul style="list-style-type: none">• Developed a neural network-based system to obfuscate encryption steps in block ciphers, creating a resilient black-box environment resistant to BGE attacks.• Integrated overfitting techniques to ensure secure encryption through neural network substitution in AES.

EXTRACURRICULAR EXPERIENCE

<ul style="list-style-type: none">• Member of Information Security Society in Xidian University Conducted research into web security technologies, led teams in CTF and Digital Forensics Competitions.• Member of PPP(Plaid Parliament of Pwning) in Carnegie Mellon University Engage in CTF competitions(Web, PWN, Crypto), join threat hunting and discuss security topics like CVEs.
--

LANGUAGES and SKILLS

<ul style="list-style-type: none">• C; Python; Go; C++; Java; PHP; SQL; JavaScript; HTML• Cybersecurity; Machine Learning; Node.js; Docker; AWS; Cryptography; Incident Response; Malware Analysis
