

# Jiadong Liang

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## ACADEMIC POSITION

### Peking University

*Ph.D. Candidate of School of Mathematical Sciences*

Sep. 2019 -

*Advisor: Prof. Zhihua Zhang*

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## EDUCATION

### Peking University

*Bachelor of Statistics in School of Mathematical Sciences*

Sep. 2015 - Jun. 2019

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## RESEARCH INTERESTS

### Stochastic Optimization

- Design provably efficient online stochastic algorithms for (non)-convex optimization problems with various types of random oracles.

### Computational Efficient Statistics

- Discover techniques for efficiently handling statistical estimation and inference tasks with minimal computational overhead.

### High Dimensional Statistics

- Develop reliable methodologies for addressing high-dimensional statistical problems under various constraints, including but not limited to differential privacy preservation, distributed data sources, and heavy-tailed random noise.

### Diffusion Approximation

- Connect online stochastic methods (e.g., stochastic approximation and stochastic log-concave sampling algorithms) with continuous-time stochastic dynamics to aid in downstream tasks, such as characterizing asymptotic behavior and proposing optimal control mechanisms.

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## PUBLICATIONS

\* indicates equal contribution.

### A Statistical Analysis of Polyak-Ruppert Averaged Q-learning

2023

Xiang Li, Wenhao Yang, **Jiadong Liang**, Zhihua Zhang, Michel I. Jordan  
*International Conference on Artificial Intelligence and Statistics (AISTATS)*

### Asymptotic Behaviors of Projected Stochastic Approximation: A Jump Diffusion Perspective

2022

**Jiadong Liang**, Yuze Han, Xiang Li, Zhihua Zhang  
*Neural Information Processing Systems (NeurIPS)*, Oral presentation (top 1.5%)

### Statistical Estimation and Inference via Local SGD

2022

Xiang Li, **Jiadong Liang**, Xiangyu Chang, Zhihua Zhang  
*Conference on Learning Theory (COLT)*

### Lipschitz Generative Adversarial Nets

2019

Zhiming Zhou, **Jiadong Liang**, Yuxuan Song, Lantao Yu, Hongwei Wang, Weinan Zhang, Yong Yu, Zhihua Zhang  
*International Conference on Machine Learning (ICML)*

## PREPRINTS AND WORKING PAPERS

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\* indicates equal contribution.

### **Gradient Tracking for High-Dimensional Federated Optimization**

Jiadong Liang, Yang Peng, Zhihua Zhang

*In Progress*

### **Estimation and Inference in Distributional Reinforcement Learning**

2023

Liangyu Zhang, Yang Peng, Jiadong Liang, Zhihua Zhang

*Submitted*

### **Stochastic Approximation MCMC, Online Inference, and Applications in Optimization of Queueing Systems**

2023

Xiang Li\*, Jiadong Liang\*, Xinyun Chen, Zhihua Zhang

*Submitted*

### **Online Statistical Inference for Nonlinear Stochastic Approximation with Markovian Data**

2023

Xiang Li, Jiadong Liang, Zhihua Zhang

*Submitted*

### **Asymptotic Behaviors and Phase Transitions in Projected Stochastic Approximation: a Jump Diffusion Approach**

2023

Jiadong Liang, Yuze Han, Xiang Li, Zhihua Zhang

*Submitted*

### **Intervention Generative Adversarial Networks**

2020

Jiadong Liang\*, Liangyu Zhang\*, Cheng Zhang, Zhihua Zhang

*Preprint*

## PRESENTATIONS AND TALKS

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### **Stochastic Approximation MCMC And Online Inference For Dynamic Pricing And Capacity Sizing In Queues**

INFORMS Annual Meeting, *Phoenix, AZ, USA*

*Oct 2023*

### **Asymptotic Behaviors of Projected Stochastic Approximation: A Jump Diffusion Perspective**

NeurIPS Deep-dive Paper Panels, *Virtual*

*Dec 2022*

## PROFESSIONAL SERVICES

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### **Journal Reviewer for:**

- Journal of Machine Learning Research

### **Conference Reviewer for:**

- ICML [2023], Neurips [2022, 2023], ICLR [2022], UAI [2020]

## SELECTED AWARDS

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**Qian Minping Scholarship** | *Peking University*

2023

**May Forth Scholarship** | *Peking University*

2017

**The 30th China Mathematical Olympiad Gold Medalist** | *Chinese Mathematical Society*

2014

## SKILLS

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**Languages:** Chinese, English

**Coding:** Python, L<sup>A</sup>T<sub>E</sub>X