Ruoshen Mo

莫若燊

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RESEARCH INTEREST

I am broadly interested in computer networks and security, especially for next-generation wireless networks. My ultimate goal is to build a fast and robust network system that can be accessed by anything, anywhere, and anytime.

EDUCATION

Sichuan University **Chengdu, China**

B.Eng. in Computer Science and Technology *2020-2024*

GPA: 3.67/4.00 (**Second Year:** 3.68; **Third Year:** 3.91)

Weighted Average Mark: 87.43/100 (**Second Year:** 87.63; **Third Year:** 90.65)

RESEARCH EXPERIENCE

Lightweight V2V Network Enabled by Optical Wireless Communication **Chengdu, China**

Research Intern *November 2022 - August 2023*

Advisor: Prof. Yanbing Yang, Sichuan University and Prof. Zhengguo Sheng, University of Sussex

- We established a lightweight V2V network framework, integrating communication and sensing concurrently.
- We employed Raptor Codes in V2V networks to overcome severe packet loss for the first time, enhancing the overall performance of the framework.
- We innovated in proposing a status sensing algorithm to fast detect status changes of adjacent vehicles.
- We developed a prototype using low-cost COTS devices for conducting experiments and evaluations.

Attack on C-V2X with Unprotected Messages **Riverside, U.S.A**

Research Intern *July 2023 - present*

Advisor: Prof. Zhaowei Tan, University of California, Riverside

- We discovered vulnerabilities in C-V2X protocols specified in 3GPP Rel.16–Some messages are unprotected and form the basis of communication.
- We have developed an attacker prototype that exploits these vulnerabilities and proposed several potential countermeasures.
- We plan to create an open-source C-V2X platform based on SDR to conduct further experiments in future work.

TEACHING EXPERIENCE

Rapid Development of AIoT system based on HarmonyOS **Chengdu, China**

Teaching Assistant, Sichuan University *2023 Spring*

PUBLICATIONS

VehicleTalk: Lightweight V2V Network Enabled by Optical Wireless Communication and Sensing

Yang Song,***Ruoshen Mo****,Pinpin Zhang,Chenchen Wang,Zhengguo Sheng,Yimao Sun,Yanbing Yang* ****co-first author***

IEEE International Conference on Communication (ICC) 2024. **In Submission**

WIP: Silence the Vehicles: Attacks and Defense in Cellular-V2X Unicast

Ruoshen Mo*,Hang Qiu,Zhaowei Tan*

NDSS Symposium on Vehicle Security and Privacy (VehicleSec 2024). **In Submission**

PATENTS

The Design of a Practical V2V Communication System based on OWC using COTS Devices **China**

Ruoshen Mo*,Yanbing Yang,Yang Song,Yanbo Wang,Jun Tao,Xinyu Lv,Jifei Zhu,Yimao Sun* *2023*

CN Patent Application CN116961748A, filed April 2023. **Patent Pending**

HONORS

- **Excellence Award of National Undergraduate Training Program for Innovation and Entrepreneurship (China)**
  2023
- **The First Prize Scholarship of Sichuan University**
  2021,2022,2023
- **Excellence Students of Sichuan University**
  2023

SKILLS

Programming Language	C/C++, Python, JAVA
Familiar with	ESP32, STM32, FreeRTOS, HarmonyOS, LaTeX, MatLab
Languages	Chinese (Native), Cantonese (Native), English (Fluent)