Ce Li
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Education

Ph.D., Economics, Boston University, Boston, MA *May 2026 (Expected)*
Dissertation Title: *Essays in Economic Theory and Artificial Intelligence*
Dissertation Committee: Bart Lipman, Juan Ortner, and Jawwad Noor

S.M., Health Data Science, Harvard University, Cambridge, MA *2019*

(cross-registration), Department of Mathematics, Massachusetts Institute of Technology, Cambridge, MA *2018*

B.Econ., Finance & minor in Statistics, Sun Yat-sen University, Guangzhou, China *2017*

Fields of Interest

Microeconomic Theory, Information Design, Mechanism Design, Algorithmic Game Theory, Artificial Intelligence

Publications

Tao Lin and Ce Li (2025) "Information Design with Unknown Prior (Extended Abstract)," *16th Innovations in Theoretical Computer Science Conference, ITCS 2025, January 7-10, 2025, Columbia University, New York, NY, USA*. Ed. by Raghu Meka. Vol. 325. LIPIcs. Schloss Dagstuhl – Leibniz-Zentrum fur Informatik, 2025, 72:1–72:1. DOI: 10.4230/LIPICS.ITCS.2025.72.

Ce Li, Xueqin Wang, Haizhu Tan, and Canhong Wen (2018) "Association of Degree of Loss Aversion and Grey Matter Volume in Superior Frontal Gyrus and Insula by Voxel-based Morphometry," *Brain Imaging and Behavior*, Feb; 14(1): 89-99, DOI: 10.1007/s11682-018-9962-5.

Working Papers

"Learning to Design Information," (with Tao Lin), Job Market Paper.

"Information Design with Unknown Prior," (with Tao Lin), under review at *Theoretical Economics*.

"From Best Responses to Learning: Investment Efficiency in Dynamic Environment," (with Qianfan Zhang and Weiqiang Zheng).

"Investment Incentives with Limited Cognition."

Works in Progress

"Principal-Agent LLM Alignment," (with Lingkai Kong, Tao Lin, Milind Tambe, and Haichuan Wang), expected finishing date: December 2025.

"Durable Information Design: Optimal Reuse of Signaling Schemes" (with Tao Lin and Qianfan Zhang), expected finishing date: January 2026.

Presentations

INFORMS Annual Meeting, Atlanta, GA *2025 (scheduled)*
Conference on Information Systems and Technology, Atlanta, GA *2025 (scheduled)*
Fudan University (School of Data Science), Shanghai, China *2025*
Shanghai University of Finance and Economics (Institute of Theoretical Computer Science), Shanghai, China *2025*
World Congress of the Econometric Society, Seoul, Korea *2025*
Stony Brook International Conference on Game Theory, Stony Brook, NY *2025*
Harvard University, Cambridge, MA *2025*
Boston University (Department of Computer Science), Boston, MA *2025*
North American Winter Meeting of the Econometric Society, San Francisco, CA *2025*
The Econometric Society Interdisciplinary Frontiers (ESIF) Economics and AI + Machine Learning (ML) Meeting, Ithaca, NY *2024*
World Congress of the Game Theory Society, Beijing, China *2024*
Stony Brook International Conference on Game Theory, Stony Brook, NY *2024*
Stony Brook International Conference on Game Theory, Stony Brook, NY *2023*
Harvard & MIT Air, Climate & Energy Center Science Advisory Committee Meeting, Cambridge, MA *2019*

Fellowships and Awards

Graduate Student Organization Travel Grant, Graduate School of Arts and Sciences, Boston University *2025*
Chinese Government Award for Outstanding Self-financed Students Abroad, Chinese Government *2024*
Student Travel Grant, Department of Economics, Boston University *2024-2025*
Dean's Fellowship, Boston University *2019-2025*
Top 20 in Asia-Pacific Economic Cooperation Youth Delegates Selection *2015*
Honorable Mentions in the Mathematical Contest in Modeling *2015*
The 2nd Prize in the China Mathematical Contest in Modeling *2015*
Outstanding Student Scholarship, Sun Yat-sen University *2014-2017*
National Scholarship, Chinese Government *2014*

Leadership and Mentorship

Founder and Organizer, ACM Economics and Computation Workshop: Information Economics × Large Language Models, Stanford, CA *2025*

Mentor for Ruofan Bie, PhD in Biostatistics at Brown University *2018-2019*

Work Experience

Harvard Clean Air Research Center, *AI Research Scientist* *2018-2020*

1. Ce Li et al. (2019): Spatial-temporal Modeling of Ambient PM 2.5 Elemental Concentrations in Eastern Massachusetts.
2. Ce Li et al. (2019): Spatial Multi-resolution Analysis of PM 2.5 and Mortality in New England.
   Accepted at the 2019 Harvard & MIT Air, Climate & Energy Center Science Advisory Committee Meeting

Southern China Center for Statistical Science, *Data Scientist* *2016*

Referee Experience

Program Committee: *WINE'25*
Journal Reviewer: *Economic Theory Bulletin*, *Scientific Reports*
AI Ethics Reviewer: *NeurIPS (2023, 2024, 2025)*

Teaching Experience

Teaching Assistant, Game Theory (Graduate), Boston University, Spring 2022, Spring 2024
Teaching Assistant, Mathematical Economics (Graduate), Boston University, Spring 2022, Spring 2024
Teaching Assistant, Economics of Information (Graduate), Boston University, Spring 2022, Fall 2023
Teaching Assistant, Market Structure & Economic Performance (Graduate Industrial Organization), Boston University, Fall 2021, Fall 2022, Spring 2023, Fall 2024
Teaching Assistant, Microeconomics (Undergraduate), Boston University, Fall 2021
Teaching Assistant, Empirical Economic Analysis (Undergraduate), Boston University, Fall 2020, Spring 2021

Languages

English (fluent), Chinese (native)

Computer Skills

Programming and Database: C++, C#, Python, R, Matlab, MySQL
Operating System: UNIX

References

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Professor Juan Ortner
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Ce Li

Learning to Design Information (*Job Market Paper*) (with Tao Lin)

Information designers, such as large language models and online platforms, often do not know the subjective beliefs of their receivers or users. We construct learning algorithms enabling the designer to learn the receiver's belief through repeated interactions. Our learning algorithms are robust to the receiver's strategic manipulation of the learning process of the designer. We study regret relative to two benchmarks to measure the performance of the algorithms. The static benchmark is T times the single-period optimum for the designer under a known belief. The dynamic benchmark, which is stronger, characterizes global dynamic optimality for the designer under a known belief. Our learning algorithms allow the designer to achieve no regret against both benchmarks at fast speeds of $O(\log^2 T)$.

Information Design with Unknown Prior (with Tao Lin)

Information designers, such as online platforms, often do not know the beliefs of their receivers. We design learning algorithms so that the information designer can learn the receiver's prior through repeated interactions. Our learning algorithms achieve no regret relative to optimality for the known prior at a fast speed, achieving a tight regret bound $\Theta(\log T)$ in general and a tight regret bound $\Theta(\log \log T)$ in the important special case of two actions.

From Best Responses to Learning: Investment Efficiency in Dynamic Environment (with Qianfan Zhang and Weiqiang Zheng)

In many real-world problems, the agent (bidder) cannot best respond. We study a bidder, as an investor, using a no-regret learning algorithm to adapt his investment across repeated interactions with a dynamic environment. We analyze how welfare guarantees from approximation allocation algorithms extend from static to dynamic settings for such a learning bidder. The performance of an allocation algorithm is measured by the approximation ratio between the induced welfare and different benchmarks. First, against the best-in-hindsight benchmark, the approximation ratios in the static and dynamic settings coincide. Second, against a stronger time-varying benchmark, we characterize tight upper and lower bounds on the ratio. Bridging mechanism design and online learning, we show how welfare guarantees can be maintained robustly even when a bidder cannot make best responses but learns his investment strategies in complex and uncertain environments.

Investment Incentives with Limited Cognition

A bidder may invest to raise his value to win the allocation, but that may hurt him or the welfare due to the computational infeasibility and his bounded rationality. I study private investment incentives in strategy-proof mechanisms. In a single auction, a bidder, without knowing the price, chooses an investment based on his predicted allocation outcome. If his prediction is correct, achieving near-optimal welfare requires the allocation algorithm to exclude confirming negative externalities (Akbarpour et al., 2023). If the prediction is incorrect, a stronger property, downward preserving positive externalities (DPONE), preserves the near-optimal welfare. In repeated auctions, a cognitively limited bidder uses a no-regret learning algorithm for his decision-making. I introduce a "potential" measure linking regret to Pareto efficiency. Potential rises when near-optimal welfare is frequently preserved in privately investment-friendly environments, which implies such environments are socially investment-friendly, though not conversely.