

Chaoyi Lu

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Education & Employment

2022 - Present: Postdoctoral researcher

Tsinghua University

Reporting to Prof. Haixin Duan

2017 - 2022: PhD

Tsinghua University

Advisor: Prof. Jianping Wu

Research Interests: Network security, Internet measurement

Dissertation: *On Measuring Security Technologies within the Domain Name System Hierarchy*

2013 - 2017: BSc

Beijing University of Posts and Telecommunications

Publications

◇ **14 conference papers (11 published at top-tier venues; 7 lead-/second-authored)**

◇ **Research topics: DNS measurement and data analysis** [4, 6, 11-14], **DNS vulnerabilities** [1-3, 10], **other infrastructure** [5, 7-9]

Conference Papers

- [1] **[CCS '23a]** W. Xu, X. Li, **Chaoyi Lu**, B. Liu, J. Zhang, et al. ***TsuKing: Coordinating DNS Resolvers and Queries into Potent DoS Amplifiers***. To appear in Proceedings of the 30th ACM Conference on Computer and Communications Security, Copenhagen, Denmark, November 2023.
- [2] **[CCS '23b]** F. Zhang, B. Liu, E. Alowaisheq, J. Chen, **Chaoyi Lu**, et al. ***Silence is not Golden: Disrupting the Load Balancing of Authoritative DNS Servers***. To appear in Proceedings of the 30th ACM Conference on Computer and Communications Security, Copenhagen, Denmark, November 2023.
- [3] **[USENIX Sec '23]** X. Li, **Chaoyi Lu**, B. Liu, Q. Zhang, Z. Li, et al. ***The Maginot Line: Attacking the Boundary of DNS Caching Protection***. To appear in Proceedings of the 32nd USENIX Security Symposium, Anaheim, CA, USA, August 2023.
- [4] **[PAM '22]** F. Zhang, **Chaoyi Lu**, B. Liu, H. Duan, Y. Liu. ***Measuring the Practical Effect of DNS Root Server Instances: A China-Wide Case Study***. In Proceedings of the 23rd Passive and Active Measurement Conference. March 2022.
- [5] **[CCS '21]** Y. Zhang, B. Liu, **Chaoyi Lu**, Z. Li, H. Duan, et al. ***Rusted Anchors: A National Client-Side View of Hidden Root CAs in the Web PKI Ecosystem***. In Proceedings of the 28th ACM Conference on Computer and Communications Security, November 2021.
- [6] **[NDSS '21]** **Chaoyi Lu**, B. Liu, Y. Zhang, Z. Li, F. Zhang, H. Duan, et al. ***From WHOIS to WHOWAS: A Large-Scale Measurement Study of Domain Registration Privacy under the GDPR***. In Proceedings of the 28th Network and Distributed System Security Symposium, February 2021.
◇ Covered by Cybercrime Digest of Cybercrime Program Office of the Council of Europe (C-PROC) & CERT-SE's weekly letter
- [7] **[USENIX Sec '21]** K. Shen, C. Wang, X. Zheng, M. Guo, **Chaoyi Lu**, et al. ***Weak Links in Authentication Chains: A Large-scale Analysis of Email Sender Spoofing Attacks***. In Proceedings of the 30th USENIX Security Symposium, August 2021.

- [8] [\[CCS '20a\]](#) M. Zhang, X. Zheng, K. Shen, Z. Kong, **Chaoyi Lu**, et al. *Talking with Familiar Strangers: An Empirical Study on HTTPS Context Confusion Attacks*. In Proceedings of the 27th ACM Conference on Computer and Communications Security, November 2020.
- [9] [\[CCS '20b\]](#) Y. Zhang, B. Liu, **Chaoyi Lu**, Z. Li, H. Duan, et al. *Lies in the Air: Characterizing Fake-base-station Spam Ecosystem in China*. In Proceedings of the 27th ACM Conference on Computer and Communications Security, November 2020.
- [10] [\[USENIX Sec '20\]](#) X. Zheng, **Chaoyi Lu**, J. Peng, Q. Yang, D. Zhou, et al. *Poison Over Troubled Forwarders: A Cache Poisoning Attack Targeting DNS Forwarding Devices*. In Proceedings of the 29th USENIX Security Symposium, August 2020.
[◇ Community & industrial conference: ICANN DNS Symposium 2021](#)
- [11] [\[IMC '19\]](#) **Chaoyi Lu**, B. Liu, Z. Li, S. Hao, H. Duan, et al. *An End-to-End, Large-Scale Measurement of DNS-over-Encryption: How Far Have We Come?*. In Proceedings of the 19th Internet Measurement Conference, October 2019.
[◇ Recipient of IRTF Applied Networking Research Prize \(ANRP\) 2020](#)
[◇ Distinguished Paper Award Nominee \(3/39\) & Community Contribution Award Nominee \(2/39\)](#)
[◇ Community & industrial conferences: IETF 108 & DNS-OARC 31](#)
- [12] [\[EuroS&P '19\]](#) B. Liu, Z. Li, P. Zong, **Chaoyi Lu**, H. Duan, et al. *TraffickStop: Detecting and Measuring Illicit Traffic Monetization Through Large-scale DNS Analysis*. In Proceedings of the 4th IEEE European Symposium on Security and Privacy, June 2019.
- [13] [\[USENIX Sec '18\]](#) B. Liu, **Chaoyi Lu**, H. Duan, Y. Liu, Z. Li, et al. *Who Is Answering My Queries: Understanding and Characterizing Interception of the DNS Resolution Path*. In Proceedings of the 27th USENIX Security Symposium, August 2018.
[◇ Community & industrial conferences: ACM/IRTF ANRW '19 & DNS-OARC 30](#)
- [14] [\[DSN '18\]](#) B. Liu, **Chaoyi Lu**, Z. Li, Y. Liu, H. Duan, et al. *A Reexamination of Internationalized Domain Names: the Good, the Bad and the Ugly*. In Proceedings of the 48th IEEE/IFIP International Conference on Dependable Systems and Networks, June 2018.

Workshop Papers

- [15] [\[EthiCS '22\]](#) Y. Zhang, M. Liu, M. Zhang, **Chaoyi Lu**, H. Duan. *Ethics in Security Research: Visions, Reality, and Paths Forward*. 1st International Workshop on Ethics in Computer Security. June 2022.
[◇ Recipient of Best Student Paper Award](#)
- [16] [\[FOCI '18\]](#) M. Zhang, B. Liu, **Chaoyi Lu**, J. Zhang, S. Hao, H. Duan. *Measuring Privacy Threats in China-Wide Mobile Networks*. 8th USENIX Workshop on Free and Open Communications on the Internet, August 2018.

Industrial Standard

- [17] **Chaoyi Lu**, Y. Huang, J. Zhang, H. Duan, D. Ma, et al. *Domain Name System Encryption Communication Technical Requirements*. Industrial standard of telecommunication technologies of the P.R.C. (Announced May 2021, to be issued)

Teaching

Courses (at Tsinghua University)

Joint lecturer, Network Security Experiments, 2023 Summer
 Teaching assistant, Basics and Cutting-Edge Topics of Cyberspace, 2020 Fall
 Teaching assistant, Computer Networks, 2019 Fall
 Teaching assistant, Network Security Technologies, 2019 Spring

Lectures

Basics of the Domain Name System and Its Security, DataCon Summer Camp 2022

Services

Community Events

Panel moderator & pre-event webinar organizer, ICANN APAC DNS Forum, 2023
Instructor, DNSSEC training session for CERNET, 2023 (supported by APNIC ISIF Project)

TPC Members

Conference: SecureComm '23

External Reviewers

Conferences: RAID '23, NDSS '22 & '20, ICDCS '21, DSN '20, CCS '19, ESORICS '19, ICICS '19
Journal: IEEE TNSM 2020
Workshops: WPES '21, IoT S&P '18, RESEC '18

Awards

Academia

PhD Graduate Award of Tsinghua University	2022
PhD Dissertation Award of Tsinghua University	2022
IRTF Applied Networking Research Prize (ANRP)	2020
ACM IMC Nominee of Distinguished Paper Award & Community Contribution Award	2019
IEEE/IFIP DSN Student Travel Grant	2018

Scholarships & Others

Graduate Award, Education Commission of Beijing Municipality	2022 & 2017
1st-Class Scholarship of Tsinghua University for Graduate Students	2021 & 2020
1st Prize, 5th Competition of Next Generation Internet Technology Innovation	2019
Cyber Security Scholarship of China Internet Development Foundation	2016