Applicant's Name:
Yikai Cao

Address:
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Stanford, CA 94305
United States

Phone:
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Email:
ykcao@stanford.edu

School:
Stanford University
Management Science and Engineering
Stanford Technology Ventures Program

Area of Interest:
How do institutional environments and policy changes shape entrepreneurial outcomes in developing regions, and how can ventures strategically adapt to thrive under these dynamic conditions?

Year of Entry into the PhD program:
2024

Expected Year of Completion:
2029

Name of faculty member supplying a letter of Recommendation:
Charles Eesley

Yikai Cao

(+1) 650-248-8824
ykcao@stanford.edu

Education

Department of Management Science and Engineering, Stanford University
Ph.D. in Management Science and Engineering 2024 - 2029 *(expected)*

- Advisor: Prof. Chuck Eesley
- Research area: Innovation and Entrepreneurship
- Program: STVP (Stanford Technology Ventures Program)
- GPA: 4.00/4.00
- Course: Entrepreneurship Doctoral Research Seminar, Strategy Doctoral Research Seminar, Current Topics in Strategy, Innovation and Entrepreneurship, Causal Machine Learning

Department of Statistics and Data Science, Tsinghua University
B.S. in Statistics 2020 - 2024

- GPA: 3.89/4.00
- Course: Probability Theory, Statistical Inference, Statistical Computing and Software, Applied Time Series Analysis, Design and Analysis of Experiments

Department of Industrial Engineering, Tsinghua University
B.E. in Industrial Engineering 2019 - 2024

- GPA: 3.81/4.00
- Course: Operations Research, Essentials of Management, Modeling and Simulation, Machine Learning and Big-data, Engineering Economy

Projects

U.S. Export Controls and Venture Capital in Chinese Semiconductor Startups
Advisor: Prof. Chuck Eesley, Stanford University 2023.07 - Present

- Analyzed the impact of U.S. export controls on venture capital investment in Chinese semiconductor startups, revealing a positive effect on domestic financing and shifts in investor profiles
- Applied advanced econometric techniques, including Staggered DiD and Double Machine Learning, to examine investment trends and strategic adjustments by Chinese startups amidst geopolitical pressures

Reimagining the Financing Paradigm for Climate Adaptation Technology Innovation
Advisor: Prof. Chuck Eesley, Stanford University 2025.01 - Present

- Led interdisciplinary research on venture capital financing pathways for climate adaptation technologies in developing nations, focusing on India
- Aiming to redirect private capital toward climate adaptation by 2050 and mitigate inequities in cooling access for low-income communities

Tension Between Low-Cost Leadership and Vertical Differentiation in Retail Supermarkets
Advisor: Prof. Riitta Katila, Stanford University 2025.01 - Present

- Examined strategic tension in China's retail supermarkets, comparing Walmart's U.S. success with its failures in China due to complex dual strategies
- Provided insights into strategic trade-offs in hybrid strategies and aligning cost leadership with local market dynamics

Intelligent Appointment Scheduling System Development in Healthcare
Advisor: Prof. Jingshan Li, Tsinghua University 2023.09 - 2024.06

- Developed an intelligent scheduling system for hospitals using genetic algorithms to optimize resource utilization and patient satisfaction
- Implemented dynamic slot allocation and automated rescheduling, reducing appointment durations and patient follow-up trips

Internships

Apple Inc. | Data Analyst 2023.03 - 2023.06

- Analyzed user data from an e-commerce platform using statistical analysis and causal inference, identifying key drivers of product performance
- Implemented targeted strategies that reduced order cancellation rates and increased order conversion rates, earning recognition from CEO Tim Cook as part of the NPI project

Synergy Private Fund Management | Quantitative Researcher 2022.12 - 2023.02

- Conducted a comprehensive literature review on commodity futures, gaining insights into emerging trends in the gold futures industry
- Developed scripts for daily contract commission calculations and data storage across China's four major futures exchanges, demonstrating technical proficiency

Experiences

National University of Singapore | Exchange Student 2022.08 - 2022.12

- Course: High-Dimensional Statistical Analysis (A+), Mathematical Finance I (A)

The 24th Beijing Winter Olympic Games | Actor & Volunteer 2021.10 - 2022.02

- Performed for over an hour in the opening ceremony, broadcast live worldwide, welcoming athletes and marking their route during the entrance ceremony

Awards and Honors

- **The Fan Charitable Foundation Engineering Graduate Fellowship**, Stanford 2024
- **SCCEI Graduate Student Research Award**, Stanford 2024
- **Fellowship of Undergraduate Visiting Research Program**, Stanford 2023
- **Scholarship for Comprehensive Excellence**, Tsinghua 2023, 2021, 2020
- **Scholarship for Social Work Excellence**, Tsinghua 2022
- **Scholarship for Volunteer Excellence**, Tsinghua 2022
- **Scholarship for Academic Excellence**, Tsinghua 2020
- **National Scholarship (Highest Honor for undergraduates in China)** 2020

Skills

Languages: Mandarin, English

Programming Skills: `R`, `Python`, `Java`, `C++`, `C`, `Linux`, `Stata`, `SQL`, `LaTeX`.

Software Skills: `Git`, `Tableau`, `Vim`, `Gurobi`, `AnyLogic`, `AutoCAD`, `SolidWorks`, `Microsoft Office Suite`.

Dear Admissions Committee,

My name is Yikai Cao, a Ph.D. student in Management Science and Engineering at Stanford University, working under the guidance of Professor Chuck Eesley. My research lies at the intersection of innovation, entrepreneurship, and policy, focusing on how geopolitical dynamics and strategic tensions shape entrepreneurial finance and business strategies. I am eager to attend the boot camp to explore leading research topics in entrepreneurship and to engage with leading scholars who are driving this field forward.

Currently, my primary research investigates the impact of U.S. export controls on venture capital investment in Chinese semiconductor startups. I examine how geopolitical tensions influence investment volumes and investor profiles, particularly in sub-sectors like advanced chip manufacturing and AI chip design, which are highly dependent on U.S. technology. Using advanced econometric techniques, including Staggered DiD and Double Machine Learning, my findings reveal a positive effect on domestic financing, accompanied by notable shifts in investor profiles toward state-backed and non-U.S. investors. This research offers valuable insights into the strategic adaptations of startups under geopolitical pressures—an area of significant relevance to entrepreneurial finance.

Building on this work, my future research will continue to explore how ventures navigate strategic challenges and adapt to dynamic market conditions amidst geopolitical and economic pressures. Specifically, I am investigating venture capital financing pathways for climate adaptation technologies, particularly in developing nations like India. This research seeks to identify which types of technologies are more or less likely to receive funding and how different policies influence the types of startups that attract investment. Additionally, I am examining the strategic tension between low-cost leadership and vertical differentiation, focusing on the Chinese and U.S. retail industries. This study complements my current research by analyzing how ventures in emerging markets strategically navigate complex external forces by flexibly adopting a range of strategies to survive and thrive.

Attending the NBER Entrepreneurship Research Boot Camp will be invaluable for me. With an undergraduate background in statistics and engineering from Tsinghua University, I have developed strong technical skills in econometrics and causal inference. However, my understanding of the theoretical foundations of entrepreneurship is relatively recent. Despite this, I am deeply passionate about applying my statistical expertise to solve complex problems in entrepreneurial finance and strategic management. I recognize that a deeper theoretical foundation is essential for developing novel contributions that advance the field.. The boot camp offers a unique opportunity to learn from leading scholars and gain the critical theoretical background needed to integrate rigorous quantitative methods with meaningful entrepreneurial research. This knowledge will be crucial for me to achieve my dream of becoming a leading scholar in entrepreneurship.

Thank you for considering my application. I am eager to contribute to and grow within the vibrant entrepreneurship research community.

CHARLES EESLEY
Associate Professor
Management Science & Engineering
cee@stanford.edu
650 725-0550

School of Engineering
Jen-Hsun Huang Eng. Center
Stanford University
Stanford, CA 94305

February 14, 2025

Dear NBER Entrepreneurship Bootcamp Selection Committee,

I am writing to offer my strongest recommendation for Yikai Cao's application to the 2025 NBER Entrepreneurship Bootcamp. Yikai has been an exceptional student and researcher in my lab, having worked with me through the Undergraduate Visiting Researcher (UGVR) program and continuing into his PhD studies. His dedication and research acumen make him an outstanding candidate for this program.

Yikai has been instrumental in our research efforts on entrepreneurial finance and the intersection of machine learning with climate adaptation and clean tech ventures. He has received a **Stanford Center on China's Economy and Institutions (SCCEI) Graduate Student Research Grant** to support his work on understanding Chinese venture capital investments in semiconductor startups amid shifting export control policies. Additionally, our lab has recently secured funding from the **Doerr School of Sustainability** for a project focused on the application of machine learning in entrepreneurial finance, particularly in the clean technology and climate adaptation sectors.

This new initiative, in collaboration with Rishee Jain from Civil and Environmental Engineering, explores venture investments in climate adaptation. Our project combines semi-structured qualitative interviews with a machine learning-driven analysis of venture capital financing in climate tech. To complement our bottom-up approach, we are conducting a top-down analysis using open databases like Crunchbase to map out financing dynamics in climate innovation. By applying regression analysis and ML techniques, we aim to identify the conditions under which venture financing best supports climate adaptation ventures. This will help us understand how regulatory environments, institutional contexts, and innovation characteristics (e.g., technological novelty, capital intensity, and scalability) influence investment success and market entry.

Beyond identifying success factors, our analysis will also reveal structural challenges in VC funding for climate adaptation, such as capital mismatches, funding gaps in developing regions, and barriers for high-risk, capital-intensive projects. The goal is to uncover misalignments and propose mechanisms to realign incentives and diversify investment strategies for a more sustainable financing ecosystem.

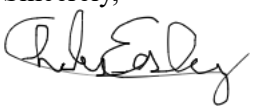
Yikai has contributed significantly to these projects, demonstrating an impressive ability to manage complex datasets and apply advanced econometric methods. His technical expertise in data collection, processing, and econometric modeling has been essential in addressing key questions about the role of policy in shaping high-tech investments. He has played a critical role in our multi-phase analysis, using tools like Python to clean and structure data from CVSource

and Zero2IPO, and has applied causal inference methodologies such as staggered differences-in-differences (DiD) to analyze policy impacts on the semiconductor sector.

Beyond his technical skills, Yikai stands out for his intellectual curiosity and ability to synthesize theoretical frameworks with real-world applications. His strong quantitative background, combined with his ability to communicate complex ideas effectively, makes him exceptionally well-suited for the NBER Entrepreneurship Bootcamp. I am confident that this program will provide him with invaluable exposure to cutting-edge research in entrepreneurial finance and policy, which will further enhance his contributions to the field.

Please feel free to contact me for any further information about Yikai's qualifications or his research.

Sincerely,



Charles Eesley
Associate Professor, Department of Management Science & Engineering
Stanford Technology Ventures Program (STVP)
School of Engineering
Stanford University