

Shuo Liu

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Education

Expected 06/2020 Sun Yat-sen University (SYSU) | GPA: 3.6/4.0

Background

Degree: Bachelor of Engineering in Software Engineering

Publications

- **Shuo Liu**, “*Application of Blockchain in IoT Data Trust and Information Available Technology*”, 2019 International Symposium on Computational Intelligence and Design.
- **Shuo Liu**, “*Optimal Analysis of Target Dynamic Tracking Strategy Based on Computer Vision*”, 2019 International Conference on Electronic Information Technology and Computer Engineering.
- Rui Xi, Kang Liu, **Shuo Liu**, Wuhui Chen, Shenghui Li, “*Perishable Digital Goods Trading Mechanism for Blockchain-based Vehicular Network*”, 2019 IEEE International Symposium on Parallel and Distributed Processing with Applications.

Publications (under review)

- **Shuo Liu**, Kang Liu, Yuanhao Yang, Wuhui Chen, “*Blockchain-Based Digital Goods Trading Mechanism in Internet of Vehicles: A Stackelberg Game Approach*”, submitted to 2020 IEEE International Conference on Cloud Computing, under review.
- **Shuo Liu***, Rui Xi*, Yuanhao Yang, Junwei Yao, Wuhui Chen, “*Time is Money: A Location-dependent Mobile Edge Computing Framework*”, submitted to IEEE Transaction on Mobile Computing publication (Journal Citation Report Q1 rank 24/274), under review.
- Ting Cai, Zicong Hong, **Shuo Liu**, Wuhui Chen, Zibin Zheng, “*BCShare: A Decentralized Social Data Storage and Sharing on Blockchains*”, submitted to IEEE Transactions on Services Computing (Journal Citation Report Q1 rank17/274), under review.

Academic Experience

09/2019-Present Decentralized Social Data Storage and Sharing

- Abstract: Developed a distributed data storage and sharing framework for social web users based on Blockchain for transactions and InterPlanetary File System (IPFS) for off-chain storage
- Employed certificateless cryptography to achieve a web id-enabled authentication modular
- Leveraged IPFS as an off-chain storage repository to help store and encrypt the media data
- Implemented smart contracts for recording transactions about trading and sharing among web users

12/2018-06/2019 Blockchain-Based Digital Goods Trading Mechanism

- Abstract: Proposed a decentralized digital goods trading mechanism in Internet of Vehicles (IoV) by using a Game Theory approach
- Applied consortium Blockchain to establish a secure and trustworthy decentralized system in the hybrid IoV scenario, including the roles of aggregators and nodes
- Designed a novel mechanism to motivate each party, *i.e.*, the provider, consumer and relay, to participate in trading via two-layer Stackelberg Game approach

12/2017-03/2018 Optimized Target Dynamic Tracking Strategy

- Abstract: Proposed a novel method to dynamically capture and track target timely

	<ul style="list-style-type: none"> ● Improved the diversity of particles and the accuracy of target via Back Propagation Neural Network ● Prevented particle degradation and efficiently found the global optimal solution of particle information via Particle Swarm Optimization
Internship Experience	<p>07/2019-11/2019 Microsoft (China) Co., Ltd</p> <p>PARFAIT — PredictAble RDMA For AI Training</p> <ul style="list-style-type: none"> - Abstract: Constructed a multi-tenancy and bandwidth-guaranteed distributed deep learning training prototype in Remote Direct Memory Access ● Designed a virtual network abstraction, enabling the physical network to support more tenants and provide bandwidth guarantees ● Developed an efficient enforcement scheme that can realize the abstraction in physical networks by using a limited number of hardware queues ● Implemented the central controller of PARFAIT, which controls the running system by interacting with agent parts <p>06/2018-10/2018 Institute of Automation, Chinese Academy of Sciences</p> <p>PYSC II RL — Reinforcement Learning Environment of Star Craft II</p> <ul style="list-style-type: none"> - Abstract: Built the StarCraft II Learning Environment and applied reinforcement learning algorithms to train multi-agents ● Built the PYSC II to train Star Craft soldiers with Advantage-Actor-Critic algorithm ● Applied Multi-Agent Deep Deterministic Policy Gradient algorithm to further optimize multi-agents' strategies
Skills	<ul style="list-style-type: none"> ● Language: proficient in Python, C++ and Latex; familiar with MATLAB and Java; basic in Solidity, JavaScript and C ● Professional: Blockchain and Decentralized System; Smart Contract Design and Solidity Programming in Ethereum; Game Theory and Selfish Market Participants' Behavior Formulation; Object Detection and Dynamic Target Tracking; Artificial Neural Network and Deep Learning
Extracurricular Activities	<ul style="list-style-type: none"> ● 09/2017-06/2018 Psychology Commissary, School of Data and Computer Science (SDCS), SYSU ● 03/2017-06/2017 Group Leader of Guangdong Science Center Volunteer ● 10/2016-06/2018 Debater of the Debate Team, SDCS, SYSU ● 10/2016-06/2017 Officer of the New Media Operation in the Working Committee, SYSU ● 10/2016-06/2017 Member of Table Tennis Team, SDCS, SYSU ● 10/2016-06/2018 Vice President of the Table Tennis Association of the east campus, SYSU ● 09/2016 Host of the Welcome Party of SDCS Student Union, SYSU
Honors & Awards	<ul style="list-style-type: none"> ● 2018-2019 Academic Innovation Scholarship, SYSU (Top 3%) ● 2018-2019 Second Prize Scholarship, SYSU (Top 15%) ● 2017 Excellent Student Leader, SDCS, SYSU ● 2017 Silver Medal in the Intercollegiate Table Tennis Competition, SYSU ● 2016 Bronze Medal in the Intercollegiate Table Tennis Competition, SYSU