Zunda Winston Xu
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Feb 14, 2023

Dear Committee,

I am writing to apply for the NBER Entrepreneurship Research Boot Camp in July 2023. I am currently a second-year Ph.D. student in finance at Stanford Graduate School of Business.

With ongoing research at the intersection of financial innovation, industrial organization and corporate finance, the boot camp is a great opportunity for me to gain broader exposure to research on the entrepreneurship and form new research ideas at the intersection of these topics. I describe my research interest and motivation for the boot camp in detail in the essay attached.

I enclose in this application the following materials:

1. A current CV
2. A list of current and completed PhD courses
3. An essay describing my research and reasons for wanting to attend the boot camp

Moreover, you should be receiving a recommendation letter for me directly from Amit Seru, the Steven and Roberta Denning Professor of Finance at Stanford Graduate School of Business (aseru@stanford.edu).

Thank you for your consideration!

Sincerely
Winston Xu

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EDUCATION

Stanford Graduate School of Business — Stanford, CA
Ph.D. in Finance — 2021 - Present

The University of Chicago — Chicago, IL
M.A. in Computational Social Science (Economics Track) — 2017 - 2019

Nankai University — Tianjin, China
B.A. in Economics — 2013 - 2017

RESEARCH INTEREST

Technological Innovation, Corporate Finance, Industrial Organization

WORK IN PROGRESS

Innovation Wave and the Productivity Puzzle: A Behavioral Approach
(with Tianshu Lyu)

Banks and Misallocation: Evidence from India
(with Marshall Mo)

RESEARCH EXPERIENCE

Predoctoral Research Fellow — 2019 - 2021
Stanford Institute for Economic Policy Research, Stanford, CA
PI: Professor Amit Seru

- Technology innovation projects with Profs. Amit Seru and Dimitris Papanikolaou. Provided extensions for the papers of Kogan et al. (2017) and Kelly et al. (2020).
- Financial innovation project with Profs. Amit Seru and Josh Lerner. Explored and illustrated how regulation and technology development are associated with shifts in financial patenting for Lerner et al. (2020).
- Financial arbitration, financial advisor, and innovative payment projects with Profs. Amit Seru, Gregor Matvos, and Mark Egan.
- Financial regulation project. Studied the "revolving door" and drivers of retention issues in different regulators.

Research Assistant — 2018 - 2019
Booth School of Business, The University of Chicago, Chicago, IL
PI: Professor Jessica Jeffers

- Corporate culture project. Cleaned LinkedIn registration data and connection data; Used parallel computing algorithm "MapReduce model" to create new variables.
- Social impact investing project. Revised contract coding template; Provided literature review on contract theory.

Research Assistant — 2018 - 2019
Becker Friedman Institute, The University of Chicago, Chicago, IL
PI: Professors Christopher Carroll and Richard Evans

- Consumption theory project with Prof. Carroll. Wrote original code for the Buffer Stock Saving model and replicated the paper Carroll (2019).
- Precautionary labor supply project with Dr. Evans. Solved life-cycle model with endogenous labor supply and stochastic income process

TEACHING EXPERIENCE

Course Assistant 2023
Stanford Graduate School of Business, Stanford, CA
Corporations, Finance, and Governance by Prof. Amit Seru

Course Assistant 2022
Stanford Graduate School of Business, Stanford, CA
Economics of Private Equity Industry by Prof. Ilya Strebulaev

Course Assistant 2022
Stanford Graduate School of Business, Stanford, CA
Angel and Venture Capital Financing by Prof. Ilya Strebulaev

Teaching Assistant 2019
The University of Chicago, Chicago, IL
Perspectives on Computational Modeling by Dr. Richard Evans

HONORS & AWARDS

The Kevin T. Callaghan Fellowship Fund, Stanford GSB	2022
Cha Family Fund for the Cha Scholars, Stanford GSB	2021
SIEPR Predoctoral Research Fellowship, Stanford University	2019-2021
Social Science Scholarship, The University of Chicago	2017–2019
Open Source Macroeconomics Laboratory Boot Camp Fellowship	2018

INDUSTRIAL EXPERIENCE

Analyst, Corporate and Institutional Banking 2016 - 2017
BNP Paribas, Shanghai, China
Conducted in-depth analysis on potential clients using large data sets; Prepared research reports (i.e., assets, liabilities, profits, investments, credit rating, industry analysis); Communicated with potential clients to better assess their financial needs; Assisted with credit rating and risk estimation and put forward effective risk management measures; Collaborated with loan capital market section to design custom-made loan products for clients.

International Financial Consultant 2016
deVere Group, Shanghai, China
Attended regular training arranged by Sell-side including Goldman Sachs, JP Morgan, and Morgan Stanley; Gained foundational knowledge of design principles of financial products; Conducted structural analysis of property situation of clients and then prepared individual financial analysis reports; Classified different clients and identified potential client resources.

SKILLS & LANGUAGE

Programming: Python, R, Stata, C, C++, MATLAB, Mathematica, SQL, CSS, HTML, Julia
Language: Chinese (Native), English (Professional)

Current Ph.D. Courses

Stanford Graduate School of Business
Ph.D. in Finance, expected June 2026

- Macroeconomics and Financial Markets (by Arvind Krishnamurthy & Monika Piazzesi)
- The Industrial Organization of Financial Markets (by Greg Buchak & Claudia Robles-Garcia)
- Industrial Organization II (by Liran Einav & Ali Yurukoglu)

Completed Ph.D. Courses

Stanford Graduate School of Business
Ph.D. in Finance, expected June 2026

- Econometric Methods (by Han Hong & Joseph Romano)
- Macroeconomics I (by Monika Piazzesi & Martin Schneider)
- Microeconomics I (by Douglas Bernheim & Ilya Segal)
- Macroeconomics II (by Monika Piazzesi & Martin Schneider)
- Microeconomics Analysis II (by Robert Wilson)
- Financial Market I (by Benjamin Hebert)
- Empirical Asset Pricing (by Hanno Lustig)
- Corporate Finance Theory (by Jeffrey Zwieble)
- Intermediate Econometrics III (by Guido Imbens)
- Empirical Corporate Finance (by Juliane Begenau & Chenzi Xu)
- Advanced Corporate Finance (by Ilya Strebulaev, Peter DeMarzo & Jeffrey Zwieble)
- Industrial Organization I (by Liran Einav, Paulo Somaini & Jose Ignacio Cuesta)

The University of Chicago
M.A. in computational social science, 2017-2019

- Theory of Income I (by Fernando Alvarez)
- Macroeconomics and Financial Frictions (by Harald Uhlig)
- Topics in Econometrics (by Stephane Bonhomme)

Dear Committee,

I am a second-year Ph.D. student in Finance at Stanford GSB. My research interests lie in financial innovation, corporate finance, and industrial organization. I am applying to the NBER Entrepreneurship Research Boot Camp because I am eager to develop a solid foundation in understanding the economics of entrepreneurship and entrepreneurial finance for my research. I am actively doing research connecting technological innovation with financial economics and would greatly benefit from participating in the program. Entrepreneurship is an exciting field with a rapidly growing body of cutting-edge research, and I believe the NBER boot camp is the best place to master this body of work. I want to develop a research agenda exploring questions on how innovation driven by entrepreneurs influences macroeconomic growth and micro-level firms' decisions, both of which, from my perspectives, can expand our understanding of the economics of entrepreneurship and related entrepreneurial policies.

My first exposure to the field occurred when I was a predoctoral research fellow working with Prof. Amit Seru at Stanford Institute for Economic Policy Research (SIEPR). Since then, I have been working extensively in the field of innovation with Prof. Seru and his collaborators Prof. Dimitris Papanikolaou (Kellogg) and Prof. Josh Lerner (HBS). I have worked on extending their research that estimates a patent's private value (Kogan et al. 2017) both within the US and outside the US. Besides, I have spent time assessing how it might relate to the measure of patent importance – which may also include elements of social value – as proposed in their work that leverages patent text data (Kelly et al. 2020). Furthermore, I have explored how financial innovation has evolved since the 21st century and the social value of financial innovation (Lerner et al. 2022). This experience led me to think more about the emergence and subsequent diffusion of technologies through the economy. In particular, given my interests in the financial sector, I have been intrigued by the influences of technological innovations on financial markets. My teaching assistantship experience for Prof. Ilya Strebulaev on both Venture Capital and Private Equity classes help me further realize that entrepreneurs and start-up companies have always been the major driving power of the technological innovation. Understanding of entrepreneurship, especially entrepreneurial finance, is essential to study the innovation and economic growth.

In an ongoing project with Tianshu Lyu, we document that innovation waves (measured by the number of breakthrough patents) usually coincide or slightly precede stock price hikes. However, as the famous "productivity puzzle" states, innovation waves do not drive a significant increase in productivity growth, especially in recent decades. This phenomenon implies that many breakthrough patents lead to substantial market reactions without significant economic value. Motivated by those facts, we provide a behavioral explanation emphasizing the investors' overreaction to brand-new patents. More specifically, we find that more original patents have more significant short-term return reactions, predicting a greater number of follow-up patents in the same innovation direction. More importantly, those follow-up patents are more likely to have higher market returns. However, investors might get too excited about the novelty ideas. The abnormal return reactions of the more original patents do not necessarily predict a significantly higher firm's output and profit. Those results imply that the market's reaction drives the innovation direction to chase the most original idea, which endogenously helps the formation of innovation waves. However, not all novelty patents can bring in high productivity. Thus, the innovation waves don't result in a corresponding scale of economic growth.

For my future research plan, I am interested in exploring how firms' (both new entrants' and incumbents') objective and decisions influence their innovation. Some interesting questions include: How does the financial strategical alignment among incumbents and entrepreneurs affect their innovation? How does the firms' collusion on price fixing impact their R&D procedure? Why "heavily polluted" firms are the top "green innovators" in the US? Are they using green innovation to greenwash and increase their short-term profits? How do private firms conduct green innovations, especially start-up and growth companies? Understanding those questions could provide policymakers with useful toolkits to design the innovation and entrepreneurship policy. By applying the frameworks in industrial organization and corporate finance, I aim to address those issues and contribute to the field.

Given my research agenda, the NBER Entrepreneurship Boot Camp is an excellent opportunity to dive into this field's exciting and cutting-edge literature. I also want to get involved in the entrepreneurship research community. The boot camp would be an invaluable experience for interacting with peers with similar research interests and seeking potential collaborations. I sincerely hope to be a participant in the workshop and get the chance to learn from and interact with active researchers in entrepreneurship field.

Reference:

Kogan, Leonid, Dimitris Papanikolaou, Amit Seru, and Noah Stoffman. "Technological innovation, resource allocation, and growth." *The Quarterly Journal of Economics* 132, no. 2 (2017): 665-712.

Kelly, Bryan, Dimitris Papanikolaou, Amit Seru, and Matt Taddy. "Measuring technological innovation over the long run." *American Economic Review: Insights* 3, no. 3 (2021): 303-320.

Lerner, Josh, Amit Seru, Nick Short, and Yuan Sun. *Financial innovation in the 21st century: Evidence from us patents*. No. w28980. National Bureau of Economic Research, 2021.