Wenhao Wu

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About Me

I am currently a Ph.D. student (2025 Spring) at ICT, CAS. I conduct active/passive network measurements to model network behavior, measure DNS infrastructure, and trace DDoS attacks. My works have been accepted at top conferences (e.g., USENIX Security, WWW) and applyed to our industrial collaborators (including CSTNET and CNNIC).
Research Interests: In-Network Computing, Active/Passive Measurement, DDoS Resiliency, and DNS Security

Education

Institute of Computing Technology, Chinese Academy of Sciences Beijing, China
Ph.D. of Computer Science and Technology *Sep. 2022 - Expected Jun. 2027*
Supervisor: Zhenyu Li, Professor

University of Electronic Science and Technology of China Chengdu, China
B.S. of Engineering GPA:3.96/4.0 *Sep. 2018 - Jun. 2022*

Publications

[1]Tracking the Stray Sheep: Understanding DNS Response Manipulation in the Wild
W. Wu**, Z. Wang, Z. Li, Q. Li, Y. Xia, C. Gao, G. Zhang, Z. Li. (ACM The Web Conference 2026. **CCF-A, CORE-A)*

DNS manipulations such as hijacking, tampering, and censorship can disrupt domain resolution, posing significant privacy and security risks. we propose a novel approach for measuring DNS manipulations based on resolution path analysis and conduct large-scale measurements, revealing critical insights into DNS manipulation.

[2]ODNS Clustering: Unveiling Client-side Dependency in Open DNS Infrastructure
W. Wu**, Z. Wang, Q. Li, Z. Li, Y. Li, J. Yan, Z. Li. (ACM The Web Conference 2025. **CCF-A, CORE-A)*

The open DNS servers that have dependencies on each other form ODNS Clusters. Such dependencies can result in vulnerabilities; This work measures the inter-dependence of open DNS resolvers and analyzes the characteristics of the clustered ODNS structure, providing a deep understanding of the clustered ODNS structure and its implications.

[3]Lemon: Network-wide DDoS Detection with Routing-Oblivious Per-flow Measurement
W. Wu**, Z. Li, X. Liu, Z. Wang, H. Pan, G. Zhang, G. Xie. (USENIX Security 2025. **CCF-A, CORE-A)*

Unpredictable routing in modern networks will invalidate the network administrator's prior knowledge of the network topology, causing existing sketch-based measurement systems to suffer from packet over-counting and processing stage mis-allocating issues. This work proposes Lemon, a routing-oblivious system that provides accurate detection of DDoS attacks.

[4]Detecting and Defending Mechanism Against DDoS Attacks in Programmable Data Plane.
***Wenhao Wu**, Leilei Zhang, Heng Pan, Enhan Li, Jianer Zhou, Zhenyu Li, Ruan Jian Xue Bao/Journal of Software (in Chinese).*

[5]DNS Recursive Resolution Service Security: Threats, Defenses, and Measurements.
*Qinxin Li, **Wenhao Wu**, Zhaohua Wang, Zhenyu Li. Journal of Computer Research and Development (in Chinese)*

[6]SAROS: A Self-Adaptive Routing Oblivious Sampling Method for Network-wide Heavy Hitter Detection.
*Enhan Li, **Wenhao Wu**, Zhaohua Wang, Zhenyu Li, Jianwei Niu, APNet*

[7]Balancing Privacy and Security of QNAME Minimisation.
Qinxin Li, Zhaohua Wang, Wenhao Wu, Zihan Li, Yiming Xia, Chuan Gao and Zhenyu Li, WWW26

Awards

National Scholarship for Master's Student in 2024 Beijing, China
Institute of Computing Technology, Chinese Academy of Sciences *2024*

National Scholarship for Undergraduates in 2019, 2020, and 2021 (3 times) Chengdu, China
University of Electronic Science and Technology of China *2019 - 2021*

Intel 2022 P4 China Hackathon Beijing, China
Second Prize *2022*

Internships

China Internet Network Information Center (CNNIC) Beijing, China
Research Intern *Feb. 2024 - Oct. 2024*