

Wenbo Guo

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ABOUT

A master's graduate at the School of Cyberspace Security of Sichuan University. My research interests are vulnerability detection and software supply chain security. Related achievements are published in JIFS, C&S journals and ASE, RAID conferences. My supervisors are Prof. Yong Fang and Prof. Cheng Huang. I will continue my research in cybersecurity in the future.

EDUCATION

Sichuan University Chengdu, China
M.E. in Cybersecurity, GPA 3.82/4 (2/92) Sept. 2020 – Jun. 2023

Sichuan University Chengdu, China
B.E. in Cybersecurity, GPA: 3.54/4 (Top 10%) Sept. 2016 – Jun. 2020

RESEARCH EXPERIENCE

Postgraduate Research Assistant Aug. 2022 – Current
Nanyang Technological University (advisor: Prof. Yang Liu) School of Computer Science and Engineering

- Made a large-scale empirical study of the PyPI ecosystem. (ASE 2023)
- Proposed a novel detection tool for PyPI malicious packages.

Undergraduate Research Assistant Jun. 2018 – Jun. 2020
Sichuan University School Of Cyber Science And Engineering

- Discovered illegal activities and key hackers in underground forums.
- Proposed a key hacker identification algorithm named HackerRank.
- Built a threat intelligence analysis system named ThreatMiner for hacker forums.

PROJECTS

Vulnerability mining system for C/C++ source code | *Graph Neural Networks* Aug. 2021 – Aug. 2022

- Built a database of CVE vulnerabilities of open source software.
- Proposed pruning method with code structure supplementation.
- Proposed a fused graph neural network vulnerability detection method.
- Found some unpublished vulnerabilities.

Digital Currency Fraud Website Detection System | *Machine Learning, Flask* Oct. 2020 – Mar. 2021

- Constructed a feature matrix unique to digital currency fraud sites.
- Proposed a machine learning based detection model.
- Developed a digital currency fraud website detection system.

PyVul: Python code vulnerability mining system | *Deep Learning, OVO SVMs* Sept. 2019 – Apr. 2021

- Proposed a pruning method for python code snippets.
- Proposed a vulnerability mining method that combines code detection and contextual analysis.
- Found some vulnerable code snippets in StackOverflow.

A threat intelligence analysis system for hacker forums | *Deep Learning, Flask* May. 2019 – May. 2020

- Tracked and collected data from multiple underground forums, e.g. 0x00sec, Nulled, HiddenAnswers.
- Proposed a key hacker identification algorithm that integrates text analysis and social network analysis.
- Proposed an effective method to build a hacker profile with multiple dimensions.
- Developed a threat intelligence analysis system for hackerforums.

A QR Code Logistics Privacy System | *Android, RSA, Mysql* Jun. 2018 – Mar. 2019

- Design of segmented encryption and authorization mechanisms based on the principle of least privilege.
- Obfuscation of QR codes using logistics chaos algorithm.
- Developed a express Android APP with privacy protection.

PUBLICATIONS

- **Wenbo Guo**, Zhengzi Xu, Chengwei Liu, et al. An Empirical Study of Malicious Code In PyPI Ecosystem[C]. ASE 2023 (Accepted).
- **Wenbo Guo**, Yong Fang, Haoran Ou, et al. HyVulDect: A Hybrid Semantic Vulnerability Mining System Based on Graph Neural Network[J]. Computer & Security, 2022, 121: 102823, doi: 10.1016/j.cose.2022.102823.
- Haoran Ou, Yong Fang, **Wenbo Guo**, et al. Viopolicy-Detector: An Automated Approach to Detecting GDPR Compliance Violations in Websites[C]. RAID, 2022.
- **Wenbo Guo**, Cheng Huang*, Weina Niu, et al. Intelligent mining vulnerabilities in python code snippets[J]. Journal of Intelligent & Fuzzy Systems, 2021, 41(2): 3615-3628. doi: 10.3233/JIFS-211011.
- Cheng Huang, **Wenbo Guo**, Yongyan Guo*, et al. HackerRank: identifying key hackers in underground forums[J]. International Journal of Distributed Sensor Networks, 2021. doi: 10.1177/15501477211015145.
- Haoran Ou, Yongyan Guo, Chaoyi Huang, Zhiying Zhao, **Wenbo Guo**, et al. No Pie in The Sky: The Digital Currency Fraud Website Detection[C]. ICDF2C, 2022: 176-193. doi: 10.1007/978-3-031-06365-7_11.
- Liang Liu, **Wenbo Guo***, Yuwei Yang, Huaiyu Guo. Research on QR code logistics privacy based on segmented encryption and time-limited control[J]. Chinese Journal of Network and Information Security, 2019, 5(4): 63-70.

AWARDS AND HONORS

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| • Provincial Excellent Graduates of Sichuan Province | Mar. 2023 |
| • First-class Academic Scholarship | Oct. 2022 |
| • Sichuan University OPPO-CTF Competition Winner | May. 2022 |
| • Dahua Scholarship | Dec. 2021 |
| • Outstanding Student Cadre | Oct. 2021 |
| • National Encouragement scholarship | Dec. 2019 |
| • First Prize of Sichuan University “Internet +” Innovation and Entrepreneurship Competition | Oct. 2019 |
| • Second Prize of the National Student Cybersecurity Training Camp | Sept. 2019 |
| • Second Prize of the 12th National Student Information Security Competition | Aug. 2019 |
| • Third Prize of the 4th Shanghai Student Cybersecurity Competition | Nov. 2018 |

TECHNICAL SKILLS

Programming: C/C++, Java, Android, Python, MySQL, HTML/CSS

Frameworks: Flask, TensorFlow, Pytorch, Keras, DGL

Developer Tools: Linux, Git, Docker, PyCharm, Latex

Languages: Chinese, English