Shuo Liu

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Education Background

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

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

- 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

07/2019-11/2019 Microsoft (China) Co., Ltd

PARFAIT — PredictAble RDMA For AI Training

- 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

06/2018-10/2018 Institute of Automation, Chinese Academy of Sciences

PYSC Ⅱ RL — Reinforcement Learning Environment of Star Craft Ⅱ

- 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

- **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

- **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

- **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