

Qiwen Cui

Paul G. Allen School of Computer Science & Engineering
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RESEARCH INTERESTS

Reinforcement Learning, Game Theory

EDUCATION

University of Washington, Seattle

Sep. 2021 - Jun. 2025 (Expected)

Ph.D. student in Computer Science & Engineering

- Advisor: Simon Shaolei Du

Peking University

Sep. 2017 - July. 2021

B.S. in Statistics

- Advisor: Zaiwen Wen

EXPERIENCE

Two Sigma, NYC

Jun. 2024 - Aug. 2024

Quantitative Researcher Intern

- Applied machine learning techniques to predict future stock return

ByteDance, Seattle

Jan. 2024 - May. 2024

Research Scientist Intern in large language model

- Advisor: Tianyi Liu, Hongxia Yang
- Developed an AI agent system with a planning agent and multiple specialized agents
- Implemented SFT and RL methods to improve LLM planning ability

CONFERENCE PUBLICATIONS

* denotes equal contribution or alphabetical ordering

1. **Qiwen Cui**, Maryam Fazel, Simon S. Du

Learning Optimal Tax Design in Nonatomic Congestion Games

In Conference on Neural Information Processing Systems (NeurIPS) 2024

2. Yan Dai, **Qiwen Cui**, Simon S. Du

Refined Sample Complexity for Markov Games with Independent Linear Function Approximation

In 37th Annual Conference on Learning Theory (COLT) 2024

3. Haozhe Jiang, **Qiwen Cui**, Zhihan Xiong, Maryam Fazel, Simon S. Du

A Black-box Approach for Non-stationary Multi-agent Reinforcement Learning

In International Conference on Learning Representations (ICLR) 2024

4. Zhaoyi Zhou, Chuning Zhu, Runlong Zhou, **Qiwen Cui**, Abhishek Gupta, Simon S. Du
Free from Bellman Completeness: Trajectory Stitching via Model-based Return-conditioned Supervised Learning

In International Conference on Learning Representations (ICLR) 2024

5. **Qiwen Cui**, Kaiqing Zhang, Simon S. Du
Breaking the Curse of Multiagents in a Large State Space: RL in Markov Games with Independent Linear Function Approximation

In 36th Annual Conference on Learning Theory (COLT) 2023

6. Haozhe Jiang*, **Qiwen Cui***, Zhihan Xiong, Maryam Fazel, Simon S. Du
Offline Congestion Games: How Feedback Type Affects Data Coverage Requirement

In International Conference on Learning Representations (ICLR) 2023

7. **Qiwen Cui**, Simon S. Du
Provably Efficient Offline Multi-agent Reinforcement Learning via Strategy-wise Bonus

In Conference on Neural Information Processing Systems (NeurIPS) 2022

8. **Qiwen Cui**, Simon S. Du
When is Offline Two-Player Zero-Sum Markov Game Solvable?

In Conference on Neural Information Processing Systems (NeurIPS) 2022

9. **Qiwen Cui***, Zhihan Xiong*, Maryam Fazel, Simon S. Du
Learning in Congestion Games with Bandit Feedback

In Conference on Neural Information Processing Systems (NeurIPS) 2022

10. Zhihan Xiong*, Ruoqi Shen*, **Qiwen Cui***, Maryam Fazel, Simon S. Du
Near-Optimal Randomized Exploration for Tabular MDP

In Conference on Neural Information Processing Systems (NeurIPS) 2022

11. Xinqi Wang, **Qiwen Cui**, Simon S. Du
On Gap-dependent Bounds for Offline Reinforcement Learning

In Conference on Neural Information Processing Systems (NeurIPS) 2022

12. Haque Ishfaq*, **Qiwen Cui***, Viet Nguyen, Alex Ayoub, Zhuoran Yang, Zhaoran Wang, Doina Precup, Lin F. Yang

Randomized Exploration for Reinforcement Learning with General Value Function Approximation

In International Conference on Machine Learning (ICML) 2021

13. **Qiwen Cui**, Lin F. Yang
Minimax sample complexity for turn-based stochastic game

In Uncertainty in Artificial Intelligence (UAI) 2021

14. **Qiwen Cui**, Lin F. Yang

Is Plug-in Solver Sample-Efficient for Feature-based Reinforcement Learning?

In Conference on Neural Information Processing Systems (NeurIPS) 2020

JOURNAL PUBLICATIONS

1. Minghan Yang, Dong Xu, **Qiwen Cui**, Zaiwen Wen, Pengxiang Xu

A Multi-Step Matrix-Product Natural Gradient Method for Deep Learning

IEEE Transactions on Pattern Analysis and Machine Intelligence 2022

2. **Qiwen Cui**, Qingxiao Chen, Pufan Liu, Debin Liu, Zaiwen Wen

Clinical decision support model for tooth extraction therapy derived from electronic dental records

In The Journal of Prosthetic Dentistry 2021

PREPRINTS

1. Yufeng Zhang, Liyu Chen, Boyi Liu, Yingxiang Yang, **Qiwen Cui**, Yunzhe Tao, Hongxia Yang

A Cost-Efficient Testbed for Benchmarking Reinforcement Learning Algorithms in Generative Language Model

In <https://arxiv.org/abs/2403.07191>

2. Natalia Zhang, Xinqi Wang, **Qiwen Cui**, Runlong Zhou, Sham M Kakade, Simon S Du

Multi-Agent Reinforcement Learning from Human Feedback: Data Coverage and Algorithmic Techniques

In <https://arxiv.org/abs/2409.00717>

3. Xuwu Wang, **Qiwen Cui**, Yunzhe Tao, Yiran Wang, Ziwei Chai, Xiaotian Han, Boyi Liu, Jianbo Yuan, Jing Su, Guoyin Wang, Tingkai Liu, Liyu Chen, Tianyi Liu, Tao Sun, Yufeng Zhang, Sirui Zheng, Quanzeng You, Yang Yang, Hongxia Yang

BabelBench: An Omni Benchmark for Code-Driven Analysis of Multimodal and Multistructured Data

In <https://arxiv.org/abs/2410.00773>

AWARDS/HONORS

NeurIPS Travel Awards 2022

Paul G. Allen First-Year Graduate Student Fellowship

Elite Undergraduate Training Program of Applied Mathematics (top 15%)

1st Prize in Mathematics Competition of Chinese College Student

1st Prize in National High School Mathematics Competition

PROFESSIONAL ACTIVITIES

Paper Reviewer: NeurIPS 2024, COLT 2024, ALT 2023, COLT 2023, NeurIPS 2022, ICML 2022, NeurIPS 2021, ICML 2021, UAI 2021, Artificial Intelligence, Journal of the American Statistical Association, Operations Research, IEEE Transactions on Automatic Control

UW CSE Ph.D. Admission Reviewer 2021

CS Ed Week Open House for Washington K-12 Students: 2022/2023