Yueyang Zhong (Pronounce: "Yoo-eh-yawng Joe-ng")

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CONTACT INFORMATION

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RESEARCH INTERESTS

My primary research interests are stochastic modeling of service systems with consideration of human strategic behavior and unknown systemic information. My research use tools from applied probability, game theory, and learning theory (in particular, online learning and reinforcement learning).

I am currently working on (i) system design optimization problems in queueing systems with strategic customers and strategic servers; and (ii) online learning problems in queueing systems in the face of unknown system parameters, such as learning to schedule in multiclass many-server queues.

EDUCATION

The University of Chicago Booth School of Business — Chicago, IL

- Ph.D. in Operations Management (Minor in Applied Probability) — *2018–2023 (expected)*
- Master of Business Administration — *2021–2023 (expected)*
- Advisor: Professor Amy R. Ward

Tsinghua University — Beijing, China

- B.S. in Industrial Engineering (Minor in Economics) with Honors — *2014–2018*

PUBLICATIONS & PAPERS UNDER REVIEW

[1] **Yueyang Zhong**, Ragavendran Gopalakrishnan, Amy R. Ward. Behavior-Aware Queueing: The Finite-Buffer Setting with Strategic Servers. *Minor Revision at Operations Research.* [Link]

[2] **Yueyang Zhong**, John R. Birge, Amy R. Ward. Learning the Scheduling Policy in Time-Varying Multiclass Many Server Queues. *Major Revision at Operations Research.* [Link]

[3] **Yueyang Zhong**, Zhixi Wan, Zuo-Jun Max Shen. Queueing Versus Surge Pricing Mechanism: Efficiency, Equity, and Consumer Welfare. *Reject and Resubmit at Management Science.* [Link]

[4] **Yueyang Zhong**, Amy R. Ward, Amber L. Puha. 2022. Asymptotically Optimal Idling in the $GI/GI/N{+}GI$ Queue. *Operations Research Letters.* [Link]

[5] **Yueyang Zhong**, YeeMan Bergstrom, Amy R. Ward. 2020. Data-Driven Market-Making via Model-Free Learning. *In Proceedings of the Twenty-Ninth International Joint Conference on Artificial Intelligence (IJCAI-20): Special Track on AI in FinTech.* [Link]

WORK IN PROGRESS

[a] **Yueyang Zhong**, Ragavendran Gopalakrishnan, Amy R. Ward. Some Properties of the Erlang B and C Formulae. *Working paper (Available upon request).*

[b] **Yueyang Zhong**, Ragavendran Gopalakrishnan, Amy R. Ward. Price of Anarchy in Behavior-Aware Queues with Strategic Arrivals and Strategic Servers. *Work in progress.*

[c] **Yueyang Zhong**, Ragavendran Gopalakrishnan, Amy R. Ward. An Experimental Investigation of Strategic Server Behavior in Queueing Contexts. *Work in progress.*

[d] **Yueyang Zhong**, John R. Birge, Amy R. Ward. Learning to Schedule in Multiclass Many Server Queues with Abandonment: An Instance-Independent Regret. *Working paper (Available upon request).*

[e] **Yueyang Zhong**. Online Advertising Strategy for Long-Term Good via Robust IV-Q-learning with Noisy Instruments. *Working paper (Available upon request).*

[f] **Yueyang Zhong**, Amy R. Ward, Linwei Xin. Limited Flexibility in Omnichannel Fulfillment. *Work in progress.*

[g] Hongfan Chen, **Yueyang Zhong**, John R. Birge, Amy R. Ward. Pricing and Capacity Sizing in Queueing Networks: a Multi-agent Learning Framework. *Work in progress.*

Presentations

- CSAMSE 2022, Virtual [2] *July 2022*
- INFORMS CORS 2022, Vancouver, BC [1],[2] *June 2022*
- POMS 2022, Virtual [1] *April 2022*
- NYU MOILS Seminar, Virtual [2] *Feb 2022*
- INFORMS Annual Meeting, Anaheim, CA [2] *Oct 2021*
- MSOM Conference Meeting 2021, Virtual [1] *June 2021*
- POMS 2021, Virtual [5] *May 2021*
- UCSD Stochastic Systems Seminar, Virtual [1],[4] *April 2021*
- IJCAI-PRICAI 2020, Japan [5] *Jan 2021*
- 2020 INFORMS Conference on Service Science [3] *Dec 2020*
- INFORMS Annual Meeting, Virtual [1] *Nov 2020*
- MD4SG'20 Poster Presentation [3] *Aug 2020*
- INFORMS Annual Meeting, Seattle, WA [3] *Oct 2019*
- INFORMS Annual Meeting, Phoenix, AZ [3] *Nov 2018*

Honors and Awards

- Finalist, INFORMS Conference On Service Science, Best Service Science Student Paper *2021*
- Booth School of Business Ph.D. Fellowship *2018–2023*
- Distinguished Undergraduate Thesis Award, Tsinghua University *2018*
- Outstanding Undergraduate Award, Tsinghua University *2018*
- Tung OOCL Scholarship, Weiming Zhang Scholarship *2015–2017*
- Student Overseas Research Grant *2017*
- First Prize, Chinese Physics Olympiad *2016*

Teaching Experience

The University of Chicago Booth School of Business
Teaching Assistant (MBA Program)

BUSN 41100: Applied Regression Analysis (MBA) *Fall 2020, Fall 2021*

- 200+ registered students across three sections.
- Assisted students with R in weekly office hours, and held weekly R sessions.

BUSN 40000: Operations Management: Business Process Fundamentals (MBA) *Winter 2020*

- 200+ registered students across three sections.
- Independently held two review sessions, and prepared midterm and final exam questions.

BUSN 40110: Managing Service Operations (MBA) *Winter 2022*

- 80+ registered students across two sections.
- Assisted students with homework questions in weekly office hours, and mentored students on developing case materials in collaboration with multiple companies for the final project.
- Independently held a final review session.

`Quotes from course evaluations:`
"The review sessions by the TA were incredibly helpful."
"The review sessions were also VERY helpful. I wish I had realized these were happening earlier in the quarter."
"The individual concept check could sometimes be challenging, however the TA sessions have been great help for those."
"Kudos for having the TA lead an in–depth review session each week – I found them very helpful."
"The TA sessions were very very helpful."
"The TA was fantastic with extra help hours and really helped to drive home the learnings."

Industry Experience

Pinterest Labs — Remote
Research Intern, Ads Marketplace team — *June 2021–Sept 2021*

- Designed and implemented a causal reinforcement learning algorithm to dynamically control the ad load leading to over 30% improvement in the yearly ad revenue from offline evaluation.

Blue Fire Capital, LLC — Chicago, IL
Research Intern, Data Science Group — *July 2019–Sept 2019*

- Developed a reinforcement learning based trading strategy, which passed the firm's backtest with a Sharpe ratio above 3 and tripled the cumulative PnL over one month; see [5] for reference.

DiDi — Beijing, China
Research Intern, Research Center of Innovation and Operations — *Jan 2018–July 2018*

- Built a theoretical queueing model to explain the firm's strategy transition from the surge pricing mechanism to the virtual queueing mechanism, which improves the passenger request fulfillment rate by 30.6% based on a large-scale data with 10M+ users; see [3] for reference.

Service

Ad-hoc Reviewer: *Operations Research*, *Mathematics of Operations Research*, *Operations Research Letters*, *Service Science*, *ICSS*
Conference organization: Session chair–INFORMS Annual Meeting 2021, INFORMS CORS 2022.
Mentoring: Awaid Yasin (Master student, the University of Chicago Division of Social Sciences).
Others: Tutor MBA students at Chicago Booth in the operations management specialization.

Selected PhD Courses

Linear Programming, Convex Optimization, Infinite Dimensional Optimization, Dynamic Programming, Approximate Dynamic Programming, Stochastic Optimization, Online Optimization, Real Analysis, Measure-Theoretic Probability I, III, Stochastic Processes, Brownian Motion and Stochastic Calculus, Queueing Theory, Dynamic Control of Stochastic Networks, Stochastic Calculus and Queueing Applications, Queueing Models for Service Operations Management, Networks: Introduction to Modeling and Analysis, Machine Learning, Statistical Inference, Foundations of Advanced Quantitative Marketing, Microeconomics I, II, Macroeconomics.

Skills and Others

Language: Chinese (native), English (fluent)
Data/Statistical Tools: R, SQL
Optimization Tools: CPLEX, GUROBI, AMPL
Programming Language: Python, C/C++, JAVA
Hobbies: Piano, Yoga, Sketch, Calligraphy, Traveling, Photography

References

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Professor **John R. Birge**
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Professor **Raga Gopalakrishnan**
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Stephen J.R. Smith School of Business
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