

# Mo LIU

PhD Candidate | Department of Industrial Engineering and Operations Research

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## EDUCATION

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### University of California Berkeley, CA

Aug 2019 - Present

PhD Candidate in Industrial Engineering and Operations Research, GPA: 3.976

Master of Science in Industrial Engineering and Operations Research

July 2020

Advisor: Prof. Zuo-Jun Max Shen

### Tsinghua University, Beijing, China

Aug 2015 - Jul 2019

Bachelor of Engineering in Industrial Engineering with Honor, Rank: Top 2%

## RESEARCH INTERESTS

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- Machine learning (statistical learning, active learning)
- Data-driven decision making (decision-focused learning)
- Revenue management, pricing, and supply chain management

## RESEARCH PAPERS

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[1] **Mo Liu**, Junyu Cao, Zuo-Jun Max Shen, “Active Label Acquisition with Personalized Incentives in Assortment Optimization,” under review at *Management Science*, 2023

[2] **Mo Liu**, Paul Grigas, Heyuan Liu, Zuo-Jun Shen, “Active Learning in the Predict-then-Optimize Framework: A Margin-Based Approach,” under review at *Management Science*, 2023

### Second Prize at CMU YinzOR Poster Competition

[3] **Mo Liu**, Junyu Cao, Zuo-Jun Max Shen, “Pricing under the Generalized Markov Chain Choice Model: Learning through Large-scale Click Behaviors,” under review at *Operations Research*, 2023

### 2023 INFORMS Service Science Student Competition Finalist

### Fan Favorite Flash Talk at CMU YinzOR

[4] **Mo Liu**, Meng Qi, Zuo-Jun Max Shen, “End-to-End Deep Learning for Automatic Inventory Management with Fixed Ordering Cost,” under review at *Production and Operations Management*, 2022

[5] **Mo Liu**, Paul Grigas, Zuo-Jun Max Shen, “Importance-Weighted Active Learning for Contextual Stochastic Optimization,” *in preparation*, 2023

[6] **Mo Liu**, Paul Grigas, Zuo-Jun Max Shen, “Uniformly calibrated prediction for prescriptive analytics,” *work in progress*, 2023

## INDUSTRY RESEARCH EXPERIENCE

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### IBM, AI for transportation, Yorktown Heights, NY

Research Intern, Manager: Markus Ettl

May 2022 - Aug 2022

- Designed pricing strategies for the logistic network using a time-series demand model

*Amazon, Department of Supply Chain Optimization Technology, Seattle, WA, (Virtual)*

*Research Scientist Intern, Manager: Jingchen Wu*

June 2020 - Aug 2020

- Developed the pricing strategy for used items with different conditions at Amazon Warehouse using MNL model

## **PATENT IN APPLICATION**

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Machine learning and optimization with partially observable time series data 2022  
Zachary Xue, **Mo Liu**, Markus Ettl, Shivaram Subramanian

## **TEACHING EXPERIENCE**

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*Graduate Student Instructor at UC Berkeley*

Responsibilities: Lead one-hour discussion weekly, hold office hours, design exams and homework, grading

**IEOR 250** Introduction to Production Planning and Logistics Models (PhD and Master course) Fall 2020

**IEOR 142** Introduction to Machine Learning and Data Analytics (Undergraduate course) Spring 2021

**IEOR 240** Optimization Analytics (Master of Analytics and M.Eng. course) Fall 2022

**IEOR 242** Machine Learning and Data Analytics (Master of Analytics and M.Eng. course) Spring 2023

**IEOR 240** Optimization Analytics (Master of Analytics and M.Eng. course) Fall 2023

## **TALKS**

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*Personalized Incentive for Active Label Acquisition in the Assortment Optimization*

- MSOM Annual Conference, Montreal June 2023
- Purdue Operations Conference, West Lafayette Sept 2023

*Pricing under the Generalized Markov Chain Choice Model: Learning through Large-scale Click Behaviors*

- INFORMS Annual Meeting, Indianapolis Oct 2022
- YinzOR Student Conference, Pittsburgh Aug 2023
- Berkeley IEOR PhD Student Orientation Flash Talk Aug 2023

*Active Learning in the Predict-then-Optimize Framework: A Margin-Based Approach*

- International Conference Stochastic Programming, Davis July 2023
- IBM Intern Research Talk, Yorktown Heights June 2022

*End-to-End Deep Learning for the Inventory Management with Fixed Ordering Cost*

- INFORMS Annual Meeting, Online Oct 2020

## **AWARDS**

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Duryea Fellowship, IEOR Department, UC Berkeley 2021  
First Year Fellowship, IEOR Department, UC Berkeley 2019  
Outstanding Graduate in Beijing (top 1%) 2019  
Excellent Graduate in Tsinghua University (top 5%) 2019  
Outstanding Undergraduate Thesis Award in Tsinghua University 2019  
National Scholarship in China (top 1%) 2018  
Principal Jiang Nanxiang Scholarship (top 1%) 2017

## ACTIVITIES AND SERVICE

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- Reviewer for *Production and Operations Management*, *IEEE Transactions on Information Theory*
- Session chair of INFORMS Annual Meeting 2023
- Organizer of Research Group Meeting for Zuo-Jun Max Shen

## SKILLS

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### Programming Languages & Software

- Python, R, JAVA, HTML, Cplex, Gurobi, MySQL, Latex

## REFERENCES

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- Prof. Zuo-Jun Max Shen  
Professor Emeritus at Industrial Engineering and Operations Research  
University of California, Berkeley  
Vice-President and Pro-Vice-Chancellor at Hong Kong University  
Email: [maxshen@berkeley.edu](mailto:maxshen@berkeley.edu)
- Prof. Paul Grigas  
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Assistant Professor  
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