# HONGBO LI

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## RESEARCH INTERESTS

- Machine Learning Theory
- Machine Learning for Networking
- Game Theory and Mechanism Design

## EXPERIENCE

**Singapore University of Technology and Design**, Singapore 08/2024 - current
*Postdoctoral Research Fellow*, advised by Prof. Lingjie Duan

**AI-EDGE Institute, The Ohio State University**, Columbus, US 12/2023 - 06/2023
*Visiting Scholar*, advised by Prof. Ness B. Shroff and Prof. Yingbin Liang

**Shanghai Jiao Tong University**, Shanghai, China 03/2018 - 08/2020
*Research Assistant*, advised by Prof. Jianping He

## EDUCATION BACKGROUND

**Singapore University of Technology and Design**, **Ph.D.**, Singapore 09/2020 - 07/2024
Engineering Systems and Design Pillar
Thesis: Mechanism Design for Distributed Learning Networks, Advised by Prof. Lingjie Duan

**Shanghai Jiao Tong University**, **B.Sc.**, Shanghai, China 09/2015 - 06/2019
School of Electronic Information and Electrical Engineering, IEEE Honor Class

## PUBLICATIONS

### Conference Papers

1. **H. Li**, S. Lin, L. Duan, Y. Liang, and N. B. Shroff, "Theory on Mixture-of-Experts in Continual Learning", in International Conference on Learning Representations (ICLR), 2025.
2. **H. Li**, and L. Duan, "Theory of Mixture-of-Experts for Mobile Edge Computing", In *IEEE Conference on Computer Communications (INFOCOM)*, 2025.
3. **H. Li** and L. Duan, "Distributed Learning for Dynamic Congestion Games," In *IEEE International Symposium on Information Theory (ISIT)*, 3654-3659, 2024.
4. S. Ngoh*, **H. Li***, and L. Duan, "Model Sharing Mechanisms For Distributed Learning," In *IEEE Annual Congress on Artificial Intelligence of Things (AIoT)*, 2024.
5. **H. Li** and L. Duan, "When Congestion Games Meet Mobile Crowdsourcing: Selective Information Disclosure," In *Proceedings of AAAI Conference on Artificial Intelligence*, 37(5), 5739-5746. 2023. (Oral)

### Journal Papers

1. **H. Li**, and L. Duan, "To Analyze and Regulate Human-in-the-loop Learning for Congestion Games", in *IEEE/ACM Transactions on Networking*, 2025.
2. **H. Li** and L. Duan, "To Optimize Human-in-the-loop Learning in Repeated Routing Games," in *IEEE Transactions on Mobile Computing*, 2024.
3. **H. Li** and L. Duan, "Human-in-the-loop Learning for Dynamic Congestion Games," in *IEEE Transactions on Mobile Computing*, 23 (12), 11159 - 11171, 2024.
4. **H. Li** and L. Duan, "Online Pricing Incentive to Sample Fresh Information," in *IEEE Transactions on Network Science and Engineering*, 10 (1), 514-526. 2023.

### Preprints

1. **H. Li**, and L. Duan, "Theoretical Analysis of Mixture-of-Experts in Mobile Edge Computing", under review of *IEEE/ACM Transactions on Networking*.
2. **H. Li**, L. Duan, and N. B. Shroff, "Distributed Conflict-Graph Learning for Competitive Multi-armed Bandits", submitted for publication.
3. **H. Li**, L. Duan, and N. B. Shroff, "When Mobile Crowdsourcing Meets Queueing Systems: Side-payment Mechanism Design", under review of *IEEE/ACM Transactions on Networking*.
4. **H. Li**, and L. Duan, "Competitive Multi-armed Bandit Games for Spectrum Sharing", under review of *IEEE Transactions on Mobile Computing* (Major Revision).

## PATENT

1. **H. Li**, X. Ding, Y. Li, and J. He, "Multi-robot Formation Positioning Method Based on Particle Filter and Robot Equipment", patent number: [Online Available] CN202010128966.9.

## AWARDS & HONORS

- IEEE ISIT Student Travel Grant 07/2024
- SUTD PhD Fellowship 09/2020
- Outstanding Graduates of Shanghai (Top 2% in SJTU) 05/2019

## TEACHING EXPERIENCES

1. **Game Theory**, teaching assistant, undergraduate course 05/2022 - 08/2022
   Singapore University of Technology and Design, Engineering Systems and Design Pillar
2. **Data and Business Analytics**, teaching assistant, undergraduate course 01/2022 - 04/2022
   Singapore University of Technology and Design, Engineering Systems and Design Pillar

## TECHNICAL REVIEWER

- IEEE Transactions on Mobile Computing (IEEE TMC).
- IEEE Transactions on Services Computing (IEEE TSC).
- IEEE Transactions on Network Science and Engineering (IEEE TNSE).
- IEEE Transactions on Vehicular Technology (IEEE TVT).
- ICLR 2025.
- IEEE INFOCOM 2025.
- ACM MobiHoc 2022, 2024.

## TALKS

- 'Theory of Mixture-of-Experts in Continual Learning" 12/2024
  Sun Yat-Sen University, China.
- "When Mobile Crowdsourcing Meets Congestion Games: Selective Information Disclosure" 04/2023
  Shanghai Jiao Tong University, Shanghai, China.