Hongyuan Xia - Digitization Tutorial Application

Contact Information

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Course of Graduate Study

Cornell University — Sep 2020 - (*Scheduled*) Jun 2026
3rd Year Ph.D. in Economics — *Ithaca, NY, U.S.A.*

I am a first-generation doctoral student with major in economics. I received rigorous training in econometrics, micro- and macroeconomics. Meanwhile, I have also taken courses in areas other than economics, such as management and computer science. and participate in interdisciplinary work. The courses that I have taken are as below:

Graduate Courses - Economics and Management: Microeconomic Theory (I, II, III), Macroeconomics (I, II), Econometrics (I, II), Empirical Strategies (I, II), Industrial Organization, Advances in Labor Economics (Micro and Macro), Economics of Networks, PhD Seminar in Strategy, PhD Seminar in Entrepreneurship.

Graduate Courses - Computer Science: Intro to Machine Learning, Natural Language Processing, Causal Inference and Machine Learning, Theory of Causal Inference & Decision-Making.

Research Interest

Knowledge Production & Diffusion, Economics of Digitization, Entrepreneurship, Artificial Intelligence

My research focuses on the sourcing, production, and diffusion of knowledge, which I plan to examine in various contexts including cities, universities, startups, and superstar firms. The specific research questions that I am working on are as below:

- First, I am interested in how the imitation and competition between superstar firms and startups affect their adoption of digital technology, such as AI.
- Second, I investigate how prediction technology affects the knowledge production process and the dynamics of Schumpeter competition.
- Third, I am working on topics pertaining to how scientists in academia choose their research topics and commercialize their research outputs.

Working Papers

- Gender Identity, Peer Effects, and Research Focus: Evidence from PhD Dissertations (w/ *Paul Dai*)
  Abstract: Using a universe record of PhD dissertations in the US, we find a substantial amount of missing female PhD and female-focus research from 1985

to 2015. Our decomposition exercise quantifies the driving forces of this phenomenon. Besides, we find a close connection between PhD gender identity and their research focus: females are more likely to do female-focus research (FFR), while males are less likely. We further causally identify the peer effects of producing female-focus research: a higher female ratio in the PhD cohort encourages females but discourages male PhDs from doing FFR, which is in favor of a competition effect in addition to knowledge diffusion in FFR production. These effects last for at least 5 years after graduation. Further investigation indicates the homophily and coauthor network explain the differential effects on female and male PhDs.

Work in Progress

- Dancing with Stars: Superstar Firms' Role Model Effect on AI Adoption (w/ *Chris Forman*)

  Abstract: Artificial Intelligence (AI) has been labeled a "general purpose technology" due to its pervasive role across many different industries. Despite of the potential benefits, the adoption of AI varies across regions and industries. In this project, we plan to investigate several questions: First, do startups imitate superstar firms to adopt AI? Second, How does the AI adoption affect real outcomes, such as employees' perception of job quality and productivity? Third, does competition foster or stifle the imitation process?

- Attention to Exploration: The Effect of Technology Clusters on Scientific Knowledge Production (w/ *Matt Marx*)

  Abstract: Do technology clusters of firms affect the direction of local university researchers' academic research and inspire more applied, commercializable research? By taking advantage of the announcement of previously-unanticipated entry of high-tech firms, we will identify the causal effect of technology clusters on scientists' research direction.

- From Exploitation to Exploration: The Role of AI

  Abstract: Recent work on AI focuses on how AI changes the productivity and labor markets and documents that the extent to which automating technologies substitute for or complement human labor depends on the extent to which such technologies substitute for the specific tasks associated with production. However, little attention has been paid to how automating technologies, such as AI, affect knowledge production, especially, the direction of scientists' exploration. In this project, I plan to investigate how AI enables researchers to explore more diverse topics (i.e. exploration) instead of digging further into existing topics (i.e. exploitation).

Awards and Grants

Cornell Center for Social Sciences Research Grant, Cornell University, 2022
The Howard and Abby Milstein Graduate TA Award, Cornell University, 2022
Sage Fellowship, Cornell University, 2021 and 2022

COMMITTEE MEMBERS

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