

# Haohuang Wen

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## Education

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**South China University of Technology**  
*B.Eng. in Software Engineering, Excellent Engineer Class*  
**The Ohio State University**  
*Ph.D. in Computer Science and Engineering*

**Guangzhou, China**  
*Sep 2014 - July 2018*  
**Columbus, US**  
*Aug 2018 - May 2024*

## Research Interest

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**Mobile and Cellular Network** (5G / Future G) Security; OpenRAN; **Program analysis** and Reverse engineering; **Automotive** and **IoT** Security

## Publications

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**Highlight:** SEVEN (Co-)First-Authored papers in top-tier ("Big-Four") computer security venues (USENIX Security'20'23, CCS'20'24, NDSS'20'23'24)

- [HotNets'24] Haohuang Wen, Prakhar Sharma, Vinod Yegneswaran, Phillip Porras, Ashish Gehani, and Zhiqiang Lin. "6G-XSec: Explainable Edge Security for Emerging OpenRAN Architectures". In the Network and Distributed System Security Symposium 2024 (*Acceptance rate: 44/158=27.8%*).
- [CCS'24] Wenqiang Li\*, Haohuang Wen\*, and Zhiqiang Lin. (\* indicates equal contribution) "BaseMirror: Automatic Reverse Engineering of Baseband Commands from Android's Radio Interface Layer". In the 23rd Workshop on Hot Topics in Networks (*Acceptance rate: TBD*).
- [NDSS'24] Haohuang Wen, Phillip Porras, Vinod Yegneswaran, Ashish Gehani, and Zhiqiang Lin. "5G-Spector: An O-RAN Compliant Layer-3 Cellular Attack Detection Service". In the Network and Distributed System Security Symposium 2024 (*Acceptance rate: 140/694=20.2%*).  
★ Distinguished Artifact Award (2 out of 38 submitted artifacts among 140 papers).
- [NDSS'23] Haohuang Wen, Phillip Porras, Vinod Yegneswaran, and Zhiqiang Lin. "Thwarting Smartphone SMS Attacks at the Radio Interface Layer". In the Network and Distributed System Security Symposium 2023 (*Acceptance rate: 94/581=16.2%*).
- [USENIX Security'23] Haohuang Wen and Zhiqiang Lin. "Egg Hunt in Tesla Infotainment: A First Look at Reverse Engineering of Qt Binaries". In proceedings of the 32nd USENIX Security Symposium (*Acceptance rate: 422/1444=29.2%*).
- [EmergingWireless'22] Haohuang Wen, Phillip Porras, Vinod Yegneswaran, and Zhiqiang Lin. "A Fine-Grained Telemetry Stream for Security Services in 5G Open Radio Access Networks". In the 1st Workshop on Emerging Topics in Wireless.
- [RAID'22] Jun Yeon Won, Haohuang Wen, and Zhiqiang Lin. "What You See is Not What You Get: Revealing Hidden Memory Mapping for Peripheral Modeling". In Proceedings of the 25th International Symposium on Research in Attacks, Intrusions and Defenses (*Acceptance rate: 35/139=25.2%*).
- [PETS'22] Christopher Ellis, Haohuang Wen, Zhiqiang Lin, and Anish Arora. "Replay (Far) Away:

Exploiting and Fixing Google/Apple Exposure Notification Contact Tracing". In Proceedings of the 29th Privacy Enhancing Technologies Symposium (*Acceptance rate: 128/534=24.0%*).

- [CCS'20] **Haohuang Wen**, Zhiqiang Lin, and Yinqian Zhang. "FirmXRay: Detecting Bluetooth Link Layer Vulnerabilities from Bare-Metal Firmware". In Proceedings of the 27th ACM Conference on Computer and Communications Security (*Acceptance rate: 121/715=16.9%*).
- [SecureComm'20] **Haohuang Wen**, Qingchuan Zhao, Zhiqiang Lin, Dong Xuan, and Ness Shroff. "A Study of the Privacy of COVID-19 Contact Tracing Apps". In Proceedings of the International Conference on Security and Privacy in Communication Networks.
- [SecureComm'20] Qingchuan Zhao, **Haohuang Wen**, Zhiqiang Lin, Dong Xuan, and Ness Shroff. "On the Accuracy of Measured Proximity of Bluetooth-based Contact Tracing Apps". In Proceedings of the International Conference on Security and Privacy in Communication Networks.
- [NDSS'20] **Haohuang Wen**, Qingchuan Zhao, Qi Alfred Chen and Zhiqiang Lin. "Automated Cross-Platform Reverse Engineering of CAN Bus Commands from Mobile Apps". In Proceedings of the Network and Distributed System Security Symposium (*Acceptance rate: 88/506=17.4%*).
- [USENIX Security'20] **Haohuang Wen**, Qi Alfred Chen, and Zhiqiang Lin. "Plug-N-Pwned: Comprehensive Vulnerability Analysis of OBD-II Dongles as A New Over-the-Air Attack Surface in Automotive IoT". In Proceedings of the 29th USENIX Security Symposium (*Acceptance rate: 157/977=16.1%*).
- [CCS'19] Chaoshun Zuo, **Haohuang Wen**, Zhiqiang Lin and Yinqian Zhang. "Automatic Fingerprinting of Vulnerable BLE IoT Devices with Static UUIDs from Mobile Apps". In Proceedings of the 26th ACM Conference on Computer and Communications Security (*Acceptance rate: 149/934=16.0%*).
- [APSEC'18] **Haohuang Wen**, Juanru Li, Yuanyuan Zhang, and Dawu Gu. "An Empirical Study of SDK Credential Misuse in iOS Apps". In Proceedings of 25th Asia-Pacific Software Engineering Conference.
- [IEEE Access] **Haohuang Wen**, Lei Yang, and Zhenyu Wang. "ParGen: A Parallel Method for Partitioning Data Stream Applications in Mobile Edge Computing". In IEEE Access 2017.

## Work Experience

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**The Ohio State University**

*Postdoctoral Researcher*

**Columbus, OH, US**

*May 2024 -*

**SRI International**

*Security Research Intern*

**Remote**

*May 2023 - Aug 2023*

**The Ohio State University**

*Graduate Teaching Assistant (CSE 5474 - Software Security)*

**Columbus, OH, US**

*Jan 2023 - May 2023*

**SRI International**

*Security Research Intern*

**Remote**

*May 2022 - Aug 2022*

**SRI International**

*Security Research Intern*

**Remote**

*May 2021 - July 2021*

**The Ohio State University**

*Graduate Research Assistant*

**Columbus, OH, US**

*Aug 2018 - May 2024*

**Shanghai Jiao Tong University**

*Security Research Intern*

**Shanghai, China**

*Mar 2018 - May 2018*

## Professional Service

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### Conference Program Committee / Reviewer:

- The ACM Web Conference: 24, 25
- EAI International Conference on Security and Privacy in Communication Networks (SecureComm): 23
- Annual Computer Security Applications Conference (ACSAC) Artifact Evaluation Committee: 19

### Journal Reviewer:

- IEEE Transactions on Intelligent Transportation Systems: 24
- IEEE Transactions on Mobile Computing (TMC): 24
- IEEE Internet of Things Journal (IoT-J): 23
- IEEE Communications Magazine: 23
- IEEE Security & Privacy Journal: 22

**External Reviewer:** CCS (22, 20), IEEE S&P (24, 22, 21), USENIX Security (22, 21), NDSS (20, 19), ACSAC (22, 20, 19), DSN (22, 21, 20), ESORICS (22), SecureComm (19), DFRWS (20, 19), AutoSec (21)

## Selected Media Coverage

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- NSF invests \$25M to advance technologies and communications to operate securely through 5G networks. 09/21/2023.
- 5G Security-Enhanced Open Radio Access Networks - Nephio. 05/03/2023.
- NSF, DOD partner to advance 5G technologies and communications for U.S. military, government and critical infrastructure operators. 09/07/2022
- Google/Apple's contact-tracing apps susceptible to digital attacks. 08/08/2022.
- Hackers could target COVID-19 contact tracing apps on your phone: Ohio State researchers. 07/21/2022.
- HES application is one year old. Do you think he was born happy? 04/18/2021.
- The Risks Posed by Wireless Automotive Dongles. 08/12/2020.
- Hacking Bluetooth. 02/27/2020.
- Fundamental Design Flaw Leaves Bluetooth Devices Vulnerable to Hacking. 11/15/2019

## Selected Awards and Honors

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- NDSS'24 Distinguished Artifact Award (2024)
- OSU Presidential Fellowship (2023)
- Departmental Graduate Research Award (2023)
- NDSS student travel grant (2020)
- CCS student travel grant (2019)
- First Class Scholarship (Top 1%), South China University of Technology (2015)

## Expertise and Skills

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**Programming Languages :** Python, Java, C++, C

**Skill Set:** Mobile App Development and Reverse Engineering (iOS & Android), Binary analysis (x86 & ARM), Software-defined radio programming (USRP, BladeRF series)

**Tools/Framework:** Ghidra, Frida, IDA Pro, GDB, Jeb, Soot, Wireshark, Charles, QEMU, Docker, Kubernetes, AOSP, OpenAirInterface, srsRAN, SD-RAN