

# Liang “Charles” Lyu

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## Education

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**Massachusetts Institute of Technology**, Cambridge, MA 2021 – 2027 (expected)  
Ph.D. Student – Laboratory for Information & Decision Systems (LIDS), Department of EECS  
Advisors: Prof. Asu Ozdaglar and Prof. Dan Huttenlocher

**Duke University**, Durham, NC December 2020  
Bachelor of Science – Computer Science and Mathematics GPA: 3.99 / 4.0

## Research Statement

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I am a decision-theoretic and empirical researcher who studies how information systems and algorithmic recommendations influence human decisions, using Bayesian modeling, causal inference and experiments. My recent work focuses on impacts of AI and algorithms: how they shape information dissemination and decision-making for humans, and how they should be designed to complement humans and mitigate harms.

## Selected Publications

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1. “A Bayesian Framework for Human-AI Collaboration: Complementarity and Correlation Neglect.”
  - Saurabh Amin, Amine Bennouna, Daniel Huttenlocher, Dingwen Kong, **Liang Lyu**, Asuman Ozdaglar.
  - Pending review at *the 27<sup>th</sup> ACM Conference on Economics and Computation (EC 2026)*.
  - Develop a Bayesian decision-theoretic framework for human-AI collaboration under correlation neglect
  - Introduce a micro-founded measure of information overlap and decompose the value of AI assistance
  - Characterize when AI helps, harms, or loses to automation: “better AI  $\neq$  better AI-assisted human”
2. “Wikipedia Contributions in the Wake of ChatGPT.”
  - **Liang Lyu**, James Siderius, Hannah Li, Daron Acemoglu, Daniel Huttenlocher, and Asu Ozdaglar.
  - In *Proceedings of the International World Wide Web Conference 2025 (WWW 2025)*.
  - Use difference-in-differences design to analyze impacts of ChatGPT on Wikipedia activity
  - Find preliminary evidence of heterogeneous effects that depend on similarity of articles
3. “MisinfoEval: Generative AI in the Era of ‘Alternative Facts.’”
  - Saadia Gabriel, **Liang Lyu**, James Siderius, Marzyeh Ghassemi, Jacob Andreas, and Asu Ozdaglar.
  - In *Proceedings of the 2024 conference on Empirical Methods in Natural Language Processing (EMNLP 2024)*.
  - Conduct human experiments to test the effectiveness of interventions generated using LLMs, with the goal of mitigating misinformation by explaining veracity of content to users
  - Introduce the novel use of personalization via LLMs to tailor interventions to demographics
4. “Matching of Users and Creators in Two-Sided Markets with Departures.”
  - Daniel Huttenlocher, Hannah Li, **Liang Lyu**, Asuman Ozdaglar, and James Siderius.
  - **ArXiv preprint** (2023). To be submitted to *Operations Research* in the future.
  - Propose a novel theoretical model that focuses on dynamics of user-content matching, which incorporates incentives of both users and content creators in the form of participation constraints
  - Analyze and compare platform recommendation schemes, with theoretical and practical results

## Skills

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**Programming Languages:** Python, R, Java, SQL

**Quantitative Methods:** Bayesian modeling, causal inference, experimentation, econometrics, operations research, algorithm design

**Research Areas:** Human-AI collaboration, information design, behavioral science, machine learning

**Languages:** English, Chinese (Mandarin)

## Older Publications

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1. “Centrality with Diversity.”
  - **Liang Lyu**, Brandon Fain, Kamesh Munagala, and Kangning Wang.
  - In *Proceedings of the 14th ACM International Conference on Web Search and Data Mining (WSDM 2021)*. 644-652.
2. “Proportionally Fair Clustering.”
  - Xingyu Chen, Brandon Fain, **Liang Lyu**, and Kamesh Munagala.
  - In *Proceedings of the 36th International Conference on Machine Learning (ICML 2019)*. 1032-1041.

## Additional Research Projects

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1. “Misinformation Online to Offline: A Twitter Field Study.”
  - With Daron Acemoglu, Adam Berinsky, Asuman Ozdaglar, and James Siderius.
2. “An Experiment on Algorithmic Ranking: User Behavior, Platform Incentives, and Policy.”
  - With Daniel Huttenlocher, Asuman Ozdaglar, and James Siderius.

## Presentations

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“Wikipedia Contributions in the Wake of ChatGPT.”

- Tenth Marketplace Innovation Workshop (MIW 2025)
- International World Wide Web Conference (WWW) 2025 (Poster Presentation)

“Matching of Users and Creators in Two-Sided Markets with Departures.”

*(Previously appeared as: “Dynamic Matching of Users and Creators on Social Media Platforms.”)*

- INFORMS Annual Meeting 2024 & 2023
- Eighth Marketplace Innovation Workshop (MIW 2023)

“An Experiment on Algorithmic Ranking: User Behavior, Platform Incentives, and Policy.”

- INFORMS Annual Meeting 2022

“Centrality with Diversity.”

- 14th ACM International Conference on Web Search and Data Mining (WSDM 2021)

## Teaching Experience

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Teaching Assistant, Massachusetts Institute of Technology

*Fall 2024*

- TA for 6.1210: Introduction to Algorithms

Undergraduate Teaching Assistant, Duke University

*Spring 2018 – Fall 2020*

- UTA for 4 Computer Science courses over 6 semesters
- Head UTA for CompSci 201: Data Structures & Algorithms (Fall 2018 – Fall 2020)

## Honors & Awards

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Ernst A. Guillemin SM Thesis Award in Electrical Engineering

*2024*

MathWorks Engineering Fellowship

*2023 – 2024*

David S. Y. Wong (1962) and Harold Wong Fellowship

*2021 – 2022*

Honorable Mention, CRA Outstanding Undergraduate Researchers

*2020*

Dean’s List, Duke University

*Fall 2017 – Fall 2019*

- Dean’s List with Distinction

*Fall 2017 – Spring 2019*

International Collegiate Programming Contest (ICPC)

*2017 – 2021*

- Participated in ICPC World Finals 2020
- North America Championship: 19<sup>th</sup> (2020), 33<sup>rd</sup> (2021)
- Mid-Atlantic Regionals: 4<sup>th</sup> (2017), 4<sup>th</sup> (2018), 2<sup>nd</sup> (2019), 5<sup>th</sup> (2020)