

# SHIYU LI

shaili0106@gmail.com

<https://github.com/ShiyuuLi>

## EDUCATION

### University of Electronic Science and Technology of China

M.Eng. in Cybersecurity

Advisor: Prof. Yuan Zhang

Sept. 2021 - Jun. 2024

GPA: 3.75/4.00

### University of Memphis

Visiting Student in Computer Science

Advisor: Prof. Kan Yang

Jan. 2023 - Mar. 2023

### University of Electronic Science and Technology of China

B.Eng. in Information Security

Sept. 2017 - Jun. 2021

GPA: 3.87/4.00

## PUBLICATION & MANUSCRIPT

- [1] **S. Li**, Y. Zhang, Y. Song, H. Liu, N. Cheng, H. Li, and K. Yang. "Beyond Security: Achieving Fairness in Mailmen-Assisted Timed Data Delivery". *Transactions on Information Forensics and Security*, vol. 19, pp. 6425-6440, 2024. <https://doi.org/10.1109/TIFS.2024.3416049>.
- [2] **S. Li**, Y. Zhang, C. Xu, Y. Song, N. Cheng, Z. Liu, Y. Du, and X. Shen. "HealthFort: A Cloud-Based eHealth System with Conditional Forward Transparency and Secure Provenance via Blockchain". *IEEE Transactions on Mobile Computing*, vol. 22, no. 11, pp. 6508 – 6525, 2022. <https://doi.org/10.1109/TMC.2022.3199048>.
- [3] **S. Li**, Y. Zhang, N. Cheng, and Y. Song. "Badge: Blockchain-Assisted Secure Authenticated Data Transmission in Mobile Edge Computing". *IEEE International Conference on Communications*, pp. 4757 - 4762, 2022. <https://doi.org/10.1109/ICC45855.2022.9838606>.
- [4] **S. Li**, Y. Zhang, C. Xu, N. Cheng, Z. Liu, and X. Shen. "BESURE: Blockchain-Based Cloud-Assisted eHealth System with Secure Data Provenance". *IEEE/ACM International Symposium on Quality of Service*, pp. 1 - 6, 2021. <https://doi.org/10.1109/IWQOS52092.2021.9521289>.
- [5] Y. Song, C. Xu, Y. Zhang, and **S. Li**. "Hardening Password-Based Credential Databases". *IEEE Transactions on Information Forensics and Security*, vol. 19, pp. 469 - 484, 2023. <https://doi.org/10.1109/TIFS.2023.3324326>.
- [6] **S. Li**, Y. Zhang, Y. Song, K. Yang, F. Wu, F. Lyu, and Q. Tang. "EpiOracle: Privacy-Preserving Cross-Facility Early Warning for Unknown Epidemics". (In Submission) <https://eprint.iacr.org/2023/1779.pdf>.
- [7] Y. Song, Y. Zhang, **S. Li**, W. Li, Z. Lai, and Q. Tang. "There Is Always a Way Out! Destruction-Resistant Key Management: Formal Definition and Practical Instantiation". (In Submission) <https://eprint.iacr.org/2023/1785.pdf>.

## RESEARCH EXPERIENCE

### Tradeoffs between Privacy and Utility in eHealth

Mentor: Prof. Yuan Zhang, Prof. Kan Yang

Mar. 2021 - present

- **Background.** The deployment of eHealth systems significantly enhances the utility of healthcare data. However, substantial privacy concerns arise when using this data due to its sensitive nature. Our goal is to maintain the utility of healthcare data while ensuring a reasonable level of privacy.

- **Action.** Developed an *eHealth system with conditional forward transparency to preserve individual privacy*, allowing a patient to efficiently authorize a doctor to access only necessary information.  
Proposed an *early epidemic warning scheme to preserve group privacy*, in which frequencies of symptoms among all patients are monitored while not leaked to any unrelated party.  
Completed papers [2], [4], [6].
- **Result.** This project could encourage patients and healthcare facilities to contribute their healthcare data by providing privacy preservation. It is promising for a more diverse and comprehensive data pool available for research, facilitating the development of innovative techniques in healthcare.

### Trustworthy Electronic Voting

Mar. 2022 - Mar. 2023

Mentor: Prof. Yuan Zhang, Prof. Kan Yang

- **Background.** Electronic voting is widely deployed for elections. To protect voters from becoming a coercion target, each vote should be public only after a specified period. While some approaches leverage time-locked puzzles to send votes “into the future”, they suffer from a practical issue: fail to allow voters to precisely control the arrival time of votes. To overcome this limitation, other approaches employ a set of mailmen for vote delivery, where the security is based on the honesty of the mailmen.
- **Action.** Defined fairness in the context of mailmen-assisted timed-data delivery in electronic voting. Proposed a mailmen-assisted timed-data delivery with defined fairness, where mailmen are incentivized to faithfully adhere to the prescribed delivery mission.  
Completed paper [5].
- **Result.** The timed-data delivery with fairness in this project could contribute to trustworthy electronic voting by achieving secure delivery of votes and protecting voters from potential coercion, which could lead to increased voter turnout.

### AWARD & SCHOLARSHIP

<b>Third Prize in National Cryptographic Technology Competition</b> Chinese Association for Cryptographic Research	2023
<b>National Scholarship</b> Ministry of Education of the People’s Republic of China	2022
<b>Honored Graduate</b> University of Electronic Science and Technology of China	2021
<b>First Prize in National College Student Information Security Contest</b> Ministry of Education of the People’s Republic of China	2020
<b>National Inspirational Scholarship</b> Ministry of Education of the People’s Republic of China	2018 & 2019