Application for NBER Digital Economics and AI Tutorial: Jin Choi

Contact Information

Name: Jinkyong (Jin) Choi

Program: Ph.D. Candidate, Strategy Group, Columbia Business School

Address: 665 W 130th St, 9th Floor, New York, NY, United States

Email: jc5901@columbia.edu

Phone: +1-332-256-7340

Advisor: Jorge Guzman

Graduate Study and Progress

I am a third-year Ph.D. student in the Strategy Group at Columbia Business School, with an expected graduation date in 2027. My doctoral coursework has focused on innovation, entrepreneurship, and computational social science, complemented by rigorous training in econometrics and data analysis. My research examines how digital and physical infrastructures influence regional innovation ecosystems, with a focus on AI innovation.

Prior to joining Columbia, I completed a Master of Public Policy at the University of Chicago, specializing in data and analytics, and I hold a Bachelor of Arts from Seoul National University.

The key graduate level courses I have taken include:

- PhD Econometrics
- PhD Financial Econometrics: Panel Data
- Machine Learning for Social Science
- Natural Language Processing
- Advanced Strategy
- The Economics of Labor
- Behavioral Economics
- Industrial Organization

Research Interests and Projects

My research focuses on the environments and conditions that drive the rapid growth of AI innovation and digitization, with a particular emphasis on the physical infrastructure and assets essential to enable them. My portfolio of research includes:

1. **Data Centers as Catalysts for AI Innovation Ecosystems (with Angela Ryu)**

   As AI companies prioritize securing more GPU chips and constructing data centers—described as "AI factories" by Jensen Huang—the critical role of physical digitization infrastructure in advancing AI becomes increasingly evident. While the economics of digitization has extensively explored the intangible and network-driven aspects of the digital economy, such as platforms and network effects, this project highlights the equally vital contributions of physical infrastructure to the development and sustainability of AI ecosystems.

   We propose that data centers not only provide the essential computational power required for AI innovation but also stimulate the development of STEM talent in their regions. This combination creates a self-reinforcing ecosystem that supports technological growth and regional economic development through various channels, including university research and entrepreneurship. Using a difference-in-difference methodology, we examine regions that secure data center investments compared to those that narrowly miss out. We measure their impact on regional AI patenting, STEM workforce development, and entrepreneurship, demonstrating how these investments enable AI-driven innovation and digital transformation. Our initial findings suggest that data centers significantly bolster regional AI innovation and technological activity, particularly in AI-intensive sectors, while their impact on nondigital industries remains limited.

   This research contributes to the digital economics literature by highlighting the fundamental role of physical infrastructure in enabling digital transformation. Although previous studies have focused on intangible digital assets and platform economies, this work emphasizes the interplay between physical and digital dimensions, offering a more holistic view of how digitization shapes economic ecosystems. By bridging this gap, my aim is to provide insight into how investments in physical digitization infrastructure can foster regional economic development and sustain long-term innovation in the AI era.

2. **Third Places and Neighborhood Entrepreneurship (with Jorge Guzman and Mario Small)**

This research examines the role of physical "third places"—spaces where people connect outside of home and work—in catalyzing local entrepreneurship. Focusing on the introduction of Starbucks cafés, we explore how these venues facilitate community networks that foster innovation and collaboration, leading to new business creation. Using a staggered difference-in-difference approach, the study demonstrates that the opening of a Starbucks increases local startup rates by 8%. This research, featured in *The Economist* and in *NBER Research Highlight*, underscores the importance of physical venues in building entrepreneurial ecosystems, particularly in previously underserved regions. While this study focuses on a seemingly different context than data centers, it shares a core interest in the impact of physical spaces on economic activity and innovation. Just as data centers provide the physical infrastructure for digital innovation in the AI sector, third places provide the social infrastructure for entrepreneurial activity.

Relevance and Goals for the Tutorial

I am eager to attend the NBER Digital Economics and AI Tutorial to engage with leading scholars and explore the cutting-edge research at the intersection of AI and the economics of digitization. The transformative impact of AI on the digital economy and its implications for economic activity resonate strongly with my research, particularly in understanding the forces driving these changes. This tutorial offers a unique opportunity to deepen my knowledge, exchange ideas with experts, and refine my perspective on this evolving field.

Through my participation, I aim to contribute a timely and relevant perspective on the often-overlooked role of physical infrastructure investments in enabling AI innovation. The increasing recognition of this connection by industry practitioners highlights its importance and underscores the potential for significant academic contributions. By sharing my findings on how assets like data centers catalyze technological progress and regional growth, I hope to enrich the discussion, bridge practical and scholarly insights, and further develop my research through meaningful dialogue with peers and mentors.

Attending the tutorial would not only enhance my understanding of the challenges and opportunities at the intersection of AI and digital economics but also inspire new directions for my work on how physical infrastructure supports sustainable innovation in the digital age.

Thank you for considering my application.