

# Yige Hong

Postdoctoral Fellow, ISyE, Georgia Institute of Technology

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## Research Interest

My research focuses on fundamental theoretical questions in **large-scale stochastic systems**, particularly in queueing theory, restless bandits, and weakly-coupled MDPs. These models are foundational to modern operations research and computer science, with applications ranging from cloud computing and reinforcement learning to healthcare and ride sharing. By developing new analytical tools and frameworks, I have made significant progress on decades-old open problems, such as removing the global attractor assumption for restless bandits, and proving a new universal bound for the  $G/G/n$  queue.

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## Education

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| <b>Georgia Institute of Technology</b><br><i>Postdoctoral Fellow, School of Industrial and System Engineering</i> | Sep 2026 – Aug 2027<br><i>Atlanta, USA</i>    |
| <b>Carnegie Mellon University</b><br><i>PhD, Computer Science Department (Advisor: Weina Wang)</i>                | Sep 2020 – Aug 2026<br><i>Pittsburgh, USA</i> |
| <b>Chinese University of Hong Kong, Shenzhen</b><br><i>Bachelor of Science in Applied Math</i>                    | Sep 2016 – May 2020<br><i>Shenzhen, China</i> |

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## Awards & Honors

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| <b>Ronald J. and Carol T. Beerman Postdoctoral Fellowship</b> , <i>Georgia Tech ISyE</i> | 2026 |
| <b>ICML Spotlight</b>                                                                    | 2026 |
| <b>Outstanding Student Poster Award</b> , <i>Stochastic Network Conference</i>           | 2026 |
| <b>NeurIPS Spotlight</b>                                                                 | 2025 |
| <b>Young European Queueing Theorists (YEQT) Workshop</b> , <i>Invited Speaker</i>        | 2025 |
| <b>INFORMS APS Student Travel Grant</b>                                                  | 2025 |
| <b>NeurIPS Spotlight</b>                                                                 | 2023 |
| <b>IFIP Performance Best Paper Award</b>                                                 | 2023 |
| <b>IFIP Performance Student Travel Grant</b>                                             | 2023 |
| <b>ACM SIGMETRICS Student Research Competition</b> , <i>Second Place</i>                 | 2021 |

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## Conference publications

Jingchu Gai, Guanning Zeng, Huaqing Zhang, Han Zhong, Yige Hong, Andrej Risteski, Aditi Raghunathan (2026). Demystifying entropy control in LLM RL training. *ICML*, July 2026.  
[Spotlight]

Xiangcheng Zhang<sup>#\*</sup>, Yige Hong\*, Weina Wang (2025). Projection-Based Lyapunov Method for Fully Heterogeneous Weakly-Coupled MDPs. *NeurIPS*, Dec 2025. **[Spotlight]** (\*co-first-author, #undergraduate student jointly mentored with my PhD advisor)

Yige Hong, Qiaomin Xie, Weina Wang (2024). Near-Optimal Stochastic Bin-Packing in Large Service Systems with Time-Varying Item Sizes. *ACM SIGMETRICS*, June 2024 (journal: *Proc. ACM Meas. Anal. Comput. Syst.* 7(3):48:1–48:46, 2023).

Yige Hong, Qiaomin Xie, Yudong Chen, Weina Wang (2023). Restless Bandits with Average Reward: Breaking the Uniform Global Attractor Assumption. *NeurIPS*, Dec 2023. **[Spotlight]**

Isaac Grosf, Yige Hong, Mor Harchol-Balter, Alan Scheller-Wolf (2023). The RESET and MARC Techniques, with Application to Multiserver-Job Analysis. *IFIP Performance*, November 2023 (journal: *Performance Evaluation* 162:102378, 2023).

Yige Hong, Ziv Scully (2023). Performance of the Gittins Policy in the G/G/1 and G/G/k, With and Without Setup Times. *IFIP Performance*, November 2023 (journal: *Performance Evaluation* 163:102377, 2024). **[Best Paper Award]**

Yige Hong, Weina Wang (2022). Sharp Waiting-Time Bounds for Multiserver Jobs. In *ACM Int. Symp. Mobile Ad Hoc Networking and Computing (MobiHoc)*, October 2022.

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#### *Journal publications*

Yige Hong, Qiaomin Xie, Yudong Chen, Weina Wang (2025). Unichain and Aperiodicity are Sufficient for Asymptotic Optimality of Average-Reward Restless Bandits. *Mathematics of Operations Research*. Articles in Advance. <https://doi.org/10.1287/moor.2024.0678>

Yige Hong, Weina Wang (2024) Sharp Waiting-Time Bounds for Multiserver Jobs. *Stochastic Systems* 14(4):455-478.

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#### *Preprints*

Weina Wang, Taha Ameen, Yudong Chen, Yige Hong, Josh Nichols, Matthew Zurek (2026). Optimality of a threshold policy for one-fast-two-slow queueing system. *arxiv:2607.22580*

Yige Hong (2025). An interpretable universal bound for multiserver queues via a leave-one-out technique. *arxiv:2510.11015*.

Yige Hong, Qiaomin Xie, Yudong Chen, Weina Wang (2024). Achieving Exponential Asymptotic Optimality in Average-Reward Restless Bandits without Global Attractor Assumption. *arXiv:2405.17882*.

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#### *Conference Presentations and Posters*

“Projection-based Lyapunov method for fully heterogeneous weakly-coupled MDPs”, Stochastic Network Conference, Ithaca, NY, June 2026.

“Achieving Exponential Asymptotic Optimality in Average-Reward Restless Bandits without Global Attractor Assumption”, NeurIPS MLxOR workshop, San Diego, CA, Dec 2025.

“Projection-Based Lyapunov Method for Fully Heterogeneous Weakly-Coupled MDPs”, NeurIPS, San Diego, CA, Dec 2025.

“A new Lyapunov approach for fully heterogeneous weakly-coupled MDPs”, Invited 45-minute talk at the Young European Queueing Theorists (YEQT) Workshop, Eindhoven, Netherland, Nov 2025.

“A new  $1/(1 - \rho)$ -scaling bound for multiserver queues via a leave-one-out technique”, INFORMS Applied Probability Society Conference, Atlanta, GA, June 2025.

“Unichain and Aperiodicity are Sufficient for Asymptotic Optimality of Average-Reward Restless Bandits”, INFORMS annual meeting, Seattle, WA, Oct 2024.

“Restless Bandits with Average Reward: Breaking the Uniform Global Attractor Assumption”, Advances in Neural Information Processing Systems (NeurIPS), New Orleans, LA, Dec. 2023.

“Performance of the Gittins Policy in the G/G/1 and G/G/K, with and Without Setup Times”, IFIP Performance Conference, Chicago, IL, Nov. 2023.

“Performance of the Gittins Policy in the G/G/1 and G/G/K, with and Without Setup Times”, INFORMS annual meeting, Phoenix, AZ, Oct. 2023.

“Performance of the Gittins Policy in the G/G/1 and G/G/K, with and Without Setup Times”, Workshop on Mathematical Performance Modeling and Analysis (MAMA), Orlando, FL, June. 2023.

“Maximizing utilization in large systems serving jobs with time-varying resource requirements”, INFORMS annual meeting. Indianapolis, IN, Oct. 2022.

“Maximizing utilization in large systems serving jobs with time-varying resource requirements”, (poster) Stochastic Networks Conference. Cornell University, Ithaca, NY, June 2022.

“Sharp waiting-time bounds for multiserver jobs”, ACM Mobihoc. Seoul, South Korea, Oct. 2022.

“Sharp zero-queueing bounds for multiserver-job systems”, INFORMS annual meeting. Anaheim, CA, Oct. 2021.

“Sharp zero-queueing bounds for multi-server jobs”, ACM Sigmetrics SRC. Beijing, China, June 2021.

### *Teaching experiences*

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#### **Teaching Assistant**

Carnegie Mellon University

- **15-859-PP Fundamentals of MDPs and Reinforcement Learning** *Fall 2023*
  - Delivered two guest lectures on advanced topics to graduate students
  - Designed and graded course homework assignments
  
- **15-259/659 Probability and Computing (PnC)** *Spring 2023*
  - Led weekly recitation sections and held regular office hours
  - Graded homework assignments to provide student feedback

**Journal reviewer**

- Operations Research
- Management Science
- IEEE Transactions on Networking
- IEEE Transactions on Automatic Control
- Queueing Systems: Theory and Applications (QUESTA)
- Performance Evaluation Review

**Conference reviewer**

- Neural Information Processing Systems (NeurIPS), 2024, 2025

*References*

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**Yudong Chen**

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**Jim Dai**

Leon C. Welch Professor of Engineering

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**David Alan Goldberg**

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**Weina Wang** (PhD Advisor)

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**Qiaomin Xie**

Assistant Professor

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