

CHENGRUI QU

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RESEARCH INTERESTS

- Theoretical Foundations of Control and Learning
- Learning and Control in Multi-Agent Systems
- Data-Driven Optimization for Real-World Systems

EDUCATION

- **California Institute of Technology** Jun. 2024 - Sep. 2024
Summer Undergraduate Research Fellowships (SURF) Pasadena, CA, USA
 - Advisor: Adam Wierman
- **Peking University** Sep. 2021 - Jun. 2025 (expected)
Major: Theoretical and Applied Mechanics Beijing, China
 - GPA: 3.894/4.0, Average Score: 92.5/100, **Rank: 1/39**

PUBLICATIONS & PREPRINTS

- **C. Qu, L. Shi, K. Panaganti, P. You, and A. Wierman.** [Hybrid Transfer Reinforcement Learning: Provable Sample Efficiency from Shifted-Dynamics Data](#), 2024 (in submission to AISTATS 2025)
- **K. Mukhi, C. Qu, P. You, and A. Abate.** [Distributionally Robust Aggregation of Electric Vehicle Flexibility](#), 2024 (Preprint, **Best Poster Award** in DTU PES Summer School 2024)

RESEARCH EXPERIENCES

- **Hybrid Transfer Reinforcement Learning: Provable Sample Efficiency From Shifted-Dynamics Data** 2024
Instructors: Laixi Shi, Kishan Panaganti Badrinath; Advisor: Adam Wierman
 - Propose a novel RL setting for finite-sample analysis in practical hybrid transfer problems
 - Establish a minimax lower bound on sample complexity in this setting
 - Design an algorithm that provably achieves better sample efficiency than state-of-the-art pure online RL
- **Data-Driven Distributionally Robust Online Pricing with Price-Aware Demand** 2024
Advisor: Pengcheng You
 - Propose an online pricing scheme under price-aware, time-coupled stochastic demand
 - Develop tractable data-driven distributionally optimization methods for practical applications
- **Distributionally Robust Aggregation of Electric Vehicle Flexibility** 2024
Collaborator: Karan Mukhi, Oxford; Advisor: Pengcheng You
 - Propose optimal control for electric vehicle charging under high-dimensional stochastic demand
 - Develop distributionally robust methods to characterize the aggregate feasible set
 - Design practical algorithms to compute the feasible set for downstream applications

HONORS AND AWARDS

- **Huatai Securities Technology Scholarship** 2024
- **NSFC 1st Youth Student Basic Research Grant** 2023
- **National Scholarship (Top undergraduate student award)** 2023
- **Pacemaker to Merit Student, Peking University** 2023
- **The First Prize in 14th National Zhou Peiyuan Mechanics Competition (Top 0.3%)** 2023
- **Merit Student, Peking University** 2022
- **The First Prize in 37th Chinese Physics Olympiad (Jiangsu Province)** 2020
- **The First Prize in 34th Chinese Chemistry Olympiad (Jiangsu Province)** 2020
- **The First Prize in 36th Chinese Maths Olympiad (Jiangsu Province)** 2020

TEACHING EXPERIENCES

- **Principle of Economics** Spring 2024
TA, National School of Development, Peking University
- **International Trade** Spring 2024
TA, National School of Development, Peking University
- **Reinforcement Learning Reading Group** Fall 2023
Co-organizer, Peking University
- **Power System Reading Group** Fall 2023
Co-organizer, Peking University
- **Financial Economics Reading Group** Summer 2022
Co-organizer, Peking University

INVITED TALKS

- **Hybrid Transfer Reinforcement Learning: Provable Sample Efficiency From Shifted-Dynamics Data** Sep. 2024
ORSC Data Science 2024, Beijing
- **Distributionally Robust Aggregation of Electric Vehicle Flexibility** Mar. 2024
School of Data Science, The Chinese University of Hong Kong, Shenzhen

PROFESSIONAL SKILLS

Programming Skills: C++, Python, MATLAB, CUDA, Shell

Leadership: President of the Jiangsu Cultural Association, Peking University

REFERENCES

1. **Adam Wierman**
Carl F Braun Professor, Department of Computing and Mathematical Sciences
California Institute of Technology
Email: adamw@caltech.edu
2. **Pengcheng You**
Assistant Professor, Department of Industrial Engineering and Management
Peking University
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3. **Yujie Tang**
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