Xugan Chen

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February 2, 2024

Dear Committee Members,

I am writing to apply for the NBER Entrepreneurship Research Boot Camp in July 2024. As a rising 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 entrepreneurship and entrepreneurial finance.

My research has been centered around entrepreneurial finance, innovation, and corporate finance. This boot camp presents a unique opportunity for me to broaden my knowledge and develop new ideas. At the same time, 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, Associate Professor of Finance at the Yale School of Management (song.ma@yale.edu).

Thank you for your consideration.

Sincerely,
Xugan Chen

January 2024

Xugan Chen (陈栩淦)

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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

"The Economic Value of Science," (with Ernest Liu and Song Ma), 2023

RESEARCH EXPERIENCES

2020-2022 Pre-Doctoral Fellow at Yale Economics / Tobin Center, Yale University

- Supervisors: Professors Barbara Biasi and Song Ma

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

2018-2019 Undergraduate Research Training at School of Mathematical Sciences, Zhejiang University

TEACHING EXPERIENCES

Spring 2024 **Entrepreneurial Finance**, Teaching Assistant, Yale School of Management

- MBA/EMBA/MMS, by Professor Song Ma

Spring 2024 **Behavioral Finance**, Teaching Assistant, Yale School of Management

- MBA/EMBA/MMS, by Professor Nicholas C. Barberis

SCHOLARSHIPS AND FELLOWSHIPS

2022-2024 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 First-Class Scholarship for Outstanding Students (*Top 10%*), Zhejiang University
National Scholarship (*Top 1%*), Ministry of Education, China

SKILLS

Programming Python, Stata, R, SAS, SQL, MATLAB; Text Analysis, Distributed Computing

Github https://github.com/xuganchen

List of Ph.D. Courses

Current Ph.D. Courses

Yale University, Ph.D. in Financial Economics, 2022-Present
Spring 2024

- Corporate Finance (by Song Ma and Kelly Shue)
- Household Finance (by James Choi)
- Financial Econometrics and Machine Learning (by Bryan Kelly)
- Advanced Macroeconomics II (by Michael Peters and Martin Souchier)
- International Trade II (by Samuel Kortum and Amit Khandelwal)

Completed Ph.D. Courses

Yale University, Ph.D. in Financial Economics[1], 2022-Present
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 rising third-year Ph.D. student in financial economics at the Yale School of Management. My research interests span entrepreneurial finance, innovation, and corporate finance. I am keenly interested in the NBER Entrepreneurship Research Boot Camp to further develop a solid foundation in entrepreneurship research. Entrepreneurial finance has been one of the most exciting and active fields in the past years, and the boot camp represents an ideal platform for engaging with cutting-edge research in this area. While my ongoing research is related to innovation and economic development, I am developing a research agenda centered on entrepreneurial finance, innovation, and corporate finance. This boot camp presents a unique opportunity to broaden my research horizons and deepen my understanding of entrepreneurship.

My current research investigates the role of innovation in driving firm growth and promoting economic development. Collaborating with Ernest Liu and Song Ma, we are studying the value of scientific discoveries to economic growth. We build an endogenous growth model that captures innovation dynamics across fields and the interactions between science and industrial innovation. Our method values science by considering its knowledge spillovers and industrial value creation. Empirically, we utilize multiple data sources, including global patents, academic publications, international firms' R&D expenditures, and scientific funding grants. By applying natural language processing techniques to the text of patents and scientific papers, we construct a novel innovation network that tracks knowledge flows across industrial sectors and scientific fields. Our findings underscore the contrast between the long-term, extensive life cycle of science versus the high-frequency, stable life cycle of industrial innovation. We also uncover the connection between industrial innovation and science, demonstrating that the dynamics of industrial innovation are driven by various related scientific fields. Finally, we quantitatively assess the economic value of science across various countries over time.

Looking forward, I plan to expand my research to study the interactions between startups and incumbents and the relationships between innovation and firm life cycle. An interesting question would be the nature of innovation pursued by firms at different stages of the life cycle. For example, what kind of radical innovations do startups and incumbents pursue, and how are these influenced by their respective constraints? Additionally, I aim to investigate how companies, be they startups or incumbents, navigate technological obsolescence to sustain their innovative edge. I am curious to explore if some firms are better at maintaining high levels of innovation activities and what implications this has for business growth and productivity. A prospective approach to these questions is to develop novel methodologies that capture the chain of technology development, which allows us to directly link startups and incumbents in the technological space. By integrating this link with their interactions in areas like financing, technology exchange, talent movement, and mergers and acquisitions, we can uncover deeper insights into their relationships, enriching our understanding of economic development.

The boot camp's focus on entrepreneurship aligns perfectly with my research interests, which offers me a unique opportunity to learn cutting-edge research and generate new ideas in this field. The boot camp offers practical tools and methodologies that can be directly applied to my research. Moreover, the opportunity to network with 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
Associate Professor of Finance

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Re: Recommendation Letter for Xugan Chen

Dear David and the Admissions Committee,

I am writing to recommend Xugan Chen for the NBER Entrepreneurship Research Boot Camp. Xugan is a rising 3rd-year PhD student in finance from Yale School of Management and has strong interests in entrepreneurship and innovation. I am a main advisor for Xugan's study and research, so I know him very well.

Let me cut to the chase: Xugan has my strongest recommendation. Xugan has worked with me as a research assistant for years (for a paper Ernest Liu and I have on "Innovation networks and R&D allocations", and my paper with Barbara Biasi on "The Education-Innovation Gap"), a teaching fellow (on my MBA Entrepreneurial Finance course), and a coauthor (on a couple of paper on financing innovation and technological cycles). During these interactions, I have been constantly impressed by his intellectual curiosity, ability to understand both theory and data, and work ethics.

If I may, please allow me to argue that Xugan is exactly the type of students that the bootcamp should consider admitting—he has a genuine interest in the field of entrepreneurship and 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. As a proud boot camper myself, I know I would have enjoyed him being in my class.

The boot camp will for sure teach Xugan valuable lessons ranging from the literature, the appreciation of research questions, among other things. I have no doubt (but will personally monitor to ensure) that Xugan will read all required papers carefully and actively contribute to the discussion in class. I will also work closely with him and give advice as he explores the literature more broadly.

All told, Xugan is an extremely promising PhD student who is eager to learn more about and conduct research in entrepreneurship and entrepreneurial finance. I hope that you give Xugan serious consideration for a spot in the boot camp this year. Please do not hesitate to contact me for any further questions.

Sincerely yours,

