Xiaohui Hu

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I am currently pursuing a research-based master's degree and seeking an internship. I have been working in DeFi, with a focus on protocol analysis, scam detection, and MEV measurement, leveraging statistical modeling and programming to drive insights.

Education

Huazhong University of Science and Technology 2023 – Present

- M.E. in Cyber Science and Engineering, *GPA: 89.76*
- Supervisor: Prof. Haoyu Wang

Beijing University of Posts and Telecommunications 2019 – 2023

- B.E. of Data Science and Big Data Technology, *GPA: 89.47, RANK: 3/54 (5%)*

Research Experience

Research on Applying LLMs to Cryptocurrency Scams and Defense 2024.11 – Present
Tag: Cyber security, cryptocurrency scam

- *Research Background:* Investigated the evolution of cryptocurrency airdrop scam strategies, including phishing websites, Telegram games, and node-running airdrop projects. Developed methodologies for cross-platform airdrop project collection and automated scam detection. This work builds upon my previous research on phishing scams [4], while exploring a significantly different scope.
- *My Contribution:* Main contributor to conducting the research and implementing automated detection.
- *Techniques Used:* Python, Java Script, LLM.

Research on Cryptocurrency Wallet Automatic Testing and Vulnerability Detection [2] 2024.03 – Present
Tag: Software security, vul detection

- *Research Background:* Investigated the processes and vulnerabilities of cryptocurrency wallet extensions, revealing exploit risks across components. Developed an automated testing framework, identifying 15 attack vectors, eight of which received National Vulnerability Database IDs.
- *My Contribution:* Main contributor to conducting the research and implementing automated testing.
- *Techniques Used:* Go, Python, Java Script.

Research on Price Manipulation Attacks and Smart Contracts Analysis [3] 2024.08 – Present
Tag: Program analysis, vul detection

- *Research Background:* Investigated the price manipulation attack in DeFi. Constructed a tool for analyzing smart contract bytecode and identifying such attacks in the pre-attack stage proactively.
- *My Contribution:* Contributor to implement the automatic testing pipeline.
- *Techniques Used:* Python, Datalog.

Research on Cross-Chain Ecosystem Analysis and Vulnerability Detection [1] 2023.02 – 2024.02
Tag: Cyber security, vul detection

- *Research Background:* Conducted research on cross-chain transaction collection, match, and misbehavior detection. Covered 13 decentralized bridges on 7 blockchains, with over 80 million transactions. Performed fund tracking to obtain insights of this ecosystem.
- *My Contribution:* **First author in one top-tier paper**. Designed and implemented an automated system for cross-chain transaction analysis and a tool for cross-chain fund tracking.
- *Techniques Used:* Go, Python.
- *Key Outcomes:* Built a novel, large-scale cross-chain dataset. Identified six attack types and provided insights into stolen funds, attacker characteristics and user distributions.
- *Collaborations:* Advised by Prof. Yajin Zhou, a professor at Zhejiang University who is expertise in the blockchain security, software security, and operating systems security.

Research on Defense against Backdoor Poisoning Attacks in Deep Learning Models [5] 2022.03 – 2022.09
Tag: Machine learning security, threat defense

- *Research Background:* Investigated backdoor poisoning attacks in machine learning-based malware classification systems and proposed a defense methodology to counteract these threats.
- *My Contribution:* Contributor to empirical studies on machine learning model backdoors and data poisoning attacks. Conducted experiments to enhance the performance of our defense tool.
- *Techniques Used:* PyTorch, Python.

Projects and Internship

Intern, BlockSec (Hangzhou, China) 2022.10 – 2023.08

- **Participant**
- *Key Research on Cross-Chain Analysis and Vulnerability Detection*

Intern, Institute of Information Engineering, Chinese Academy of Sciences 2022.03 – 2022.09

- **Participant**
- *Research on Blockchain and Botnet Attacks, Defenses Against Backdoors in Machine Learning Models*

Honors and Awards

China National Scholarship (Top 1%), Ministry of Education of PRC 2022
Outstanding Graduates of Beijing, Beijing Municipal Education Commission 2023
First Prize of University Scholarship ×3 (Top 5%) 2020, 2021, 2024

Services

Sub-Reviewer – Usenix Security'25, FSE'25, ISSTA'25, WWW'25, CCS'24, TDSC'24
Teaching Assistant – Decentralized Finance (DeFi) Course

Skills and Interests

Programming Languages: Go, Python, C/C++, Java
Interests: I enjoy playing the piano and drum set as relaxation outlets, while also being passionate about staying active through badminton and swimming.

Publications

[1] Piecing Together the Jigsaw Puzzle of Transactions on Heterogeneous Blockchain Networks
Xiaohui Hu, Feng Hang, Pengcheng Xia, Gareth Tyson, Lei Wu, Yajin Zhou, Haoyu Wang
ACM SIGMETRICS International Conference on Measurement and Modeling of Computer Systems (SIGMETRICS), 2025.

[2] 50 Ways to Lose Your Tokens! Abusing Cryptocurrency Wallet Extensions for Fun and Profit
Xiaohui Hu, Ningyu He, Haoyu Wang
Under Review, 2025

[3] Following Devils' Footprint: Towards Real-time Detection of Price Manipulation Attacks
Bosi Zhang, Ningyu He, ***Xiaohui Hu***, Kai Ma, Haoyu Wang
Under Review, 2025

[4] TxPhishScope: Towards Detecting and Understanding Transaction-based Phishing on Ethereum
Bowen He, Yuan Chen, Zhuo Chen, ***Xiaohui Hu***, Yufeng Hu, Lei Wu, Rui Chang, Haoyu Wang, Yajin Zhou
ACM Conference on Computer and Communications Security (CCS), 2023.

[5] Make Data Reliable: An Explanation-powered Cleaning on Malware Dataset Against Backdoor Poisoning Attacks
Xutong Wang, Chaoge Liu, ***Xiaohui Hu***, Zhi Wang, Jie Yin, Xiang Cui
Annual Computer Security Applications Conference (ACSAC), 2022.