

Shan Jiang

Doctor of Philosophy

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EDUCATION

The Hong Kong Polytechnic University

Ph.D. in Computer Science

Thesis: High-performance Packing and Searching for Blockchain-based Big Data Sharing

Supervisor: Prof. Jiannong Cao

Hong Kong SAR

Jul 2016 – Jun 2021

Imperial College London

Visiting Student in Department of Computing

Advisor: Prof. Julie A. McCann

London, UK

Nov 2018 – Mar 2019

Sun Yat-sen University

B.Sc. in Computer Science and Technology

Guangzhou, China

Sep 2011 – Jun 2015

PROFESSIONAL EXPERIENCES

Research Assistant

Department of Computing, The Hong Kong Polytechnic University

Advisor: Prof. Jiannong Cao

Apr 2015 – Jun 2016

RESEARCH INTERESTS

- Blockchain
- Multi-robot System
- Cloud and Edge Computing

PUBLICATIONS

* means corresponding author

1. Hanqing Wu, **Shan Jiang***, Jiannong Cao
High-efficiency Blockchain-based Supply Chain Traceability
Under *Major Revision* in *IEEE Transactions on Intelligent Transportation Systems*
2. **Shan Jiang**, Jiannong Cao, Hanqing Wu
Reliable and Efficient IoT Data Management via Blockchain-based Searchable Encryption
Manuscript submitted to *IEEE Internet of Things Journal*
3. **Shan Jiang**, Juncen Zhu, Jiannong Cao, Hanqing Wu
Big Data Sharing: A Comprehensive Survey
Manuscript submitted to *IEEE Transactions on Big Data*
4. **Shan Jiang**, Jiannong Cao, Hanqing Wu
Dynamic Ring Signature: Achieving Provable Anonymity in Blockchain-based E-voting
Manuscript submitted to *ACM Transactions on Software Engineering and Methodology*
5. Juncen Zhu, Jiannong Cao, Divya Saxena, **Shan Jiang***, Houda Ferradi
Blockchain-empowered Federated Learning: Challenges, Solutions and Future Directions
Manuscript submitted to *ACM Computing Surveys*

6. Houda Ferradi, Jiannong Cao, **Shan Jiang***, Divya Saxena, Yinfeng Cao
Security and Privacy in Big Data Sharing: State-of-the-Art and Research Directions
Manuscript submitted to *ACM Computing Surveys*
7. **Shan Jiang**, Jiannong Cao, Hanqing Wu, Yanni Yang
Fairness-based Packing of Industrial IoT Data in Permissioned Blockchains
In *IEEE Transactions on Industrial Informatics 2020*, doi:10.1109/TII.2020.3046129
8. **Shan Jiang**, Jiannong Cao, Juncen Zhu, Yinfeng Cao
PolyChain: a Generic Blockchain as a Service Platform
To appear in BlockSys 2021 (Oral Presentation and Best Paper Award)
9. **Shan Jiang**, Junbin Liang, Jiannong Cao, Jia Wang, Jinlin Chen, and Zhixuan Liang
Decentralized Algorithm for Repeating Pattern Formation by Multiple Robots
In *IEEE ICPADS 2019 (Oral Presentation)*, doi:10.1109/ICPADS47876.2019.00090
10. **Shan Jiang**, Jiannong Cao, Julie A. McCann, Yanni Yang, Yang Liu, Xiaoqing Wang, Yuming Deng
Privacy-preserving and Efficient Multi-keyword Search Over Encrypted Data on Blockchain
In *IEEE Blockchain 2019 (Oral Presentation)*, doi:10.1109/Blockchain.2019.00062
11. **Shan Jiang**, Jiannong Cao, Hanqing Wu, Yanni Yang, Mingyu Ma, Jianfei He
BlocHIE: a BLOCKchain-based platform for Healthcare Information Exchange
In *IEEE SMARTCOMP 2018 (Citations: 151)*, doi:10.1109/SMARTCOMP.2018.00073
12. **Shan Jiang**, Jiannong Cao, Jia Wang, Milos Stojmenovic, Julien Bourgeois
Uniform Circle Formation by Asynchronous Robots: A Fully-Distributed Approach
In *IEEE ICCCN 2017 (Oral Presentation)*, doi:10.1109/ICCCN.2017.8038468
13. **Shan Jiang**, Jiannong Cao, Yang Liu, Jinlin Chen, Xuefeng Liu
Programming Large-Scale Multi-Robot System with Timing Constraints
In *IEEE ICCCN 2016 (Oral Presentation)*, doi:10.1109/ICCCN.2016.7568563
14. **Shan Jiang**, Junbin Liang, Jiannong Cao, Rui Liu
An ensemble-level programming model with real-time support for multi-robot systems
In *IEEE PerCom Workshops 2016 (Demo)*, doi:10.1109/PERCOMW.2016.7457070
15. Xiulong Liu, Jiuwu Zhang, **Shan Jiang**, Yanni Yang, Keqiu Li, Jiannong Cao, Jiangchuan Liu
Accurate Localization of Tagged Objects Using Mobile RFID-augmented Robots
In *IEEE Transactions on Mobile Computing 2019*, doi:10.1109/TMC.2019.2962129
16. Yuvraj Sahni, Jiannong Cao, **Shan Jiang**
Middleware for Multi-Robot System
Mission-Oriented Sensor Networks and Systems: Art and Science, Springer, doi:10.1007/978-3-319-92384-0_18
17. Hanqing Wu, Jiannong Cao, Yanni Yang, Cheung Leong Tung, **Shan Jiang**, Bin Tang, Yang Liu, Xiaoqing Wang, Yuming Deng
Data Management in Supply Chain Using Blockchain: Challenges and a Case Study
In *IEEE ICCCN 2019*, doi:10.1109/ICCCN.2019.8846964
18. Jia Wang, Jiannong Cao, Milos Stojmenovic, Miao Zhao, Jinlin Chen, **Shan Jiang**
Pattern-RL: Multi-robot Cooperative Pattern Formation via Deep Reinforcement Learning
In *IEEE ICMLA 2019*, doi:10.1109/ICMLA.2019.00040
19. Xiulong Liu, Jiannong Cao, Yanni Yang, **Shan Jiang**
CPS-Based Smart Warehouse for Industry 4.0: A Survey of the Underlying Technologies
Computers, 2018, doi:10.3390/computers7010013
20. Hanqing Wu, Jiannong Cao, **Shan Jiang**, Ruosong Yang, Yanni Yang, Jianfei He
TSAR: a fully-distributed Trustless data ShARing platform
In *IEEE SMARTCOMP 2018 (Workshop)*, doi:10.1109/SMARTCOMP.2018.00028

21. Jia Wang, Jiannong Cao, **Shan Jiang**
Fault-Tolerant Pattern Formation by Multiple Robots: A Learning Approach
In *IEEE SRDS 2017* (PhD Forum), doi:10.1109/SRDS.2017.42

PROFESSIONAL ACTIVITIES

Program committee:

- The 3rd International Conference on Blockchain (Blockchain 2020)

Referee for submissions to journals:

- ACM Computing Surveys
- IEEE Transactions on Intelligent Transportation Systems
- IEEE Transactions on Services Computing
- IEEE Network
- IEEE Transactions on Cloud Computing
- IEEE Transactions on Big Data
- IEEE Internet of Things Journal
- IEEE Journal of Biomedical and Health Informatics
- Journal of Parallel and Distributed Computing
- Information Processing & Management
- Computers & Security
- Computer Communications
- Journal of Systems Architecture
- Peer-to-Peer Networking and Applications
- Ad Hoc & Sensor Wireless Networks
- IEEE/CAA Journal of Automatica Sinica
- Blockchain: Research and Applications

Reviewer for submissions to conferences:

- ICDCS'20, COMPSAC'20
- ICDCS'19, PerCom'19
- PerCom'18
- MobiQuitous'17, ICDCS'17, ICC'17, PerCom'17

TEACHING EXPERIENCES

- | | |
|--|-------------|
| • Teaching Assistant (Lecturer: Prof. Jiannong Cao)
Service and Cloud Computing (COMP4442), The Hong Kong Polytechnic University | Spring 2020 |
| • Teaching Assistant (Lecturer: Dr. Jing Li and Dr. Jesper Jansson)
Advanced Topics in Computer Algorithms (COMP6701), The Hong Kong Polytechnic University | Fall 2019 |
| • Assistant Coach
ACM-ICPC Team of The Hong Kong Polytechnic University | Spring 2018 |
| • Teaching Assistant (Lecturer: Prof. Jiannong Cao)
Distributed Computing (COMP5325), The Hong Kong Polytechnic University | Fall 2017 |
| • Teaching Assistant (Lecturer: Prof. Jiannong Cao)
Programming Fundamentals (COMP1011), The Hong Kong Polytechnic University | Spring 2017 |
| • Teaching Assistant (Lecturer: Dr. Lei Yang)
Computer Communications Networks (COMP312), The Hong Kong Polytechnic University | Fall 2016 |
| • Teaching Assistant
Algorithm Design and Analysis, Sun Yat-sen University | Fall 2014 |

HONORS & AWARDS

- Best Paper Award
2021 International Conference on Blockchain and Trustworthy Systems (BlockSys'2021) Aug 2021
- Third Runner-up (4/32)
ACM-HK Programming Contest 2019 Jun 2019
- The Third Place (3/10)
COMP Annual Research Day 2019, The Hong Kong Polytechnic University Jun 2019
- Second Runner-up (3/33)
ACM-HK Programming Contest 2017 Jun 2017
- Silver Medal (32/182)
Beijing Regional Contest, The 39th ACM-Asia Programming Contest, Beijing, China Nov 2014
- Second-class Scholarship
Outstanding Student, Sun Yat-sen University Nov 2014
- The Fourth Place (4/147)
ACM-Guangdong Provincial Programming Contest 2014, Guangzhou, China May 2014
- Third-class Scholarship
Outstanding Student, Sun Yat-sen University Nov 2012