Jie Xu

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Research Interests

- · **Blockchain consensus**
- · **Network security and data privacy**

Education

City University of Hong Kong (CityU) *Sep. 2020 - now*
Ph.D. in Computer Science
Supervisor: Prof. Xiaohua Jia (IEEE fellow)

University of Science and Technology of China (USTC) *Sep. 2017 - Jul. 2020*
Master of Engineering in Electronics and Communication Engineering
Supervisor: Prof. Peiling Hong and Prof. Kaiping Xue

University of Science and Technology of China (USTC) *Sep. 2013 - Jul. 2017*
Bachelor of Engineering in Information Security
Bachelor of Literature in Communication (Double major)

Publications and Patents

- · **Jie Xu**, Yulong Ming, Zihan Wu, Cong Wang and Xiaohua Jia, "**X-shard: An Optimistic Cross-shard Transaction Processing Protocol for Account-based Blockchains**," submitted to *NSDI 2023*.

- · **Jie Xu**, Sen Peng, Cong Wang and Xiaohua Jia, "**PuffChain: Dynamic Scaling BFT-based PoS Blockchain with Decoupling Functionalities**," submitted to *IEEE Infocom 2023*.

- · **Jie Xu**, Qingyuan Xie, Sen Peng, Cong Wang, and Xiaohua Jia, "**Adaptive Scaling Blockchains with Deduplication of Transactions**," submitted to *IEEE Transactions on Knowledge and Data Engineering*.

- · **Jie Xu**, Cong Wang and Xiaohua Jia, "**A Survey of Blockchain Consensus Protocols**," submitted to *ACM Computing Surveys*.

- · **Jie Xu**, Yingying Cheng, Cong Wang and Xiaohua Jia "**Occam: A Secure and Adaptive Scaling Protocol for Permissionless Blockchain**," in *Proceedings of the 41st IEEE International Conference on Distributed Computing Systems (ICDCS 2021)*, July 7-10, 2021.

- · **Jie Xu**, Kaiping Xue, Hangyu Tian, Jianan Hong, David S.L. Wei, and Peilin Hong "**An Identity Management and Authentication Scheme Based on Redactable Blockchain for Mobile Networks**," *IEEE Transactions on Vehicular Technology*, vol. 69, no. 6, pp. 6688-6698, 2020.

- · **Jie Xu**, Kaiping Xue, Shaohua Li, Jianan Hong, Peilin Hong, and Nenghai Yu "**Healthchain: A Blockchain-based Privacy Preserving Scheme for Large-scale Health Data**," *IEEE Internet of Things Journal*, vol. 6, no. 5, pp. 8770-8781, 2019.

- · **Jie Xu**, Kaiping Xue, Qingyou Yang, and Peilin Hong, "**PSAP: Pseudonym-based Secure Authentication Protocol for NFC Applications**," *IEEE Transactions on Consumer Electronics*, vol. 64, no. 1, pp. 83-91, 2018.

- Sen Peng, Yufei Chen, **Jie Xu**, Zizhuo Chen, Cong Wang and Xiaohua Jia, "**Intellectual Property Protection of DNN Models**," *World Wide Web Journal*, 2022.

- Xingyi Luo, Kaiping Xue, **Jie Xu**, Qibin Sun, and Yongdong Zhang, "**Blockchain-based Secure Data Aggregation and Distributed Power Dispatching for Microgrids**," *IEEE Transactions on Smart Grid*, vol. 12, no. 6, pp. 5268 - 5279, 2021.

- Hangyu Tian, Kaiping Xue, Xinyi Luo, Shaohua Li, **Jie Xu**, Jianqing Liu, Jun Zhao, David S.L. Wei, "**Enabling Cross-chain Transactions: A Decentralized Cryptocurrency Exchange Protocol**," *IEEE Transactions on Information Forensics and Security*, vol. 16, pp. 3928 - 3941, 2021.

- Qingyou Yang, Kaiping Xue, **Jie Xu**, Jiajie Wang, Fenghua Li, and Nenghai Yu, "**AnFRA: Anonymous and Fast Roaming Authentication for Space Information Network**," *IEEE Transactions on Information Forensics and Security*, vol. 14, no. 2, pp. 486-497, 2019.

- Peixuan He, Kaiping Xue, **Jie Xu**, Qiudong Xia, Jianqing Liu, Hao Yue, "**Attribute-based Accountable Access Control for Multimedia Content with In-network Caching**," in *Proceedings of the 2019 IEEE International Conference on Multimedia and Expo (ICME 2019)*.

- Wei Meng, Kaiping Xue, **Jie Xu**, Jianan Hong, and Nenghai Yu, "**Low-Latency Authentication Against Satellite Compromising for Space Information Network**," in *Proceeding of the 15th IEEE International Conference on Mobile Ad Hoc and Sensor Systems (MASS 2018)*. IEEE, 2018, pp. 237-244.

- Patent: "Anonymous and Fast Roaming Authentication for Space Information Network"

Research Projects

Future network architecture and protocol evolution *Mar. 2018 - Sep. 2020*
- Designed a blockchain-based self-sovereign identity management scheme for wireless mobile networks.

Information security technology for satellite networks *Dec. 2016 - Feb. 2018*
- Studied 5G security standards in 3GPP.

- Designed an authentication and key agreement protocol for satellite networks, and deployed it on Beidou system.

Lightweight remote communication on data link layer *Apr. 2016 - May. 2017*
- Developed a remote low-power wireless information collection platform with long-distance communication chips SX1278.

- Designed a data link layer protocol for self-organizing modules to reduce energy consumption.

Selected Honors and Awards

- CityU Presidential PhD Scholarship 2020
- National Scholarship of China 2019
- Best Paper Runner Up Award of IEEE MASS 2018
- Outstanding Graduate Student Scholarship of USTC 2017, 2018, 2019
- Excellent Graduation Thesis of USTC 2017
- Honor of Wang Daheng Talent Program in Optical and Mech-electronical Science and Technology