Joey Ryu
PhD Student, Harvard Business School
jryu@hbs.edu | +1 617-899-2803 | Soldiers Field, Boston, MA 02163

February 12, 2026

NBER Innovation Research Boot Camp Selection Committee
Kevin Bryan, Ina Ganguli, and Kyle Myers
National Bureau of Economic Research
1050 Massachusetts Avenue, Cambridge, MA 02139

Dear Professors Bryan, Ganguli, and Myers,

I am writing to apply for the NBER Innovation Research Boot Camp 2026. I am a PhD student in Strategy at Harvard Business School, currently in my third year. My research examines how organizations choose which ideas to pursue, especially using chemistry, pharma, and biotech as the setting. I believe the boot camp would be an exceptional opportunity to deepen my training in the economics of innovation and to engage with a community of scholars working at the frontier of this field.

The chance to learn from leading researchers, sharpen my empirical approach, and connect with a community focused on the economics of innovation would be invaluable for my work. I have attached my CV, including completed PhD coursework, and a research statement detailing my current and future projects. My recommendation letter will be provided by my advisor, Professor Joshua Krieger (Harvard Business School; jkrieger@hbs.edu).

Thank you for your time and consideration. I look forward to the opportunity to participate.

Sincerely,
Joey Ryu

W. JOEY RYU

10 N Harvard St. Boston, MA, 02163
(+1) 617-899-2803 ⋄ jryu@hbs.edu

EDUCATION

Ph.D. Student, Harvard University (Strategy unit) *2023 -*
Graduate School of Arts and Sciences & Harvard Business School Cambridge, MA

M.S., Cornell University *2022*
SC Johnson College of Business, Nolan School Ithaca, NY
Courses: Doctoral Quant Models, Statistical Data Mining, Optimization, Probability & Statistical Method, Mathematical Modeling, Real Analysis, Econometrics

B.S., University of Houston *2018*
GPA 3.98/4.00 Summa Cum Laude Houston, TX

B.B.A., Kyung Hee University *2018*
GPA 4.3/4.5 Valedictorian Seoul, KR

COMPLETED DOCTORAL COURSEWORK

Microeconomic Theory I & II; Econometrics I & II; Causal Inference; Labor Economics; Organization Economics (Audit); Analytical Methods for Strategy; Empirical Methods in Strategy;

Economics of Ideas, Innovation, & Entrepreneurship; Empirical Studies of Innovation & Digitization; Foundations of Strategy; Adv Topics in Strategy I & II; Strategy Research Development Course

RESEARCH IN PROGRESS

Traditional Medicine to Modern Innovation: Knowledge Diffusion from E to W (with Randol H. Yao)

Appropriability and the Composition of Drug R&D

Drug Revenue Forecasting & Subsequent Innovation (with Josh Krieger)

Biotech Platform Startups Signaling to VC investors (temporarily shelved)

PRESENTATIONS

2025 AOM (Symposium on biopharmaceuticals)

2024 DRUID (Discussant) · Research on Innovation, Science and Entrepreneurship Workshop, Max Planck

2022 INFORMS · AMA

WORKSHOPS AND CONFERENCE PARTICIPATION

2025 TIM Doctoral Research Development Workshop, AOM · Summer School in Computational Organization Science **2024** TIM Doctoral Consortium, AOM

AWARDS AND SCHOLARSHIPS

Innovation Information Initiative (i3) Fellowship (with Randol H. Yao) *2026*
NBER Boston MA

INFORMS Data Mining Decision Analytics Poster Competition 2nd Place *2022*
INFORMS Annual Meeting Indianapolis, IN

Provost's Undergrad Research Scholarship Winner — *2017*
University of Houston — Houston, TX

National Merit (Academic Excellence) Scholarship Winner — *2016*
Republic of Korea — Seoul, KR

Dean's list, Dean's Academic Excellence Scholarship — *2016-2018*
University of Houston — Houston, TX

KHU & UH Dual Degree Program, Tuition Scholarship — *2016-2018*
Kyung Hee University & University of Houston — Houston, TX

Academic Excellence Award & Scholarship — *2015*
Kyung Hee University — Seoul, KR

Grand prize of KBS Creative Contents Competition — *2014*
Ministry of Science — Seoul, KR

TEACHING

MBA Harvard Business School — *2026*
TF for HBSMBA1727, Tough Tech Ventures (Prof. Josh Krieger) — Boston, MA

Executive MBA Cornell University — *2022*
TA for NBAE5750, Dilemmas in Founding Ventures (Prof. Matt Marx) — Ithaca, NY

Undergrad & Masters Cornell University — *2022*
TA for AEM4550/5550, Economics of Advertising (Prof. Jura Liaukonyte) — Ithaca, NY

INDUSTRY EXPERIENCE

Evermint Partners Strategy Research Consulting Co., Ltd — *2020-2021*
Business Analyst — Seoul, KR

Four Seasons Hotel and Resorts — *2018-2020*
Internal Auditor — Seoul, KR
Accountant — Lanai, HI
Finance Intern — Houston, TX

Marriott International — *2017*
Operations Intern — Grapevine, TX

Kia Motors Domestic Sales Headquarters — *2015*
Marketing Intern — Seoul, KR

SKILLS

Tools
Python, R, Stata, MATLAB, Oracle Focus, SUN Systems, SAP Concur, Birchstreet, Opera, Marsha

Languages
Bilingual-Native Proficiency in English, Korean
Intermediate Proficiency in Chinese, Japanese

Fun facts
Delegate, Intergovernmental Youth Exchange Program (funded by Korean Ministry) — Tel Aviv, Israel
Volunteer, Taught Laotian children and built a school (funded by Hyundai Motors) — Viantian, Laos
Translator for foreign patients at Seoul National University Hospital — Seoul, Korea

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I grew up in a household where chemistry was part of everyday conversation. At family dinners, my parents, both chemists, would describe their work across different organizations and how those environments shaped the problems they pursued, the questions they considered worth asking, and the methods they used to answer them. In my first semester of the PhD program, I took Economics of Ideas at MIT and encountered, for the first time, frameworks that put language to what I had been observing for years: science as a driver of economic growth, the exchange between academia and industry, and the incentives that shape what scientists choose to work on. That course made it clear to me that the economics of innovation, with chemistry and pharmaceuticals as my empirical setting, is where I can do work that I find genuinely exciting while making a meaningful contribution.

My research asks where ideas for R&D come from and how organizations allocate attention and resources across opportunities. My current projects engage questions of knowledge production, diffusion, and appropriability that I believe the economics of innovation community cares about.

My first project grew out of the Economics of Ideas class, where I met a classmate whose interest in emerging markets intersected with my interest in pharmaceutical innovation. What began as conversations around datasets developed into a study of how traditional medical knowledge, accumulated over centuries in East Asia, diffuses into modern pharmaceutical research. I exploit proximity to the historical Silk Road trade network as a source of exogenous variation to estimate the causal effect of historical knowledge accumulation on contemporary pharmaceutical innovation outcomes.

My second project, which began as my second-year paper, examines why pharmaceutical firms may underinvest in nature-derived drug discovery despite evidence that these drugs generate outsized knowledge spillovers. I trace the wedge between private and social returns (Nelson, 1959; Arrow, 1962) to the molecular complexity of natural compounds: they are scientifically rich and generative, but difficult to protect with broad patent claims.

Looking ahead, I plan to continue studying frictions and inefficiencies in pharmaceutical innovation, given its central role in shaping productivity growth and social welfare. I am also interested in empirically demonstrating recombinant growth in drug development, building on Weitzman (1996, 1998), using the chemistry underlying drug design. More broadly, I aim to understand how recombination shapes innovation outcomes and how this understanding can inform both firm R&D strategy and innovation policy.

I want to attend the boot camp to strengthen my grounding in the foundational models and empirical methods of innovation economics. I am especially interested in approaches to measuring innovation and knowledge spillovers, methods for studying the direction of R&D and resource allocation, and frameworks for innovation policy design. My doctoral training is rooted in strategy, and the boot camp would provide valuable exposure to the broader economics of innovation literature while helping me calibrate my empirical work to the standards of the field.

February 12, 2026

NBER Innovation Research Bootcamp Selection Committee
National Bureau of Economic Research

Dear Selection Committee,

I am writing to submit my enthusiastic recommendation of Joey Ryu for the NBER Innovation Research Bootcamp.

Joey is a third-year PhD student in the Strategy Unit at Harvard Business School. She is a promising junior scholar combining deep institutional knowledge with econometric skills and the ambition for high-impact research. I have gotten to know Joey by advising her on her independent research and through a new joint research project. Joey is also the teaching assistant for my MBA "Tough Tech Ventures" course. As a result, I believe I have a good sense of her research interests and strengths as a scholar.

Joey is broadly interested in the sources of inventive ideas and the direction of innovation. Her current projects ask questions about knowledge production, diffusion, and appropriability that are central to economics of innovation. In one project, she investigates whether pharmaceutical firms underinvest (relative to the socially optimal level) in nature-derived drug discovery due to intellectual property frictions and inability to capture spillovers. In another, she examines how traditional medical knowledge accumulated over centuries in East Asia diffuses into modern pharmaceutical research. These interests align directly with the core themes of the boot camp, and I can think of few students who would be a better fit for this program.

The boot camp would be a great opportunity for Joey to engage more deeply with the foundational models and empirical methods in economics of innovation. She would benefit from exposure to the broader innovation economics literature and from calibrating her empirical approach against the standards of the field.

I am confident she would also be an active and generous contributor to the cohort. At HBS she regularly seeks out connections with faculty and graduate students across departmental units. However, I imagine the NBER Bootcamp may be an even better environment for her to connect with future coauthors and her eventual research community.

I recommend Joey to the Bootcamp without reservation!

Sincerely,

Joshua Krieger
Høegh Family Associate Professor of Business Administration
Harvard Business School
jkrieger@hbs.edu