Cover Letter

Zhihao Wang
University of Calgary
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(403) 650-6340
February 6, 2025

NBER Innovation Research Boot Camp
1050 Massachusetts Avenue, Cambridge, MA, United States 02138

Dear Selection Committee,

I am excited to apply for the NBER Innovation Research Boot Camp 2025. As a PhD student at the University of Calgary, my research focuses on the Economics of Innovation and Labour Economics, examining how incentives and strategic interactions influence researchers' innovation and collaboration. I am currently developing a tournament framework with screening criteria to model the competitive and distortionary effects of the tenure-track system, employing causal inference to evaluate its impact on the innovation process.

Despite the absence of a graduate-level course in the economics of innovation in my department, I have proactively built expertise in the field. I work with Dr. Alexander Whalley on the influence of culture on innovation and the spillover effects of academic superstars. Additionally, my research assistantship experience in development economics, causal inference, and cooperative game theory has strengthened my ability to analyze complex theoretical frameworks and large-scale microdata.

The boot camp's rigorous curriculum and discussions will offer critical theoretical and empirical insights to enhance my research. Additionally, attending the NBER Summer Institute Innovation Policy meeting will enable me to incorporate broader policy perspectives into my work.

For my recommendation letter, please contact Dr. Alexander Whalley at alexander.whalley@ucalgary.ca.

Thank you for your time and consideration. I look forward to contributing to and learning from this esteemed program.

Sincerely,
Zhihao

Zhihao Wang

Updated February 7, 2025

Department of Economics
University of Calgary
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Email: zhihao.wang1@ucalgary.ca
LinkedIn: www.linkedin.com/in/zhw98

Doctoral Studies

Ph.D. in Economics, University of Calgary 2022 - Present

2nd-Year Committee and References:

Dr. Alexander Whalley
Professor of Economics & Business
University of Calgary
alexander.whalley@ucalgary.ca

Dr. Leonard Goff
Assistant Professor of Economics
University of Calgary
leonard.goff@ucalgary.ca

Dr. Benjamin Crost
Associate Professor of Economics
University of Calgary
benjamin.crost@ucalgary.ca

Dr. Jean-William Laliberté
Associate Professor of Economics
University of Calgary
jeanwilliam.lalibert@ucalgary.ca

Prior Education

M.A. in Economics, University of Windsor 2020 - 2022
B.A. in Economics, Zhejiang Sci-Tech University 2016 - 2020

Research Fields

Primary: Economics of Innovation
Secondary: Labour Economics, Applied Econometrics

Publications

"Determinants of the Withdrawal of Foreign-invested Enterprises: Evidence from China". *University of Windsor Major Paper*, 2022, No.217.
"Research on Carbon Reduction Accounting of Shared Bicycles: A Literature Review" (with Yiwei Xia, Yanru Yang, and Xiaolin Zhou). *China Journal of Commerce*, 2019, Vol.11, No.21.

Work in Progress

"Tenure-Track Incentives: Dynamic Impacts on Scientific Innovation"

Research Experience

Research Assistant to Professors Leonard Goff, Eric Mbakop	Present
Research Assistant to Professors Benjamin Crost, Arvind Magesan	Present
Research Assistant to Professor Alexander Whalley	2024 - Present
Research Assistant to Professor Leonard Goff	2023
Research Assistant to Professor Christian Trudeau	2021 - 2022

Teaching Experience

As a Teaching Assistant (M.A./Ph.D., Ph.D. only):

University of Calgary

ECON 395 – Introduction to Econometrics	2024
ECON 411 – Computational and Data Methods in Economics (2x)	2022, 2024
ECON 425 – International Trade	2024
ECON 427 – Energy Economics and Policy	2022
ECON 495 – Intermediate Econometrics	2023
ECON 497 – Advanced Econometrics	2023
ECON 715 – Advanced Econometrics II	2024

TA to Professors M. Scott Taylor, Benjamin Crost, Leonard Goff, W. D. Walls

University of Windsor

ECON 2220 – Intermediate Microeconomics II	2022
ECON 4060 – Mathematical Economics II	2021
ECON 4230 – Advanced Microeconomics I	2021
ECON 8250 – Applied Econometrics II	2022

TA to Professors Yuntong Wang, Sang-Chul Suh, Tarek Jouini

Fellowships, Honours, and Awards

University of Calgary

Alberta Graduate Excellence Scholarship - International ($11,000 CAD)	2024
Anton and Dalgarno Memorial Graduate Scholarship ($10,000 CAD 2x)	2022, 2023
Ph.D. Microeconomics Prize (highest GPA, $250 CAD)	2023
Ph.D. Fellowships ($30,000 CAD 4x)	2022 - 2026

International Graduate Tuition Award ($30,60 CAD 4x) 2022 - 2026

University of Windsor

Top 2 CGPA Student, Class of 2022 2022

Teaching Assistant Scholarships ($11,040 CAD) 2021 - 2022

Research Assistant Scholarships ($2,500 CAD) 2021 - 2022

Graduate Entrance Scholarships ($3,750 CAD) 2021

Zhejiang Sci-Tech University

Top 100 University-Wide Outstanding Bachelor's Theses 2020

Top Bachelor's Thesis in Economics 2020

IELTS Merit Scholarship (¥2,020 CNY) 2020

China Undergraduate Innovation & Entrepreneurship Training Program (¥30,000 CNY) 2017 - 2020

Services

University of Calgary

Mentor, Buddy Program, Department of Economics 2023 - 2024

Graduate Orientation Ambassador, Faculty of Graduate Studies 2023

Mentor, International Student Mentorship Program 2023

Conference Assistant, The Society for Economic Measurement 2022 Annual Conference 2022

University of Windsor

Member, Appointment Committee, Department of Economics 2021 - 2022

Representative, Academic Administrative Unit Council – Economics 2021 - 2022

Zhejiang Sci-Tech University

Student Editor-in-Chief, *Journal of Economic Echoes* 2017 - 2019

Director of Science & Academics, Undergraduate Student Union 2017 - 2018

Personal

Citizenship: Chinese

Lanuguage: Mandarin (Native), English (Proficient)

Programming: Python, Stata (Proficient); Linux, R, MATLAB, and SQL (Basic).

Course List

Fall 2022

ECON-705 Advanced Econometric Theory I
ECON-707 Advanced Microeconomic Theory I
ECON-709 Advanced Macroeconomic Theory I

Winter 2023

ECON-715 Advanced Econometric Theory II
ECON-757 Advanced Microeconomic Theory II
ECON-759 Advanced Macroeconomic Theory II

Fall 2023

ECON-615 Applied Econometrics
ECON-633 Labour Economics
ECON-677 Environmental Economics

Winter 2024

ECON-611.88 Machine Learning in Economics
ECON-611.97 Applied Econometric Data
ECON-621 International Trade

Fall 2024

ECON-791 Ph.D. Research Workshop I

Winter 2025

ECON-793 Ph.D. Research Workshop II

Research Statement

Innovation is a key driver of long-term economic growth, and efficient talent allocation is essential for sustaining scientific and technological progress. As hubs of knowledge creation, universities face two fundamental challenges: identifying high-potential researchers and maintaining their long-term motivation. To address these challenges, they implement mechanisms such as screening and structured incentives to attract and retain top talent. Among these, the academic tenure system stands out as one of the most influential, designed to balance competition with job security to foster sustained research productivity.

My research examines how China's tenure-track system shapes researchers' academic productivity and innovation behavior. Unlike traditional tenure systems, China's model recruits more junior faculty than there are available tenure positions, creating a highly competitive environment where even those who meet promotion requirements must compete for a limited number of tenure slots. While this structure increases overall research output, it may also incentivize short-termism and strategic behavior, raising concerns about its long-term effects on innovation quality.

To evaluate its impact, I exploit China's tenure-track reforms since 2014 as a natural experiment, employing a staggered event study approach as my identification strategy. Leveraging 13 million publication records and 3,500 retraction cases from 40 top universities, my study provides causal evidence at the university level on how promotion incentives influence research productivity, collaboration, and integrity. My preliminary findings suggest that the introduction of the tenure-track system significantly increases both publication quantity and quality, but also leads to a rise in paper retractions as researchers approach their final tenure review, supporting the hypothesis that competition-driven incentives encourage short-term publication maximization at the expense of research integrity.

To further verify that the university-level changes stem from individual-level incentives under the tenure-track system, I am pursuing two key approaches. First, I am developing a tournament-based theoretical model to simulate how tenure-track competition influences topic selection, collaboration patterns, and risk-taking in research. Second, I am designing an empirical strategy to identify individual-level effects, focusing on the discontinuity in journal selection patterns induced by promotion requirements. By integrating game theory and empirical analysis, my research aims to provide a deeper understanding of both the intended benefits and unintended distortions of the tenure-track incentives.

The NBER Innovation Research Boot Camp offers a unique opportunity for me to receive systematic training in the economics of innovation, a field not covered in my department's graduate curriculum. This program will enable me to enhance my research framework, engage with leading scholars, and explore cutting-edge methodologies and policy insights. I am eager to contribute to discussions on how institutional incentives can be optimized to promote high-quality, impactful research.

UNIVERSITY OF CALGARY

FACULTY OF ARTS

Department of Economics
2500 University Drive NW
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CANADA
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February 6th 2025

Dear Sir or Madam,

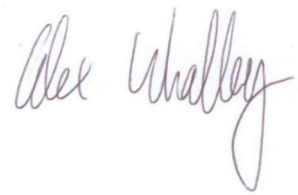
I am thrilled and excited to recommend **Zhihao Wang** for the NBER Innovation Research Boot Camp 2025. I have known Zhihao since 2032 when I taught him my Ph.D. Labor Economics class. He was the standout student in my class. I have since hired him as a research assistant and encouraged him to think about a dissertation topic on the Economics of Innovation. I have recommended that he apply for this bootcamp and think he would be an ideal candidate.

I am very glad to say that he has chosen this as a field. He came up with the idea for his second year paper entirely on his own. He got interested in the replication crises particularly the recent surge in retractions from authors in China. He realized that this retraction surge started about 6 years after the introduction of western style high-powered tenure track incentives in universities. As most Western countries have little variation in academic tenure policies – with recent role backs an exception – he realized that China was an ideal context to quantify how a specific institution – academic tenure – affects the rate and direction of innovation. Tracking down when and how Chinese universities have changed their tenure policies has been a massive painstaking data collection effort. Zhihao has the determination and horsepower to pull it off.

While Zhihao has thrived at the University of Calgary we do not offer a graduate class in the Economics of Innovation or have many peer students working on related topics. He would gain tremendously from the chance to participate in the workshop to learn from frontier scholars and to connect to his research peers. He always has so many ideas and brings lots to the table. He will undoubtably contribute much to the group should he be invited to participate.

If you would like any additional information on his candidacy do not hesitate to reach out to me at 403-220-7143 or alexander.whalley@ucalgary.ca

Sincerely,



Alexander Whalley
Professor of Economics