

JENNIFER ZOU

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EDUCATION

Harvard University, Cambridge, MA
Ph.D. Business Economics, 2020 to 2026 (expected)
Committee: Shane Greenstein, Josh Lerner, Ariel Pakes, Myrto Kalouptsi

Massachusetts Institute of Technology, Cambridge, MA
S.B. Mathematics with Computer Science, S.B. Economics, 2016 to 2019

RESEARCH INTERESTS

Digitization, Technological Innovation, Artificial Intelligence and Machine Learning, Platforms and Networks, Information Technology, Industrial Organization

WORKING PAPERS

“Optimal Network Competition: Evidence from US Broadband” (Job Market Paper)

The U.S. broadband market remains a facilities-based oligopoly despite substantial technological progress and growing demand for high-speed internet. This paper examines how local loop unbundling (LLU) policies—which lower the primary barrier to entry by reducing infrastructure costs—affect market structure, investment incentives, and consumer welfare. I estimate a structural model of household internet demand and embed it in a dynamic game of firm entry and investment. To estimate this high-dimensional network model, I develop a novel reinforcement learning algorithm that incorporates strategic considerations such as early-mover advantages and network interactions, yielding cost estimates consistent with industry benchmarks. Using this algorithm, I simulate long-run equilibria under various regulatory regimes. I find that entry by a single same-type competitor reduces network expansion and investment but improves plan quality, leading to a 10% increase in total surplus. Under a conventional unbundling policy with both one-time and usage-based fees, expansion decreases by 4% per period, investment rises by over 50% for both incumbents, and total surplus increases by 16%—driven by a 21% gain in consumer welfare and a 35% decline in firm profits.

“The impact of M&As on financial innovation” (with Josh Lerner & Amit Seru)

(Presented at the 2023 Computational and Methodological Statistics Conference)

There has been significant merger and acquisition activity in financial services in recent decades. The vast amount of the literature has focused on the banking industry, with an emphasis on market concentration and the provision of services. The technological factors that motivate such collaborative efforts (versus other methods, such as strategic alliances) as well as the impact of these acquisitions on subsequent innovation have been much more poorly understood. This paper seeks to answer these questions by leveraging a novel panel dataset of firm activity and patent grants as well as a combination of natural language processing (NLP) and machine learning classification tools. We find that M&A activity has a small but significant positive effect on innovation for the merged entity;

these results are robust to a number of specifications, including those that control for technological similarities and the endogeneity of acquisition.

“Portfolio construction using robust NLP with noisy social media text” (with Roy Welsch & Frank Xing)

(Presented at the 2022 Computational and Methodological Statistics Conference)

Social media data provides valuable insight into retail investors' market perceptions in close to real-time; however, the signals can be noisy due to misspellings, abbreviations, and other representational differences. Furthermore, NLP models for handling such texts have been shown to suffer from several robustness issues. We present a method for obtaining more robust semantic vector embeddings from social media (Twitter) data by training on a combination of clean and artificially generated noisy texts. We then demonstrate the improved performance of portfolios constructed using these robust estimates in simulation.

PAPERS IN PROGRESS

“Data privacy and technological innovation in social media”

Social media platforms rely heavily on user data to train algorithms, but face growing regulatory scrutiny over privacy concerns. While firms argue that data-driven algorithms benefit consumers by reducing frictions and surfacing relevant content, the broader welfare implications of restricting data access remain unclear. This paper provides the first empirical analysis of how costlier, more restricted access to user data affects consumer welfare in the long run. I begin by documenting a decline in AI/ML-related innovation among social media firms following the 2016 implementation of the General Data Protection Regulation (GDPR) in the EU. I then estimate a three-sided structural model of platform investment, user engagement (with network effects), and advertiser behavior, using detailed panel data on browsing time and ad auction bids. The model quantifies consumers' trade-offs between convenience/targeting and privacy, and how these preferences shape firm incentives. In counterfactual simulations, I evaluate how a cost shock to data access for a subset of users affects platform investment, user behavior, advertising revenues, and total social surplus in long-run equilibrium.

PROFESSIONAL EXPERIENCE

Meta Platforms Inc., New York, NY

Data Scientist, 2019 to 2020

Built and evaluated various machine learning pipelines (logistic regression, random forest, gradient boosting decision tree) to predict user interaction behavior and optimize search recommendations

Acadian Asset Management, Boston, MA

Investment Research Intern, 2018

Implemented custom decision tree algorithm to isolate pockets of abnormal behavior in performance attribution data and identify potential systematic biases in portfolio models

TEACHING INTERESTS

Technology Strategy, Natural Language Processing (NLP) and Large Language Models (LLMs)
Machine Learning (with applications to business and economics), Structural Modeling and Estimation

TEACHING EXPERIENCE

Doctoral: Industrial Organization I, Harvard University, teaching fellow for Professors Ariel Pakes, Myrto Kalouptsi, & Robin Lee, 2022 to 2024
(Nominated for Graduate Economics Association Teaching Fellow Award (2023))

Undergraduate: Mathematics for Computer Science, MIT, teaching assistant for Professors Eric Lehman, Thomas Leighton, & Albert Meyer, 2018

RESEARCH EXPERIENCE

Research Assistant for Professor Ariel Pakes, Harvard University, 2021 to 2023
Project on pharmaceutical advertising and stochastic algorithms

Research Assistant for Professor Roy Welsch, MIT, 2018 to 2020
Project on semantic vines and robust estimation

Research Assistant for Professor Yangqiu Song, Hong Kong University of Science and Tech., 2017
Project on natural language models for machine translation

ACADEMIC SERVICE

Organizer: Harvard Industrial Organization Graduate Student Workshop, 2023 to 2025

REFERENCES

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