Xugan Chen

199 Whitney Avenue Ph.D. Suite
New Haven, CT 06511
T 475 287-1034
xugan.chen@yale.edu
www.xuganchen.com

February 2, 2025

Dear Committee Members,

I am writing to apply for the NBER Innovation Research Boot Camp in July 2025. As a third-year Ph.D. student in financial economics at the Yale School of Management, I am eager to deepen my understanding and contribute to the field of innovation.

My research has been centered around understanding and fostering innovation in the firm growth and economic development. The boot camp presents a unique opportunity for me to broaden my knowledge and develop new ideas. I am particularly excited about the prospect of interacting with leading experts and fellow participants in this field.

Enclosed with this letter, you will find the following application materials:

1. A current curriculum vitae
2. A list of all current and completed Ph.D. courses
3. An essay that describes my research and the reasons for wanting to attend the boot camp

Additionally, you should be receiving a recommendation letter on my behalf directly from Song Ma, Professor of Finance at the Yale School of Management (song.ma@yale.edu).

Thank you for your consideration.

Sincerely,
Xugan Chen

February 2025

Xugan Chen (陈栩淦)

199 Whitney Avenue Ph.D. Suite, New Haven, CT 06511
Email: xugan.chen@yale.edu | *Tel*: +1 (475) 287-1034
Web: https://www.xuganchen.com

EDUCATION

2022-Present **Yale School of Management**, New Haven, CT, USA
- Ph.D. in Financial Economics

2016-2020 **Zhejiang University**, Hangzhou, Zhejiang, China
- Chu Kochen Honors College
- B.S. in Mathematics and Applied Mathematics, with *Highest Honors*
- B.A. in Finance, with *Highest Honors*

2019 **Yale School of Management**, New Haven, CT, USA
- Visiting Undergraduate Researcher

WORKING PAPERS

[1] **"The Economic Value of Science,"** (with Ernest Liu and Song Ma), 2024

[2] **"Banks' Image: Evidence from Financial Advertising,"** (with Allen Hu and Song Ma), 2024

[3] **"Financing Risk and Entrepreneurial Activity,"** 2024

RESEARCH EXPERIENCES

2020-2022 **Pre-Doctoral Fellow**, Yale Economics / Tobin Center, Yale University
- Supervisors: Professors Barbara Biasi and Song Ma

2018-2020 **Undergraduate Research Training**, School of Economics, Zhejiang University

2018-2019 **Student Research Training Program**, School of Mathematical Sciences, Zhejiang University

TEACHING EXPERIENCES

Yale School of Management

2024 **Behavioral Finance**, Teaching Assistant for Professor Nicholas Barberis
- MBA/MMS course in Spring 2024
- PhD course in Spring 2025

2024 **Entrepreneurial Finance**, Teaching Assistant for Professor Song Ma
- MBA/EMBA/MMS course in Spring 2024, Summer 2024, Fall 2024

2024 **Statistical Foundations**, Teaching Assistant for Professor Theis Jensen

- MBA/MMS course in Fall 2024

INVITED WORKSHOPS

2024 NBER Entrepreneurship Research Boot Camp

SCHOLARSHIPS AND FELLOWSHIPS

2022-2027 Ph.D. Fellowship, Yale University

2020 Outstanding Graduates of Zhejiang Province (*Top 1%*), Zhejiang Province, China
Outstanding Graduates of Zhejiang University (*Top 5%*), Zhejiang University

2018,2019 Provincial Government Scholarship (*Top 10%*), Zhejiang Province, China

2017 National Scholarship (*Top 1%*), Ministry of Education, China
First-Class Scholarship for Outstanding Students (*Top 10%*), Zhejiang University

SKILLS

Programming Python, Stata, R, SAS, SQL, MATLAB; Deep Learning, NLP, Distributed Computing

Github https://github.com/xuganchen

List of Ph.D. Courses

Completed Ph.D. Courses

Yale University, Ph.D. in Financial Economics[1], 2022-Present

Spring 2024

- Corporate Finance (by Song Ma and Kelly Shue, Grade: H)
- Household Finance (by James Choi, Grade: HP)
- Financial Econometrics and Machine Learning (by Bryan Kelly, Grade: H)

Fall 2023

- Macro Finance (by Alp Simsek, Grade: H)
- Labor Economics (by Costas Meghir, Grade: HP)

Spring 2023

- Applied Empirical Methods (by Paul Goldsmith-Pinkham, Grade: H)
- Behavioral Finance (by Nicholas Barberis, Grade: H)
- Econometrics II (by Edward Vytlacil, Grade: H)
- General Economic Theory: Microeconomics II (by Johannes Horner and Ryota Iijima, Grade: HP)

Fall 2022

- Financial Economics I (by Stefano Giglio, Grade: H)
- Econometrics I (by Donald Andrews, Grade: H)
- General Economic Theory: Microeconomics I (by Larry Samuelson and Johannes Horner, Grade: HP)

[1] The grading system of Yale Graduate School of Arts and Sciences consists of Honors (H), High Pass (HP), Pass (P), and Fail (F).

Dear Committee Members,

I am a third-year Ph.D. student in financial economics at the Yale School of Management, with my research interests spanning innovation, corporate finance, entrepreneurial finance, and big data. Innovation has been one of the most exciting and active fields in the past years, and the NBER Innovation Research Boot Camp represents an ideal platform for engaging with cutting-edge research in this area. My current work focuses on the role of innovation in economic development, aligning seamlessly with the boot camp's focus. I am developing a research agenda centered on innovation, firm growth, and economic development. Participating in this boot camp presents a unique opportunity to broaden my research horizons and deepen my understanding of innovation.

My current research explores the role of innovation in driving firm growth and promoting economic development. In collaboration with Ernest Liu and Song Ma, we are studying the value of scientific discoveries to economic growth. Our goal is to quantify the value generated by science, understand the characteristics and dynamics of the fields creating this value, and explore ways of unleashing that value. Theoretically, we build an endogenous growth model that accommodates the innovation dynamics across various fields and incorporates the interactions between science and industrial innovation. Our method values science based on all the impacts of scientific research by accounting for knowledge spillovers and value creation in industry. Empirically, we combine multiple data sources, including global patents, academic publications, R&D expenditures by international firms, and scientific funding grants. We construct a novel innovation network that captures knowledge flows among all industrial sectors and scientific fields by utilizing natural language processing techniques on the complete text of patents and scientific publications. Our findings highlight the long-term, extensive life cycle of science versus the high-frequency, stable life cycle of industrial innovation. We also reveal the connection between industrial innovation and science, showing that the dynamics of industrial innovation are driven by various underlying scientific fields. Finally, we quantitatively assess the economic value of science across various countries over time.

Looking ahead, I aim to expand my research to study the relationships between innovation dynamics, firm life cycle, and economic growth. I am particularly interested in how firms pursue different type of innovation at various stages of their life cycle. For example, are more radical innovations pursued by the firms in the growth or decline stage, and is it related to firm size? Moreover, I would like to explore how firms respond to their financing risk (i.e., expected future financial constraints) to maintain their innovative edge and survival chance. Can we find out whether some firms adopt more conservative strategies and reduce resource-intensive and novel innovations when they face higher potential expected financial constraints? Finally, I would like to explore how firms respond to technological obsolescence and maintain their innovative edge. Are some firms better at keeping their innovative activities high, and what are the implications for firm growth and productivity at different stages?

The boot camp's focus on innovation aligns perfectly with my research interests, which provides me with the unique opportunity to learn cutting-edge research and form new ideas in this field. At the same time, the boot camp offers practical tools and methodologies that can be directly applied to my research, which is crucial for developing impactful work with real-world applications. Moreover, the opportunity to network with like-minded leading researchers and other participants is highly appealing. The environment of the boot camp is ideal for exchanging ideas, fostering collaborations, and expanding my academic network.

I am enthusiastic about the opportunity to immerse myself in this learning experience and look forward to the possibility of participating in the boot camp.

Yale SCHOOL OF MANAGEMENT

SONG MA
Professor of Finance and Entrepreneurship

PO Box 208200
New Haven CT 06520-8200
T 203 436-4687
song.ma@yale.edu
som.yale.edu/ma

courier
165 Whitney Avenue, Room 4524
New Haven CT 06511

Re: Recommendation Letter for Xugan Chen

Dear Admissions Committee,

I am writing to highly recommend Xugan Chen for the NBER Innovation Research Bootcamp. Xugan is a 3rd Year PhD student at Yale University. He has broad interests in innovation economics, particularly how it relates to macro growth and development.

Xugan started as a pre-doctoral fellow at Yale under my supervision before continuing as a PhD. Now I serve as the chair of Xugan's dissertation committee, and we meet regularly to talk about research. Over the years, I have been constantly impressed by his intellectual curiosity, ability to understand both theory and data, and work ethics. Xugan was instrumental in several of my research projects that were presented at NBER innovation meetings like my work with Barbara Biasi on education-innovation gap, and my work with Ernest Liu on innovation network. Through the process, Xugan demonstrated his potential to contribute to the field of innovation economics.

I strongly encourage you to consider Xugan's application seriously: he has a genuine interest in the field of innovation; he has a ton of option value and the potential to do interesting work in this field; and he is a great colleague, and people around him like talking about research with him. Meanwhile, I think he will benefit a lot from learning from experts like you all and grow from this experience.

At last: thank you for organizing this wonderful camp again!

Sincerely,



Song Ma