

# YINGJIE XUE

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## APPOINTMENTS

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- The University of Science and Technology of China** 2025.1-  
School of Cyber Science and Technology  
Associate Researcher
- The Hong Kong University of Science and Technology (Guangzhou)** 2023.7-2025.1  
Thrust of Financial Technology  
Assistant Professor
- The Hong Kong University of Science and Technology (Guangzhou)** 2024.2-2025.1  
Thrust of Internet of Things  
Adjunct Assistant Professor
- The Hong Kong University of Science and Technology** 2024.1-2025.1  
Cross-Campus Faculty Affiliate

## RESEARCH INTERESTS

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I have a strong foundation in security and privacy research, concentrating on addressing pivotal challenges within these fields. My research methodologies encompass applied cryptography, distributed computing algorithms, and game theory. Currently, my areas of interest include, but not limited to:

- Data Security
- Privacy Computing
- Security and Privacy of Blockchain
- Network Security
- Cloud Security
- Security in Machine Learning

## EDUCATION

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- Brown University** 2018-2023  
Department of Computer Science  
Ph.D. of Computer Science  
Thesis: *Enabling Cross-Chain Transactions* Advisor: Maurice Herlihy
- University of Science and Technology of China (USTC)** 2015-2018  
Department of Electronic Engineering and Information Science  
M.E. in Electronics and Communication Engineering  
Advisor: Kaiping Xue
- University of Science and Technology of China (USTC)** 2011-2015  
Department of Electronic Engineering and Information Science  
B.E. in Information Security

## GRANTS

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- Member**, *Guangzhou Municipal Key Laboratory of Financial Technology Cutting-Edge Research*, Guangzhou-HKUST(GZ) Joint Funding Program (No.2024A03J0630), 300 Million RMB, 2024.1.1-2025.12.31.
- Main Student Member**, *Formal Techniques for Monitoring Low-level Cross-chain Functions*, Funded by U.S. National Science Foundation, Award Number 1917990, Amount \$375,000.00, 2019.7-2023.9.

**Main Student Member**, *Research on Access Control Theory and Key Technologies in Public Cloud*, Key Project of the National Key Laboratory of Information Security, 2016-2018.

## TEACHING

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*Introduction to Blockchain Technology*, The Hong Kong University of Science and Technology (Guangzhou), 2023

*Introduction to Computer Science*, The Hong Kong University of Science and Technology (Guangzhou), 2024

*Blockchain Technology*, The Hong Kong University of Science and Technology (Guangzhou), 2024

## OTHER WORK EXPERIENCE

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**Smart Contract Research Intern**, Algorand Inc, Boston, MA, USA 2020.5–2020.8  
Supervisor: Jing Chen

## SELECTED HONORS & AWARDS

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Paris Christos Kanellakis Fellowship 2022-23

Paris Christos Kanellakis Fellowship 2020-21

National Scholarship for Graduate Students 2017

## SELECTED PUBLICATIONS

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- Z. Peng, **Y. Xue\***, J. Liu. *Efficient and Universally Accessible Cross-Chain Options without Upfront Holder Collateral*, <https://arxiv.org/abs/2410.15724>, (submitted to International World Wide Web Conference, WWW, under review)
- J. Liu, **Y. Xue\***, Z. Peng, C. Lin, X. Huang. *FairRelay: Fair and Cost-Efficient Peer-to-Peer Content Delivery through Payment Channel Networks*, <https://arxiv.org/abs/2405.02973>, 2024, (submitted to IEEE Transactions on Information Forensics and Security (TIFS), under review)
- M. Ai, L. Ding, K. Xue, X. Luo, Z. Xu, **Y. Xue**. *BLAS: An Blockchain-Enabled Efficient and Verifiable Log Audit System with Hybrid Storage*, submitted to IEEE Transactions on Dependable and Secure Computing (TDSC), under review.
- Z Xu, K Xue, X Luo, **Y. Xue**. *MSDT: Blockchain-Based Multi-Subset Data Trading with Atomicity and Data Quality Guarantee*, prepare for submission.
- M. Li, X. Luo, K. Xue, **Y. Xue**, W. Sun, J. Li. *A Secure and Efficient Blockchain Sharding Scheme via Hybrid Consensus and Dynamic Management*, IEEE Transactions on Information Forensics and Security (TIFS), vol. 19, pp.5911 - 5924, May 2024. (CCF A)
- J. Ran, D. Li, Q. Zheng, J. Yen, **Y. Xue\***. *Blockchain-Enabled Cross-border Insurance: from Legal Issues, Solution Design, to Implementation*, Blockchain Journal, ELSP, May 2024.
- R. Ganguly, **Y. Xue**, A. Jonckheere, P. Ljung, B. Schornstein, B. Bonakdarpour, M. Herlihy. *Distributed Runtime Verification of Metric Temporal Properties*. Journal of Parallel and Distributed Computing (JPDC), March 2024 (CCF B)
- **Y.Xue**, D. Jin, M. Herlihy. *Fault-tolerant and Expressive Cross-Chain Swaps*. ICDCN'23: In 24th International Conference on Distributed Computing and Networking, pp. 28-37. 2023. (ESCI, EI Compendex)
- **Y.Xue**, M. Herlihy. *Cross-chain State Machine Replication*. SSS'22: In International Symposium on Stabilizing, Safety, and Security of Distributed Systems, pp. 51-65. Springer, Cham, 2022. (ESCI, EI Compendex)
- D. Engel, **Y.Xue**. *Transferable Cross-Chain Options*. AFT'22: Proceedings of the 4th ACM Conference on Advances in Financial Technologies. (ESCI, EI Compendex)
- R. Ganguly, **Y. Xue**, A. Jonckheere, P. Ljung, B. Schornstein, B. Bonakdarpour, M. Herlihy. *Distributed Runtime Verification of Metric Temporal Properties for Cross-Chain Protocols*. ICDCS'22: 42nd IEEE International Conference on Distributed Computing Systems. (co-first author, CCF B)
- **Y. Xue**, and M. Herlihy. *Hedging Against Sore Loser Attacks in Cross-Chain Transactions*. PODC'21: Proceedings of the 2021 ACM Symposium on Principles of Distributed Computing,

- pp. 155–164, July 2021.(CCF B)
- E. Daniel, M. Herlihy, and **Y. Xue**. *Failure is (literally) an Option: Atomic Commitment vs Optionality in Decentralized Finance*. SSS'21: International Symposium on Stabilization, Safety, and Security of Distributed Systems. Springer, Cham, 2021. (ESCI, EI Compendex)
  - **Y. Xue**, K. Xue, N. Gai, J. Hong, D. S. L. Wei, P. Hong, *An Attribute-based Controlled Collaborative Access Control Scheme for Public Cloud Storage*, IEEE Transactions on Information Forensics and Security (TIFS), vol. 14, no. 11, pp. 2927 - 2942, April 2019. (CCF A)
  - K. Xue, J. Hong, **Y. Xue**, D. S. L. Wei, N. Yu, P. Hong, *CABE: A New Comparable Attribute-Based Encryption Construction with 0-Encoding and 1-Encoding*, IEEE Transactions on Computers (TC), vol. 66, no. 9, pp. 1491 - 1503, September 2017. (CCF A)
  - K. Xue, S. Li, J. Hong, **Y. Xue**, N. Yu, P. Hong, *Two-Cloud Secure Database for Numeric-Related SQL Range Queries with Privacy Preserving*, IEEE Transactions on Information Forensics and Security (TIFS), vol. 12, no. 17, pp. 1596-1608, July 2017. (CCF A)
  - K. Xue, **Y. Xue**, J. Hong, W. Li, H. Yue, D. S. L. Wei, P. Hong, *RAAC: Robust and Auditable Access Control with Multiple Attribute Authorities for Public Cloud Storage*, IEEE Transactions on Information Forensics and Security (TIFS), vol. 12, no. 4, pp. 953-967, April 2017. (CCF A)
  - K. Xue, B. Liu, J. Wang, W. Li, **Y. Xue**, *Data link bit stream oriented association analysis on unknown frame*, Journal of Electronics and Information Technology, vol 39, no.2, pp.374-380, 2017. (ESCI, EI Compendex)
  - J. Hong, K. Xue, **Y. Xue**, W. Chen, D. S. L. Wei, N. Yu, P. Hong, *T AFC: Time and Attribute Factors Combined Access Control for Time-Sensitive Data in Public Cloud*, IEEE Transactions on Services Computing, (TSC) vol. 13, no. 1, pp. 158-171, March 2017. (CCF A)
  - **Y. Xue**, J. Hong, W. Li, K. Xue, P. Hong, *LABAC: A Location-aware Attribute-based Access Control Scheme for Cloud Storage*, Proceedings of the 59th IEEE Global Communications Conference (GLOBECOM), pp. 1-6, 2016. (ESCI, EI Compendex)
  - W. Li, K. Xue, **Y. Xue**, J. Hong, *TMACS: A Robust and Verifiable Threshold Multi-Authority Access Control System in Public Cloud Storage*, IEEE Transactions on Parallel and Distributed Systems (TPDS), vol. 27, no. 5, pp. 1484-1496, May 2016. (CCF A)

## SERVICE

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- Organizing Committee Chair, Workshop on Blockchain and Decentralized Finance, HKUST(GZ), 2024.11.2- 2024.11.3
- Reviewer, IEEE Transactions on Information Forensics and Security (TIFS), 2024
- Technical Program Committee, Globecom, 2024
- Technical Program Committee, Financial Cryptography and Data Security, 2024
- Reviewer, ACM Transactions on Privacy and Security (TOPS), 2024
- Reviewer, IEEE JSAC special issue on "Building a More Secure Future: Developing Unbreakable Communication Protocols for the Quantum Era, 2024
- Reviewer, IEEE Transactions on Network and Service Management (TNSM), 2024
- Technical Program Committee, Conference on Blockchain Research & Applications for Innovative Networks and Services (BRAINS), 2024
- Technical Program Committee, IEEE International Conference on Mobility, Sensing and Networking (MSN) , 2024
- Subreviewer, European Symposium on Algorithms(ESA), 2024
- Reviewer, IEEE Transactions on Dependable and Secure Computing (TDSC), 2024
- Technical Program Committee, IEEE International Conference on Blockchain(Blockchain), 2024
- Technical Program Committee, IEEE Global Blockchain Conference (GBC), 2024
- Technical Program Committee, IJTCS-FAW, 2024
- Technical Program Committee, International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS), 2024
- Reviewer, Journal of Parallel and Distributed Computing(JPDC), 2024
- Technical Program Committee, IEEE International Conference on Blockchain, 2024

- Reviewer, Blockchain Journal, 2024
- Technical Program Committee, IEEE ICDCS 2024
- Technical Program Committee, IEEE INFOCOM 2024 Demo
- Technical Program Committee, ICNC'24 CIS
- Reviewer, IEEE Transactions on Network Science and Engineering (TNSE), 2023
- Reviewer, Distributed Ledger Technologies, 2023
- Program Committee Member, EAI TRIDENTCOM, 2023
- Program Committee Member, IJTCS-FAW, 2023
- Program Committee Member, IEEE International Conference on Blockchain and Cryptocurrency (ICBC), 2023
- Reviewer, IEEE Transactions on Dependable and Secure Computing (TDSC), 2021
- Reviewer, IEEE/ACM Transactions on Networking (ToN), 2021
- Peer-to-Peer Networking and Applications (PPNA), 2020
- IEEE Transactions on Cloud Computing (TCC), 2020

## **ORAL PRESENTATIONS**

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- *Efficient and Universally Accessible Cross-Chain Options without Upfront Holder Collateral*, Mathematical Foundations of the Internet and Blockchain Economics, Tsinghua Sanya International Mathematics Forum (TSIMF), Sanya, Hainan, China, Jan 6-10th, 2025.
- *FairRelay: Fair and Cost-Efficient Peer-to-Peer Content Delivery through Payment Channel Networks*, CSIAM Blockchain Technology and Application Forum, Changchun, China, June 21-23rd, 2024.
- *Invited Talk: Fault-tolerant and Expressive Cross-Chain Swaps*, IJTCS-FAW, Macau, China, 2023.
- *Fault-tolerant and Expressive Cross-Chain Swaps*, 24th International Conference on Distributed Computing and Networking (ICDCN 2023), IIT Kharagpur, India.
- *Cross-chain State Machine Replication*, International Symposium on Stabilizing, Safety, and Security of Distributed Systems (SSS 2022), Clermont-Ferrand, France.
- *Transferable Cross-Chain Options*, The Science of Blockchain (SBC 2022), Stanford University, California, USA.
- *Hedging Against Sore Loser Attacks in Cross-Chain Transactions*, ACM Symposium on Principles of Distributed Computing (PODC 2021), Virtual Event Italy.
- *LABAC: A Location-aware Attribute-based Access Control Scheme for Cloud Storage*, the 59th IEEE Global Communications Conference (GLOBECOM 2016), Washington, DC, USA.