

Jincheng Wang | Curriculum Vitae

The Chinese University of Hong Kong, Shatin, N.T., Hong Kong SAR

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EDUCATION

The Chinese University of Hong Kong
Ph.D. in Computer Science and Engineering
ANSR Lab, supervised by Prof. John C.S. Lui

Hong Kong
Aug.2018–Present

Huazhong University of Science and Technology
B.E. in Computer Science and Technology
ACM Distinguished Class

Wuhan
Aug.2014–Jun.2018

EXPERIENCE

Anomaly detection for IoT devices using causal inference

Supervisor: Prof. John C.S. Lui

CUHK
Feb.2021–Now

- Revealed widespread IoT device interactions and anomaly propagations issues
- Designed causal discovery algorithm to profile device interactions
- Leveraged causal knowledge to identify runtime device anomalies

Security analysis of IoT communication protocols

Supervisor: Prof. John C.S. Lui

CUHK
June.2019–Feb.2021

- Leveraged formal verification approach to study security guarantees of Zigbee
- Designed Zigbee testing tools to verify identified vulnerabilities on real-world devices
- Collaborated with Zigbee Alliance and amended the Zigbee specification

Differential privacy (DP) under the attribute linkage threat

Supervisor: Prof. John C.S. Lui

CUHK
Aug.2018–June.2019

- Revealed insufficiencies of DP for defending against the attribute linkage attack
- Enhanced DP with topology-theoretic approach and proposed a new variant
- Designed an algorithm APLKILLER which better protects data privacy

PUBLICATIONS

Jincheng Wang, Zhuohua Li, John C.S. Lui, and Mingshen Sun. Topology-Theoretic Approach To Address Attribute Linkage Attacks In Differential Privacy. *Computers & Security* (2021): 102552. [pdf]

Jincheng Wang, Zhuohua Li, John C.S. Lui, and Mingshen Sun. Zigbee's Network Rejoin Procedure for IoT Systems: Vulnerabilities and Implications. In *the 25th International Symposium on Research in Attacks, Intrusions and Defenses*. RAID 2022. [demo]

Zhuohua Li, Jincheng Wang, Mingshen Sun, and John C.S. Lui. Detecting Cross-Language Memory Management Issues in Rust. To appear in *Proceedings of the 27th European Symposium on Research in Computer Security*. ESORICS 2022, Copenhagen, Denmark, September 2022.

Zhuohua Li, Jincheng Wang, Mingshen Sun, and John C.S. Lui. MirChecker: Detecting Bugs in Rust Programs via Static Analysis. In *Proceedings of the 28th ACM Conference on Computer and Communications Security*. CCS '21.

Zhuohua Li, Jincheng Wang, Mingshen Sun, and John C.S. Lui. Securing the Device Drivers of Your Embedded Systems: Framework and Prototype. In *Proceedings of the 3rd International Workshop on Security and Forensics of IoT (in conjunction with ARES 2019)*. IoT-SECFOR '19.

HONORS & AWARDS

Hai Hang Scholarship for Outstanding Student

Oct.2017, HUST

First-class Scholarship for Outstanding Student
National Scholarship

Oct.2016, HUST
Nov.2015, HUST

COMPUTER SKILLS

Operating Systems: Linux, macOS, Windows

Programming Languages: Experienced in C/C++ and Python; familiar with R and Java

TEACHING ASSISTANT

CSCI3320: Fundamentals of Machine Learning

Spring 2019, CUHK

CSCI2040: Introduction to Python

Fall 2018, CUHK