Yunqing Sun

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EDUCATION

Northwestern University	Evanston, IL
Computer Science, Ph.D. in School of McCormick Engineering	Sep 2021 - Jun 2026
Xidian University	Xi'an
Cyberspace Security, MS in School of Cyber Engineering	Sep 2018 - Jun 2021
Information Security, BS in School of Telecommunications Engineering	Aug 2014 - Jun 2018

PUBLICATIONS

Papers

1. **Yunqing Sun,** Jin Cao, Maode Ma, Yinghui Zhang, Hui Li, Ben Niu, "EAP-DDBA: Efficient Anonymity Proximity Device Discovery and Batch Authentication Mechanism for Massive D2D Communication Devices in 3GPP 5G HetNet," **IEEE Transactions on Dependable and Secure Computing**, Apr. 2020, accepted.

2. **Yunqing Sun**, Jin Cao, Maode Ma, Hui Li, Ben Niu, Fenghua Li, " Privacy-Preserving Device Discovery and Authentication Scheme for D2D Communication in 3GPP 5G HetNet," Proceedings of **IEEE ICNC'19**, Honolulu, USA, Feb. 2019, pp. 425-431.

3. Jin Cao, Maode Ma, Hui Li, Ruhui Ma, **Yunqing Sun**, Pu Yu, Lihui Xiong, "A Survey on Security Aspects for 3GPP 5G Networks," **IEEE Communications Surveys and Tutorials**, 2020 , accepted.

Patents

1. Jin Cao, **Yunqing Sun**, Hui Li, Ben Niu, An Anonymous Discovery Authentication and Key Negotiation method for Massive D2D Communication Devices, CN201910067478.9

2. Jin Cao, Zhenyang Guo, **Yunqing Sun**, Pu Yu, NFC-Based Secure and Smart Hotel Access Control System and Method, CN201811482923.X

3. Jin Cao, Yuxiang Gong, Pengchen Wei, Hui Li, Yulong Fu, **Yunqing Sun**, A Group Handover Authentication Method for Mobile Relays, CN201710189800.6 (Granted)

4. Yang Xu, Jin Cao, **Yunqing Sun**, Xumeng Bu, Hui Li, PCT/CN2020/086778.

5. Yang Xu, Jin Cao, **Yunqing Sun**, Lihui Xiong, Hui Li, PCT/CN2020/086786.

6. Yang Xu, Jin Cao, Lihui Xiong, **Yunqing Sun**, Hui Li, PCT/CN2020/110081.

PROJECT EXPERIENCE

Research on Security Enhancement Based on 5G Architecture	Sep 2019 - Present

Team Leader

 The project is conducted in cooperation with a company. My responsibilities include:

- Read 3GPP standards including 5G architecture, Device-to-Device, Vehicle-to-Everything, Multimedia Broadcast Multicast Service, Generic Bootstrapping Architecture, etc.
- Design security enhancement schemes based on 5G architecture. Three technical schemes have been proposed and apply for patents.

Research on Privacy-Preserving Mechanisms for Picture Sharing Service	Mar 2019 - Jul 2019

Programmer and Team Leader

This project is based on "HideMe: Privacy-Preserving Photo Sharing on Social Networks", which is accepted by the INFOCOM 2019. We built the system for the scenarios described in the article and further improve the function. The project implements the android client-server-database system. I am mainly responsible for:

- Optimize the proposed design, including the server processes and policy recommendation design.
- Implement android client-side application, including login/registration, uploading photos, viewing status, setting policies, information extraction, policy comparison, and photo tracking.
- Participate in debugging code on server.

Security Service Framework of Electronic Invoice   May 2018 - Feb 2019

Programmer

The project is supported by the National Key Research and Development Program of China. As a participant, I participate in the discussion of authentication schemes; participate in high-speed control module programming. Understand the Linux system and *epoll* mechanism, provide part of coding for the high-speed control module.

NFC-Based Secure and Smart Hotel Access Control System   Nov 2016 - Apr 2018

Leader

The project is sponsored by the National College Student Innovation Training Program. The design of the project includes several key aspects, including android client, server, database, and secure data transmission in Apr 2018. The design reconstructs the hotel check-in process. I am responsible for the following parts:

- Design secure data transmission in the system.

- Android client programming, including registration/login, NFC module, secure transmission.

- Participate in writing the patent.

SUMMARY OF SKILLS

- **1** . Proficient in C/JAVA programming
- **2** . Proficient in Linux/Android system
- **3** .C and JAVA programming, LINUX and ANDROID system