JENNIFER ZOU

Littauer Center M7
1805 Cambridge St
Cambridge MA 02138

jzou@g.harvard.edu
919-937-4035
jen-zou.github.io

EDUCATION

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

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

"Dynamic Competition in Networked Markets: Evidence from US Broadband" (Job Market Paper)

This paper examines how regulatory policies can promote sustainable entry in US broadband. I develop a dynamic spatial competition model that endogenizes market structure, product differentiation, and capacity investment. On the demand side, households differ in internet preferences by demographics; on the supply side, firms set prices and speeds in a static game subject to capacity constraints, and make dynamic expansion and upgrade decisions. To solve the firm's high-dimensional optimization problem, I develop a reinforcement learning algorithm that decomposes decisions across locations while preserving network-wide strategic coordination. This methodology readily extends to other networked markets, such as mobile app distribution or data-driven advertising. In counterfactual analysis, I study two proposed policy interventions: municipal fiber provision and unbundling schemes where incumbents lease infrastructure access. Municipal broadband expands fiber access by 10% but ultimately reduces total welfare by triggering disinvestment from private competitors. This causes outsized harm to lower income households. Unbundling policies generate more favorable outcomes, particularly for price-sensitive consumers. Under a two-part tariff calibrated to the UK's cost-depreciation-based implementation, consumer surplus increases 12% at the expense of incumbents. I find that when one accounts for firms' dynamic responses, slashing connection fees while increasing usage fees by half can deliver Pareto improvements and an 18% increase in total surplus.

"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 Kalouptsidi, & 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

Professor Shane Greenstein
Harvard Business School
greenstein@hbs.edu

Professor Josh Lerner
Harvard Business School
lerner@hbs.edu

Professor Ariel Pakes
Harvard University
apakes@fas.harvard.edu

Professor Myrto Kalouptsidi
Harvard University
myrto@g.harvard.edu