

Shan Jiang

PH.D. CANDIDATE

Department of Computing, The Hong Kong Polytechnic University

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Education

The Hong Kong Polytechnic University

PH.D. IN COMPUTER SCIENCE

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

Hong Kong SAR, China

Jul. 2016 - Present

Sun Yat-sen University

B.Sc. IN COMPUTER SCIENCE

Member of University ACM-ICPC team

Guangzhou, China

Sep. 2011 - Jul. 2015

Experience

Department of Computing, The Hong Kong Polytechnic University

RESEARCH ASSISTANT, UNDER THE SUPERVISION OF PROF. JIANNONG CAO

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

Hong Kong SAR, China

Apr. 2015 - Jun. 2016

Global Market Group

SOFTWARE ENGINEER

Working on Android app development.

Guangzhou, China

Jul. 2014 - Sep. 2014

Flamingo Network Inc. Co. Ltd.

SOFTWARE ENGINEER

Working on mobile game development using cocos2d-x.

Guangzhou, China

Jul. 2012 - Sep. 2012

Publication

- Conference** Hanqing Wu, Jiannong Cao, **Shan Jiang**, Ruosong Yang, Yanni Yang, Jianfei He, "TSAR: a fully-distributed Trustless data ShARing platform", accepted by *SMARTCOMP 2018* (SmartSys Workshop)
- Conference** **Shan Jiang**, Jiannong Cao, Hanqing Wu, Yanni Yang, Mingyu Ma, Jianfei He, "BlockHIE: a BLOCKchain-based platform for Healthcare Information Exchange", accepted by *SMARTCOMP 2018*
- Journal** Xiulong Liu, Jiannong Cao, Yanni Yang, **Shan Jiang**, "CPS-Based Smart Warehouse for Industry 4.0: A Survey of the Underlying Technologies", *Computers* 7(1): 13 (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

LEADER

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

HK PolyU & Alibaba

Feb. 2018 - Present

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 - Present

- 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