

# 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 with the help of industrial collaborators (including CSTNET and CNNIC), my work is bringing benefits to real-world network infrastructures.

**Research Interests:** In-Network Computing, Active/Passive Measurement, DDoS Resiliency, and DNS Security

## EDUCATION

<b>Institute of Computing Technology, Chinese Academy of Sciences</b> <i>Ph.D. of Computer Science and Technology</i> <b>Supervisor:</b> Zhenyu Li, Professor	Beijing, China Feb. 2025 - Expected Jun. 2027
<b>Institute of Computing Technology, Chinese Academy of Sciences</b> <i>MPhil of Computer Science and Technology GPA:3.80/4.0</i> <b>Supervisor:</b> Zhenyu Li, Professor	Beijing, China Sep. 2022 - Jan. 2025
<b>University of Electronic Science and Technology of China</b> <i>B.S. of Engineering GPA:3.96/4.0</i>	Chengdu, China Sep. 2018 - Jun. 2022

## PUBLICATIONS

### Featured Publications

[1]**ODNS Clustering: Unveiling Client-side Dependency in Open DNS Infrastructure**

W. Wu, Z. Wang, Q. Li, Z. Li, Y. Li, J. Yan, Z. Li. (Accepted in ACM The Web Conference 2025. *CCF-A, CORE-A\**)

There are over a million open DNS servers in the wild, and many DNS forwarders forward queries to upstream recursive servers or other DNS forwarders for name resolving on their behalf. The groups of open servers that have such dependencies on each other form ODNS Clusters. The dependencies can result in vulnerabilities; This work measures the inter-dependence of open DNS resolvers and analyzes the characteristics of the clustered ODNS structure.

[2]**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. (Accepted in USENIX Security 2025. *CCF-A, CORE-A\**)

Network-wide DDoS detection enables early attack detection and mitigates victim losses. However, unpredictable routing of DDoS traffic 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 propose Lemon, a routing-oblivious, resource-friendly, and scalable DDoS detection system that provides accurate detection of DDoS attacks without any assumption on the traffic routing.

### Selected Publications

[1]**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)*

[2]**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

[3]**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)*.

## AWARDS

<b>National Scholarship for Master’s Student in 2024</b> <i>Institute of Computing Technology, Chinese Academy of Sciences</i>	Beijing, China 2024
<b>National Scholarship for Undergraduates in 2019, 2020, and 2021 (3 times)</b> <i>University of Electronic Science and Technology of China</i>	Chengdu, China 2019 - 2021
<b>Intel P4 hackthon 2022</b> <i>Second Prize</i>	Beijing, China 2022

## INTERNSHIPS

<b>China Internet Network Information Center (CNNIC)</b> <i>Research Intern</i>	Beijing, China Feb. 2024 - Oct. 2024
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