

# Chaoyi Lu

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## Education

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**2017 - 2022: PhD**      **Tsinghua University, China**

Advisor: Prof. Jianping Wu

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

Research Interests: Network security, Internet measurement

**2013 - 2017: B.Eng.**      **Beijing University of Posts and Telecommunications, China**

## Publications

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◇ 14 conference papers (9 published at top-tier venues) + 1 industrial standard + 1 patent

### Conference Papers

- [1] **[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.
- [2] **[EthiCS '22]** Y. Zhang, M. Liu, M. Zhang, **Chaoyi Lu**, H. Duan. ***Ethics in Security Research: Visions, Reality, and Paths Forward.*** To appear in the 1st International Workshop on Ethics in Computer Security. June 2022.  
◇ Recipient of Best Student Paper Award
- [3] **[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.
- [4] **[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.
- [5] **[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.  
◇ Included by Cybercrime Digest of Cybercrime Program Office of the Council of Europe (C-PROC) & CERT-SE's weekly letter
- [6] **[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.
- [7] **[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.
- [8] **[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.
- [9] **[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

- [10] **[IMC '19] Chaoyi Lu**, B. Liu, Z. Li, S. Hao, H. Duan, M. Zhang, C. Leng, Y. Liu, Z. Zhang, J. Wu. **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
- [11] **[EuroS&P '19]** B. Liu, Z. Li, P. Zong, **Chaoyi Lu**, H. Duan, Y. Liu, S. Alrwais, X. Wang, S. Hao, Y. Jia, Y. Zhang, K. Chen, Z. Zhang. **TrafficStop: 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.
- [12] **[USENIX Sec '18]** B. Liu, **Chaoyi Lu**, H. Duan, Y. Liu, Z. Li, S. Hao, M. Yang. **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
- [13] **[DSN '18]** B. Liu, **Chaoyi Lu**, Z. Li, Y. Liu, H. Duan, S. Hao, Z. Zhang. **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.
- [14] **[FOCI '18]** M. Zhang, B. Liu, **Chaoyi Lu**, J. Zhang, S. Hao, H. Duan. **Measuring Privacy Threats in China-Wide Mobile Networks**. Accepted to the 8th USENIX Workshop on Free and Open Communications on the Internet, August 2018.

## Industrial Standard & Patent

- [15] **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)
- [16] Y. Zhang, B. Liu, **Chaoyi Lu**, H. Duan, J. Li, W. Liu. **Methodology and Equipment of Network Accessing Security and Detection**. Patent of the P.R.C. (Filed November 2021, to be granted)

## Awards

### Academia

Outstanding PhD Dissertation Award & PhD Graduate 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

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

## Services (External reviewers)

Conferences: 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