

Research Interests

Blockchain systems are widely applied across various fields, involving many user data, including sensitive privacy data. My research interests focus on blockchain data governance that can help improve the *scalability*, *privacy*, and *security* of blockchain systems (mainly targeting public blockchain systems such as *Ethereum*). Further, I am quite interested in blockchain data supervision specific in Payment Channel (PC), Decentralized Identity (DID), and Anonymous Credentials (AC), based on trusted hardware (such as Intel SGX) and cryptographic technology (such as *zero-knowledge proof of knowledge* and *homomorphic encryption schemes*), to resolve privacy and supervision concerns.

Education

Jinan University (“211”, No.7 in Cyberspace Security on China ARWU)

P.H.D IN CYBERSPACE SECURITY (SUPERVISOR: JIAN WENG)

Guangzhou, China

Aug. 2020 - Dec. 2023

- Thesis topic: “Research on Key Technologies for Privacy-Preserving Cross-Chain Transaction Processing”.

Jinan University

MASTER IN COMPUTER TECHNOLOGY

Guangzhou, China

Sep. 2018 - Jul. 2020

Jinan University

BACHELOR IN COMPUTER SCIENCE AND TECHNOLOGY

Guangzhou, China

Sep. 2014 - Jul. 2018

Jinan University

SECOND BACHELOR IN INVESTMENT ECONOMICS

Guangzhou, China

Sep. 2015 - Jul. 2017

Skills

Programming Java

Language Chinese (Fluent), English

Publications and Patterns

Publications

- [TIFS’25] Li Yuxian, Jian Weng, Junzuo Lai, Yingjiu Li, Jianfei Sun, Jiahe Wu, Ming Li, Pengfei Wu, Robert H Deng, “**AuditPCH: Auditable payment channel hub with privacy protection.**”
 - The AuditPCH scheme addresses the conflict between privacy protection and data regulation in cross-chain transactions by establishing a novel, auditable payment channel hub solution. It aims to balance the need for privacy in cross-chain transactions with regulatory requirements.
- [FC’25] Ming Li, Li Yuxian, Jian Weng, Yingjiu Li, Jiasi Weng, Junzuo Lai, RobertH Deng, “**IvyAPC: Auditable Generalized Payment Channels.**”
 - his paper introduces IvyApc, the novel protocol designed for the auditable PC framework. IvyApc addresses the aforementioned challenges through two innovative techniques: (i) Accountable Assertions with Flexible Public Keys: This mechanism imposes penalties on parties attempting collusion during the audit process; (ii) Chain-Linking of Off-Chain Transactions: It guarantees a verifiable sequence of transactions, safeguarding against tampering within PCs.
- [JPDC’23] Li Yuxian, Weng Jian, Wu Wei, Li Ming, Li Yingjiu, Haoxin Tu, Wu Yongdong, and Robert. H. Deng, “**PRI: PCH-based privacy-preserving with reusability and interoperability for enhancing blockchain scalability**”, in Journal of Parallel and Distributed Computing. **Citation count: 4.**
 - A payment-channel-hub-based privacy-preserving method to enhance blockchain scalability, reusability, and interoperability. Optimizing data processing and transaction mechanisms effectively improves system efficiency and user privacy protection.
- [JPDC’22] Li Yuxian Li, Weng Jian, Li Ming, Wu Wei, Weng Jiasi, Liu Jia-nan, and Hu Shun, “**ZeroCross: A sidechain-based privacy-preserving cross-chain solution for Monero**”, in Journal of Parallel and Distributed Computing. **Citation count: 42.**
 - A sidechain-based, privacy-preserving cross-chain solution for Monero, aimed at enabling secure and anonymous asset transfers, enhancing Monero’s interoperability and privacy across blockchains.

- [TVT’21] Liu Xiang, Yang Anjia, Huang Cheng, and **Yuxian Li**, “*Decentralized anonymous authentication with fair billing for space-ground integrated networks*”, in IEEE Transactions on Vehicular Technology. **Citation count: 33.**
 - A decentralized anonymous authentication solution with fair billing for space-ground integrated networks (SGINs), addressing cross-domain authentication and billing issues.

Granted Patterns

- Jian Weng, **Yuxian Li**, Ming Li, Kaixuan Nie, Junhan Chen, Jiahe Wu, and Yaxi Yang, “*A safe and efficient cross-chain service operation method and system based on SGX*”. CN112527893B. Invention patent. November 26, 2020.
- Jian Weng, Yongbiao Li, Ming Li, **Yuxian Li**, Jiasi Weng, and Yongdong Wu, “*A data transmission method and system based on blockchain and proxy re-encryption*”. CN112532580B. Invention patent. October 23, 2020.

Work Experience

Singapore Management University	Singapore
RESEARCH FELLOW	May. 2024 - present
• Blockchain Research: focus on blockchain application security, Decentralized Identity (DID), Anonymous Credentials (AC).	
Singapore Management University	Singapore
RESEARCH ASSISTANT	DEC. 2021 - Feb. 2024
• Blockchain Research: focus on blockchain application security, specific in privacy-preserving cross-chain transaction and blockchain data governance.	
International Business Machines Corporation (IBM) China	Beijing, China
PRODUCT OPERATION (SUMMER INTERN)	Jul. 2017 - Oct. 2018
• Product Operation in CIO Group: Responsible for the product operation services of the CIO department, mainly promoting the efficiency tools within IBM, and analyzing the usage of such tools by users.	

Honors & Awards

2021	National Gold Medal , The 7th Internet innovation and Entrepreneurship Competition
2020	Second Price , The 12th ” Challenge Cup” National College Student Business Plan Competition
2019	Second Price , The 12th National Information Security Competition
2016	National Encouragement scholarship ,

Academic Service

2023	Student Volunteer , for ASIACRYPT 2023	Guangzhou
2024	Reviewer , for TDSC, WWW (2024)	