Zhilong Wang

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EDUCATION

Pennsylvania State University   *Sept. 2019 - Present*
Ph.D. student in College of Information Sciences and Technology
Major: Cyber Security
Advisor: Peng Liu

Nanjing University   *Sept. 2016 - Jun. 2019*
M.S. in Department of Computer Science and Technology
Major: System and Software Security
Advisor: Bing Mao

Pennsylvania State University   *Feb. 2018 - Sept. 2018*
Visiting Research Assistant in College of Information Sciences and Technology
Research: ARM Security, Linux Kernel Security

Zhengzhou University   *Sept. 2012 - Jul. 2016*
Earned Bachelor's Degree of Computer Science and Technology

- GPA: 3.6/4.0   Ranking: 1/240

RESEARCH INTERESTS

To facilitate security-oriented program analysis through deep learning;

To detect, analyze and solve system and software problems with dynamic and static program analysis;

To deploy security strategies by modifying the operation systems and compilers;

To secure the system and software via hardware's new features (e.g., ARM ETM and AES-NI);

RESEARCH PROJECTS

As Ph.D Student

Deep learning assisted vulnerability analysis [current project].
Researching on the trade-offs in control-flow integrity [i].
Surveying on applied deep learning to security [2].

As Visiting Scholar

Hardware-assisted Modular Kernel Protections [1].

As Master Student

Designing polymorphic canary to prevent buffer overflow attacks [3 [1],4]
Proposed program obfuscation technique based on Return-oriented Programming [5].

As Undergraduate Student

Designing and developing automatic robot control algorithms.

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[1]Source Code: https://github.com/zhilongwang/PolymorphicCanaries

Skills

C/Python/Java, Compiler, Linux Kernel, Program Analysis (Data Flow Analysis, Symbolic Execution, and et al.), Software and System Security, Deep Learning.

Awards & Honors

- Outstanding Graduates of Nanjing University, 2019.
- Scholarship of Shenzhen Stock Exchange, 2018.
- Second-Class Academic Scholarship of Nanjing University, 2017 &[2] 2018.
- First-Class Academic Scholarship of Nanjing University, 2016.
- The First Prize of Program Testing Competition of Henan Province, 2015.
- First-Class Scholarship of Zhengzhou University, 2013 & 2015 & 2016.
- Certification of Software Capability by China Computer Federation (CCF) : 330 Points (Top 5.11%)
- The First Prize of Microsoft Wheeled Micro-Robot Simulation Competition in China Robot Competition, Beijing, 2014.
- The First Prize of ACM Computer Programming Contest of Zhengzhou University, 2014.
- National Scholarship, 2014.

Publications

1. Yunlan Du, Zhenyu Ning, Jun Xu, **Zhilong Wang**, Yueh-Hsun Lin, Fengwei Zhang, Xinyu Xing, and Bing Mao. "HART: Hardware-assisted Kernel Module Tracing on Arm." In Proceedings of The *25th European Symposium on Research in Computer Security (ESORICS)*, 2020.

2. Yoon-Ho Choi, Peng Liu, Zitong Shang, Haizhou Wang, **Zhilong Wang**, Lan Zhang, Junwei Zhou and Qingtian Zou. "Using Deep Learning to Solve Computer Security Challenges: A Survey." *Cybersecurity*, 2020. (The authors of this paper are listed in alphabetic order)

3. **Zhilong Wang**, Xuhua Ding, Chengbin Pang, Jian Guo, Jun Zhu and Bing Mao. "To Detect Stack Buffer Overflow With Polymorphic Canaries." In *IEEE/IFIP International Conference on Dependable Systems and Networks (DSN)*, 2018.

4. Jun Zhu, Weiping Zhou, **Zhilong Wang**, Dongliang Mu, and Bing Mao. "DiffGuard: Obscuring Sensitive Information in Canary Based Protections." *International Conference on Security and Privacy in Communication Systems (SecureComm)*. Springer, Cham, 2017.

5. Dongliang Mu, Jia Guo, Wenbiao Ding, **Zhilong Wang**, Bing Mao, and Lei Shi. "ROPOB: Obfuscating Binary Code via Return Oriented Programming." *International Conference on Security and Privacy in Communication Systems (SecureComm)*. Springer, Cham, 2017.

Arxiv Preprints

i. **Zhilong Wang** and Peng Liu. "GPT Conjecture: Understanding the Trade-offs between Granularity, Performance and Timeliness in Control-Flow Integrity." arXiv, 2019.

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[2] Obtained annually.