Shan Jiang

Ph.D. Candidate

Department of Computing, The Hong Kong Polytechnic University

cssjiang@comp.polyu.edu.hk | jasison27.github.io

Education

The Hong Kong Polytechnic University — *Hong Kong SAR, China*

Ph.D. in Computer Science — *Jul. 2016 - Present*

Under the supervision of Prof. Jiannong Cao (Fellow of IEEE)

Sun Yat-sen University — *Guangzhou, China*

B.Sc. in Computer Science — *Sep. 2011 - Jul. 2015*

Member of University ACM-ICPC team

Experience

Department of Computing, The Hong Kong Polytechnic University — *Hong Kong SAR, China*

Research Assistant, under the supervision of Prof. Jiannong Cao — *Apr. 2015 - Jun. 2016*

Working on distributed algorithms and programming model for multi-robot systems.

Global Market Group — *Guangzhou, China*

Software Engineer — *Jul. 2014 - Sep. 2014*

Working on Android app development.

Flamingo Network Inc. Co. Ltd. — *Guangzhou, China*

Software Engineer — *Jul. 2012 - Sep. 2012*

Working on mobile game development using cocos2d-x.

Publication

Conference **Shan Jiang**, Junbin Liang, Jiannong Cao, Milos Stojmenovic, Jia Wang, "Decentralized Algorithm for Repeating Pattern Formation by Multiple Robots", submitted to *WoWMoM* 2018

Conference **Shan Jiang**, Jiannong Cao, Hanqing Wu, Yanni Yang, Mingyu Ma, Jianfei He, "BlockHIE: a BLOCkchain-based platform for Healthcare Information Exchange", submitted to *SmartComp* 2018

Conference Hanqing Wu, Jiannong Cao, **Shan Jiang**, Ruosong Yang, Yanni Yang, Caiqing Zhou, Jianfei He, "TSAR: a fully-distributed Trustless data ShARing platform", submitted to *SmartComp* 2018

Conference Xiulong Liu, **Shan Jiang**, Yanni Yang, Jiannong Cao, Keqiu Li, "Accurate and Lightweight Tag Localization for RF-Robots", submitted to *MobiHoc* 2018

Journal Xiulong Liu, Jiannong Cao, Yanni Yang, **Shan Jiang**, "CPS-Based Smart Warehouse for Industry 4.0: A Survey of the Underlying Technologies", accepted by *MDPI Computers* 2018, doi:10.3390/computers7010013.

Conference Jia Wang, Jiannong Cao, **Shan Jiang**, "Fault-Tolerant Pattern Formation by Multiple Robots: A Learning Approach", *SRDS* 2017: 268-269 (PhD Forum), doi:10.1109/SRDS.2017.42.

Conference **Shan Jiang**, Jiannong Cao, Jia Wang, Milos Stojmenovic, Julien Bourgeois, "Uniform Circle Formation by Asynchronous Robots: A Fully-Distributed Approach", *ICCCN* 2017: 1-9, doi:10.1109/ICCCN.2017.8038468.

Book Chapter Yuvraj Sahni, Jiannong Cao, **Shan Jiang**, "Middleware for Multi-Robot System", a chapter to appear in "*The Philosophy of Mission-Oriented Wireless Sensor Networks*"(Springer), Habib M. Ammari (Ed.). 2017.

Conference **Shan Jiang**, Jiannong Cao, Yan Liu, Jinlin Chen, Xuefeng Liu, "Programming Large-Scale Multi-Robot System with Timing Constraints", *ICCCN* 2016: 1-9, doi:10.1109/ICCCN.2016.7568563.

Conference **Shan Jiang**, Junbin Liang, Jiannong Cao, Rui Liu, "An ensemble-level programming model with real-time support for multi-robot systems", *PerCom Workshops* 2016: 1-3 (Demo), doi:10.1109/PERCOMW.2016.7457070.

Project

Research on Application of Block Chain Technology in Supply Chain Tracking

HK PolyU & Alibaba

LEADER — *Feb. 2018 - Present*

- Prepared the proposal concerning system architecture, research issues, and solution.
- Surveyed existing Blockchain systems including Bitcoin, Ethereum, IOTA, and ARK.

High-precision Indoor Localization for Large-scale Warehouse

HK PolyU & Alibaba

MEMBER — *Feb. 2018 - Present*

- Prepared the proposal concerning a Bluetooth-based localization schema.
- Surveyed existing indoor localization methods using Bluetooth, RFID, WiFi, and cellular data.

AI3 - A Layered-Federation Information Sharing Architecture

HK PolyU & Huawei

LEADER — *Sep. 2017 - Feb. 2018*

- Proposed TSAR, a fully-distributed Trustless data ShARing platform. Inside TSAR, two Blockchains, namely MetadataChain and SharingdataChain, are employed to store metadata and transactions records respectively.
- Proposed BlocHIE, a BLOCkchain-based platform for Healthcare Information Exchange. We improve the system performance using the techniques as follows: 1) use multiple coupled Blockchains; 2) combine off-chain storage and on-chain verification; and 3) propose two fairness-based packing algorithms.
- Developed a Blockchain-based data sharing system based on gRPC.

Declarative Programming and Runtime Support for Distributed Coordination of Multirobot Systems

HK PolyU

LEADER — *Jan. 2017 - Present*

- Improve the multi-robot test-bed concerning hardware. A new demo "multi-robot pattern formation" is developed.
- Proposed a fully-distributed approach for multi-robot uniform circle formation problem.
- Investigated the possibility to employ learning approaches in multi-robot systems.
- Prepared the proposal "Middleware for distributed control and coordination of robot networks" and got RMB 500,000 funding from STIC-SZ.

Coordination and Computation in Distributed Intelligent MEMS

HK PolyU

CORE MEMBER — *Apr. 2015 - Aug. 2016*

- Surveyed existing middleware for multi-robot systems.
- Proposed an ensemble-level programming model supporting time-constraint mechanism.
- Developed a test-bed and a simulation environment for multi-robot systems. The simulator is extended from VisibleSim with supports of action and wireless communication. On the test-bed, a demo that "multiple robots pass through a narrow corridor" is developed.
- Wrote the project completion report.

Honors & Awards

Jun. 2017	**Second Runner-up (3/33),** ACM-HK Programming Contest 2017	*Hong Kong, China*
Nov. 2014	**Silver Medal (32/182),** Beijing Regional Contest, The 39th ACM-Asia Programming Contest	*Beijing, China*
May. 2014	**The Fourth Place (4/147),** ACM-Guangdong Provincial Programming Contest 2014	*Guangzhou, China*
Nov. 2014	**Outstanding Student with Second-class Scholarship,** Sun Yat-sen University	*Guangzhou, China*
Nov. 2012	**Outstanding Student with Third-class Scholarship,** Sun Yat-sen University	*Guangzhou, China*

Service

S2018	**Assistant Coach,** HK PolyU ACM-ICPC Team	*HK PolyU*
F2017	**Teaching Assistant,** Distributed Computing (COMP5325)	*HK PolyU*
S2017	**Teaching Assistant,** Programming Fundamentals (COMP1011)	*HK PolyU*
F2016	**Teaching Assistant,** Computer Communications Networks (COMP312)	*HK PolyU*
F2014	**Teaching Assistant,** Algorithm Design and Analysis	*SYSU*