

Jiuchen Shi

Research interests: cloud native, microservice, regionless



■ **Date of birth:** 1996.08 ■ **Supervisor:** Minyi Guo ■ **Graduate date:** 2024.09
■ **E-mail:** shijiuchen@sjtu.edu.cn ■ **Homepage:** shijiuchen.github.io ■ **Tel:** (+86) 198-2128-8336

Education

2019/09-now	Shanghai Jiao Tong University	Computer Science	Ph.D. Candidate
<ul style="list-style-type: none">5 published papers(1st author; CCF-Ax2; CCF-Bx3), 2 under-review papers(1st author, CCF-Ax1, CCF-Bx1), 4 co-authored papers (CCF-Ax3; CCF-Bx1)Responsible for 2 research projects, participation in 4 research projectsGPA 3.86 (4.0), TA of Advanced Computer Architecture			
2015/09-2019/06	Dalian University of Technology	Software Engineering	Undergraduate
<ul style="list-style-type: none">Responsible for 1 innovation project for college students, 1 Google collaboration project, 2 published papers;GPA 4.07 (5.0); Ranking: 8/284 (2.8%)			

Honors & Awards

- Shanghai Jiao Tong University Graduate Special Scholarship (Huatai Securities Technology Scholarship, 2023);
- Shanghai Jiao Tong University Excellent Student (2023);
- National Scholarship for Undergraduate Students (2018);
- Dalian University of Technology Individual Scholarships (First-class Scholarship for Learning, Social Practice Scholarship, Spiritual Civilization Scholarship, etc.);
- Second Prize in Provincial-level China-US Young Maker Competition, Third Prize in Provincial-level Computer Design Competition, Second Prize in City-level Mathematics Competition in Dalian, etc.

Publications

Accepted Publications

- [1] **Jiuchen Shi**, Kaihua Fu, Jiawen Wang, Quan Chen, Deze Zeng, Minyi Guo. Adaptive QoS-aware Microservice Deployment with Excessive Loads via Intra- and Inter-Datacenter Scheduling. Submitted to IEEE Transactions on Parallel and Distributed Systems (TPDS). 2024. **CCF-A. Accept to appear.**
- [2] **Jiuchen Shi**, Hang Zhang, Zhixin Tong, Quan Chen, Kaihua Fu, Minyi Guo. "Nodens: Enabling Resource Efficient and Fast QoS Recovery of Dynamic Microservice Applications in Datacenters". In 2023 USENIX Annual Technical Conference (USENIX ATC 23), pp. 403-417. 2023. **CCF-A. Acceptance rate: 18%.**
- [3] **Jiuchen Shi**, Kaihua Fu, Quan Chen, Changpeng Yang, Pengfei Huang, Mosong, Zhou, Jieru Zhao, Chen Chen, Minyi Guo. "Characterizing and orchestrating VM reservation in geo-distributed clouds to improve the resource efficiency". In Proceedings of the 13th Symposium on Cloud Computing (SoCC 22), pp. 94-109. 2022. **CCF-B. Acceptance rate: 24%.**
- [4] **Jiuchen Shi**, Jiawen Wang, Kaihua Fu, Quan Chen, Deze Zeng, Minyi Guo. "QoS-awareness of Microservices with Excessive Loads via Inter-Datacenter Scheduling". In 2022 IEEE International Parallel and Distributed Processing Symposium (IPDPS 22), pp. 324-334. 2022. **CCF-B. Acceptance rate: 26%.**
- [5] **Jiuchen Shi**, Xiaoqing Cai, Wenli Zheng, Quan Chen, Deze Zeng, Tsuchiya Tatsuhiro, Minyi Guo. "Reliability and Incentive of Performance Assessment for Decentralized Clouds". Journal of Computer Science and Technology (JCST), 37, no. 5 (2022): 1176-1199. **CCF-B.**
- [6] Kaihua Fu, **Jiuchen Shi**, Quan Chen, Ningxin Zheng, Wei Zhang, Deze Zeng, Minyi Guo. "QoS-aware irregular collaborative inference for improving throughput of DNN services". In International Conference for High Performance Computing, Networking, Storage and Analysis (SC 22), pp. 1-14. 2022. **CCF-A.**
- [7] Xiaoqing Cai, **Jiuchen Shi**, Rui Yuan, Chang Liu, Wenli Zheng, Quan Chen, Chao Li, Jingwen Leng, Minyi Guo. "OVERSEE: Outsourcing verification to enable resource sharing in edge environment". In Proceedings of the 49th International Conference on Parallel Processing (ICPP 20), pp. 1-11. 2020. **CCF-B.**
- [8] Kaihua Fu, Quan Chen, Yuzhuo Yang, **Jiuchen Shi**, Chao Li, Minyi Guo. "BLAD: Adaptive Load Balanced Scheduling and Operator Overlap Pipeline For Accelerating The Dynamic GNN Training". In Proceedings of the International Conference for High Performance Computing, Networking, Storage and Analysis (SC 23), pp. 1-13. 2023. **CCF-A.**
- [9] Xiaoqing Cai, Yao Deng, Liang Zhang, **Jiuchen Shi**, Quan Chen, Wenli Zheng, Zhiqiang Liu, Yu Long, Kun Wang, Chao Li, Minyi Guo. "The Principle and Core Technology of Blockchain". Chinese Journal of Computers, 2021, 44(1): 84-131. **Chinese CCF-A.**

Preprint Publications

[1] **Jiuchen Shi**, Jinyuan Chen, Quan Chen, Kaihua Fu, Fanrong Du, Ruogang Ma, Minyi Guo. “Delphinus: Improving Resource Efficiency of Applications with Shared Microservices and Diverse Queries”. Submitted to 2025 European Conference on Computer Systems (**EuroSys 25**). 2025. **CCF-A**.

[2] **Jiuchen Shi**, Zhixin Tong, Quan Chen, Kaihua Fu, Liwei Song, Pengfei Huang, Yinuo Li, Minyi Guo. "Holistic Resource Orchestration for Reducing Operation Costs in Geo-distributed Clouds". Submitted to Proceedings of the 15th Symposium on Cloud Computing (**SoCC 24**), 2024. **CCF-B**.

National Patents

[1] Quan Chen, Minyi Guo, **Jiuchen Shi**, “Cross-regional Microservice Excessive Load Scheduling System, Method, and Device”, **202210583583.X, Granted**.

[2] Quan Chen, Minyi Guo, **Jiuchen Shi**, Zhixin Tong, Hang Zhang, “Dynamic Feature Oriented Microservice Application Resource Management Optimization System and Method”, **202310754097.4, Under review**.

Projects and Internship

Research Projects

- Research on Cloud-Native Runtime System for Heterogeneous Hardware, NSFC of China, 2023-2027, participate.
- Resource Management for Internet Services in Datacenters, NSFC of China, 2021-2023, participate.
- Research on Key Technologies of Blockchain-Based Distributed Resource Management, NSFC of China, 2019-2022, participate.
- Cloud Computing Architecture and Platform for Human-Machine-Object Integration, National Key Research and Development Program of China, 2018-2021, participate.

Enterprise Cooperation Projects and Internships

Optimization of Compute/Network Costs in Regionless	Project leader	2023/02-2024/04
<ul style="list-style-type: none">• Collaborate with Huawei Cloud. Considering the network cost caused by the different positions between data and compute, we decide multi-tenants’ VM request scheduling and the data placement among geo-distributed DCs. The project-related results have been submitted to SC 2024.		
Resource Reservation under Ultimate Elasticity	Project leader	2021/09-2022/09
<ul style="list-style-type: none">• Collaborate with Huawei Cloud. Under different VM request patterns of large tenants in public cloud, this project orchestrates computing resources among geo-distributed datacenters to reduce deployment costs. In production-level deployment, cost savings of approximately 2.8 million dollars can be achieved.		

Skills

- Kubernetes, Container Runtime, Cgroups, RPC
- CET-6 538, good writing and communication skills