ALINA JIAJING SONG

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EDUCATION

The Wharton School, University of Pennsylvania 2021 - Present
Ph.D. Candidate in Finance

University of Notre Dame 2017 - 2021
B.A. in Economics & Applied and Computational Mathematics, *summa cum laude*

RESEARCH INTERESTS

Corporate Finance, Digital Economy, Innovation

WORK IN PROGRESS

Digital Infrastructure and Innovation: Evidence from Data Centers

The rapid expansion of data generation has created unprecedented demand for data storage infrastructure. Though there is a burgeoning literature of the value of data to firms and consumers, the physical infrastructure has been less studied in the literature despite its importance. Exploiting a novel dataset capturing nearly all data center locations and power capacities across the United States and a dataset with virtually all online job postings, I examine how digital infrastructure capacity influences regional AI innovation. I then build a theoretical model demonstrating how data center construction relaxes storage constraints and shapes firms' innovation and growth trajectories. Using difference-in-differences and instrumental variable approaches, I find that data center presence significantly increases regional firm investment in AI technologies.

The Cross-section of AI Complementarity

How does advances in AI affect the cross-section of firm growth and value? This paper argues that the labor structure of the firm matters. I document that a one-standard-deviation increase in the change of the share of AI labor leads to a 2-5x faster growth for firms with low AI complementarity (substitute firms) than firms with high AI complementarity (complement firms). Further, substitute firms consistently exhibit higher excess returns despite having lower loadings on systematic risk. I then build a model with in which AI and non-AI labor can be either substitutes or complements that explains the facts. I show that AI labor share is a sufficient statistics for a firm's cash flow growth level and risk.

RESEARCH EXPERIENCE

The Wharton School

Research Assistant to Prof. Huan Tang *2024*
The Network Structure of Data Economy
Breaking the Data Chain: The Ripple Effect of Data Sharing Restrictions on Financial Markets

Research Assistant to Prof. Joao Gomes *2022 - 2023*
Oligopoly Dynamics with Financing Frictions
Monetary Policy and Financial Stability

Wilson Sheehan Lab for Economic Opportunities 2018 - 2019
Research Assistant, randomized controlled trials (RCT) for several homelessness prevention programs

TEACHING EXPERIENCE

Macroeconomics and the Global Economic Environment, EMBA, MBA 2022 - 2024
Teaching assistant to Prof. Stephen Meyer, Tim Landvoigt, Tom Winberry

Central Banks, Macroeconomic Policy and Financial Markets, MBA 2023 - 2024
Teaching assistant to Prof. Joao Gomes and Zvi Eckstein

Corporate Finance, Undergraduate 2022
Teaching assistant to Prof. Howard Kaufold

HONORS AND AWARDS

Mack Institute of Innovation ($5000) 2024
AI & Analytics at Wharton Research Grant ($4500) 2024
AI & Analytics at Wharton Research Grant ($6700) 2024
Bernoulli Award First Prize 2021
John Harold Sheehan Award for the best senior honors thesis 2021
Phi Beta Kappa 2021

OTHER WORK EXPERIENCE

Jefferies, New York, NY 2020
Equity Research Summer Associate

CODING & SOFTWARE SKILLS

Python, STATA, Matlab, SAS

REFERENCES

Prof. Joao Gomes
Howard Butcher III Professor of Finance
The Wharton School
University of Pennsylvania
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Prof. Huan Tang
Assistant Professor of Finance
The Wharton School
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Digital Economics and AI Tutorial
National Bureau of Economic Research (NBER)

Dear Organizers of the Digital Economics and AI Tutorial,

I am writing to express my enthusiastic interest in attending the NBER Digital Economics and AI Tutorial at Stanford University. As a Ph.D. candidate in Finance at The Wharton School, my research sits at the intersection of corporate finance and digital economy. Given the interdisciplinary nature of the field, I firmly believe that the event provides an ideal platform to engage with scholars from diverse academic backgrounds and broaden my perspectives on emerging questions in digital economics and AI, and I believe that my corporate finance training could add value to the program.

My current research investigates how the digital economy shapes firm dynamics. In my work in progress, *Digital Infrastructure and Innovation: Evidence from Data Centers*, I demonstrate how regional data center capacity relaxes firms' storage constraints, driving AI-related investments and shaping growth trajectories. Another project, *The Cross-section of AI Complementarity*, explores the importance of firms' labor structures affects the impact of AI on firm growth and value. Both projects integrate theoretical models and empirical methods to uncover the transformative role of AI and digital technologies in shaping firm dynamics.

My interest in digital economics and corporate finance has been strengthened by my research assistantships at The Wharton School. Collaborating with Professors Huan Tang and Joao Gomes, I worked on projects examining the network effects of data-sharing policies and macro-financial frictions in digital markets. These experiences deepened my understanding of AI applications in research and introduced me to tools such as natural language processing (NLP), which I have used to analyze large-scale unstructured datasets.

I look forward to contributing my insights on corporate finance and innovation to discussions at the tutorial. Equally, I am excited about the opportunity to learn from researchers in diverse fields, whose unique perspectives will enrich my understanding of how AI and digital technologies are transforming economic landscapes.

Thank you for considering my application. I look forward to the possibility of engaging with fellow participants and expanding my research toolkit.

Sincerely,
Alina Jiajing Song
Ph.D. Candidate in Finance
The Wharton School, University of Pennsylvania