# Zhuohua Li | Curriculum Vitae

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## EDUCATION

**The Chinese University of Hong Kong**                                    **Hong Kong**
*Ph.D. in Computer Science and Engineering*                              *Aug.2017–Oct.2022*
Advanced Networking and System Research Laboratory (ANSRLab)
Supervised by Prof. John C.S. Lui

**University of Science and Technology of China**                            **Hefei**
*B.E. in Computer Science and Technology*                                 *Aug.2013–Jun.2017*
Hua Xia Talent Program in Computer Science and Technology

## EXPERIENCE

**Postdoctoral Fellow at The Chinese University of Hong Kong**            **Hong Kong**
*Supervisor: Prof. John C.S. Lui*                                       *Aug.2023–Present*
○ Working on online learning and multi-armed bandits algorithms and their applications

**Junior Research Assistant at The Chinese University of Hong Kong**      **Hong Kong**
*Supervisor: Prof. John C.S. Lui*                                       *Oct.2022–Aug.2023*
○ Designing Border Gateway Protocols (BGP) for quantum networks
○ Leveraging online learning algorithms to select high-fidelity paths while minimizing the testing cost

**Secure Linux Kernel Module Development in Rust**                     **Baidu X-Lab, USA**
*Supervisor: Dr. Tao (Lenx) Wei*                                        *Jul.2018–Oct.2018*
○ Developed a framework for writing Linux kernel modules in the Rust programming language
○ Provided infrastructures for safe kernel memory allocation and concurrency management

**Sentiment Analysis of Microsoft's Chatbot XiaoIce**        **Microsoft Research Asia, Beijing**
*Social Computing Group, Mentor: Dr. Xing Xie*                          *Jul.2016–Sep.2016*
○ Participated in improving the sentiment recognition of XiaoIce, Microsoft's AI chatbot
○ Optimized the emotion recognition according to the context of XiaoIce's dialogues

## PUBLICATIONS (* means equal contribution, # means corresponding author)

○ **Zhuohua Li**[*], Maoli Liu[*], and John C.S. Lui. FedConPE: Efficient Federated Conversational Bandits with Heterogeneous Clients. *The 33rd International Joint Conference on Artificial Intelligence*. IJCAI '24.

○ Maoli Liu, **Zhuohua Li**[#], Xuchuang Wang, and John C.S. Lui. LinkSelFiE: Link Selection and Fidelity Estimation in Quantum Networks. *The 43rd IEEE Conference on Computer Communications*. INFOCOM '24.

○ Maoli Liu[*], **Zhuohua Li**[*#], Kechao Cai, Jonathan Allcock, Shengyu Zhang, and John C.S. Lui. Quantum BGP with Online Path Selection via Network Benchmarking. *The 43rd IEEE Conference on Computer Communications*. INFOCOM '24.

○ Jincheng Wang, **Zhuohua Li**, Mingshen Sun, Bin Yuan[#], and John C.S. Lui. IoT Anomaly Detection Via Device Interaction Graph. *The 53rd Annual IEEE/IFIP International Conference on Dependable Systems and Network*. DSN '23.

○ **Zhuohua Li**, Jincheng Wang, Mingshen Sun, and John C.S. Lui. Detecting Cross-Language Memory Management Issues in Rust. *The 27th European Symposium on Research in Computer Security*. ESORICS '22.

○ Jincheng Wang, **Zhuohua Li**, John C.S. Lui, and Mingshen Sun. Zigbee's Network Rejoin Procedure for IoT Systems: Vulnerabilities and Implications. *The 25th International Symposium on Research in Attacks, Intrusions and Defenses*. RAID '22.

○ Jincheng Wang, **Zhuohua Li**, John C.S. Lui, and Mingshen Sun. Topology-Theoretic Approach To Address Attribute Linkage Attacks In Differential Privacy. *Computers & Security*, Volume 113, February 2022.

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

○ Jincheng Wang, **Zhuohua Li**, John C.S. Lui, and Mingshen Sun. Topology-Theoretic Approach To Address Attribute Linkage Attacks In Differential Privacy. *The 9th International Workshop on Security and Privacy in Big Data (in conjunction with INFOCOM 2021)*. BigSecurity '21.

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

## SELECTED PROJECTS

**FFICHECKER** (☆39): A Tool for Detecting Cross-Language Memory Management Issues in Rust ⬡

○ Detected memory management issues across Rust's *Foreign Function Interface* (*FFI*)
○ Detected 34 real-world bugs

**MIRCHECKER** (☆116): A Static Analysis and Bug Detection Tool for Rust programs ⬡

○ Performed static analysis on the Rust's *Mid-level Intermediate Representation* (*MIR*) based on the theory of *Abstract Interpretation*
○ Detected 33 real-world runtime panics and memory safety bugs

**linux-kernel-module-rust** (☆633): A Framework for Secure Kernel Module Development in Rust ⬡

○ A framework for writing Linux kernel modules in the Rust programming language
○ Provided infrastructures for safe kernel memory allocation and concurrency management

## PROFESSIONAL SERVICE

**Reviewer**: IEEE/ACM Transactions on Networking, IEEE Transactions on Software Engineering

## TEACHING ASSISTANT

| | |
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| CMSC5735: Advanced Topics in Cloud Computing | Spring 2018, **CUHK** |
| CSCI3320: Fundamentals of Machine Learning | Spring 2018, **CUHK** |
| CSCI2040: Introduction to Python | Fall 2017, **CUHK** |

## HONORS & AWARDS

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| Award of Excellence in the Microsoft Star of Tomorrow Internship Program | 2016, **MSRA** |
| 4th Place Overall Winner, World Final, ISC16 Student Cluster Competition | 2016, **Frankfurt, Germany** |
| Talent Class Top-Tier Scholarship Plan, Category A (10%) for 3 times | 2014–2016, **USTC** |
| Second-class Scholarship for Outstanding Student (10%) for 2 times | 2015, 2016, **USTC** |
| Third-class Scholarship for Outstanding Student (15%) for 2 times | 2013, 2014, **USTC** |
| Excellent Student Cadre (3%) | 2015, **USTC** |

## COMPUTER SKILLS

**Operating Systems**: Gentoo Linux, macOS
**Programming Languages**: Experienced in C/C++, Rust, Python