Digital Economics and AI Tutorial Application
Applicant: Jingwei Dai

Contact Information

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Graduate Study and Ph.D. Enrollment

I am a Ph.D. student in Information Systems at Carnegie Mellon University's Heinz College, specializing in the economics of digital platforms and artificial intelligence. I began my doctoral studies in Fall 2022 and am currently in my fourth year of the program, with an expected graduation in 2027.

My core coursework has combined microeconomic theory, industrial organization, applied econometrics, and machine learning. On the economics side, I have completed sequences in microeconomics, game theory, and IO, along with specialized courses on platform economics and digital markets. On the methods side, I have taken graduate econometrics, causal inference, time-series analysis, and machine learning for social science, machine learning with large datasets, as well as courses in deep learning and multimodal models.

In parallel, I have been closely involved in research from early in my program, working with faculty in information systems, economics, and marketing. This has allowed me to develop projects that sit at the intersection of digital economics, generative AI, and platform design, and to work with large-scale proprietary and scraped datasets from real-world platforms.

Research Interests

My research focuses on the economics of digital platforms and AI, with three intertwined themes:

1. **Generative AI, content authenticity, and consumer demand on digital platforms**
2. **Super apps, one-stop shopping, and consumer welfare in multi-category ecosystems**
3. **Platform regulation and the labor market for gig workers**

Broadly, I am interested in how AI and digital platforms reshape market structure, consumer behavior, and welfare, and in how policy and platform governance can mitigate potential downsides.

Ongoing Research Projects

1. Generative AI Dish Images and Platform Policy in Food Delivery

In my main project, I study the impact of generative AI–created dish images on consumer demand in the Indian food-delivery market. India's two largest platforms, Zomato and Swiggy, introduced generative AI tools to help restaurants "beautify" dish images in late 2023. In August 2024, Zomato implemented a platform-wide ban on AI-generated or AI-modified dish images, citing concerns over authenticity, while Swiggy continued to allow them.

I use a unique panel dataset of consumer orders across both platforms from March 2024 to February 2025, linked to rich restaurant and image-level information. The empirical design is a difference-in-differences framework that exploits the policy change on Zomato, with Swiggy as a natural control. I complement this with multimodal image-forensics measures and AI-likelihood scores (e.g., from foundation models) to quantify whether images are likely AI-generated or heavily manipulated.

Preliminary results suggest that Zomato's AI-image ban led to a relative increase in order volume, revenue, and customer counts for restaurants on Zomato compared with those on Swiggy. Consumers also became more willing to try previously unvisited restaurants on Zomato. I am further exploring heterogeneity between chain vs. non-chain restaurants and between single-homing vs. multi-homing restaurants, as well as causal forest approaches to uncover treatment effect heterogeneity. Conceptually, this project connects digital economics, AI governance, and consumer trust in content authenticity.

This project is part of my dissertation and is coauthored with faculty in information systems and marketing.

2. The Welfare Effects of Super Apps and One-Stop Shopping

A second strand of my research examines the welfare implications of "super apps" that bundle multiple categories—such as ride-hailing, food delivery, and payments—into a single ecosystem. Using data from a Southeast Asian super app that integrates ride-sharing and food delivery, I study how one-stop shopping affects consumer demand, category-level competition, and platform pricing and commission policies.

On the empirical side, I use large-scale transaction data combined with within-app browsing and cross-category usage measures to identify how cross-category complementarities and convenience drive consumer behavior. On the theoretical side, I build a model of multi-category

platform competition and one-stop shopping, extending the one-stop shopping literature to settings with digital platforms and app ecosystems.

The goal is to quantify how super apps shape consumer surplus, platform profits, and third-party merchants' outcomes, and to connect these findings to current policy debates and antitrust cases related to "ecosystem power" and app bundling.

This project forms another pillar of my dissertation and overlaps naturally with the themes of the NBER Digital Economics and AI meetings.

3. Platform Worker Regulation and Gig Economy Labor Markets

In a third project, I study the impact of platform-worker regulation on drivers' earnings and labor supply in the ride-hailing market. Using panel data on drivers' weekly earnings and trips from a major Southeast Asian platform, I analyze how the introduction of a new regulatory framework affects driver behavior, platform pricing, and market outcomes.

Methodologically, I use event-study and difference-in-differences designs with rich driver fixed effects and high-frequency (weekly) data. Substantively, this work connects digital-platform design, regulation, and labor economics, and complements my other projects by focusing on the supply side of digital platforms.

Dissertation Overview and Committee

My dissertation, tentatively titled **"The Economics of Generative AI and Digital Platforms"**, brings together these projects to understand how AI and platform design jointly shape consumer behavior, market competition, and welfare. The unifying theme is that AI technologies and platform governance rules (such as image authenticity policies, bundling decisions, and worker regulations) fundamentally alter information flows and incentives in digital markets.

- **Dissertation Title (tentative):** *The Economics of Generative AI and Digital Platforms*
- **Committee (tentative):**
    - Beibei Li, Professor of Information Systems, Carnegie Mellon University (chair)
    - Rahul Telang, Trustees Professor of Information Systems, Carnegie Mellon University
    - Ananya Sen, Associate Professor of Information Systems, Carnegie Mellon University