Jiarui (Jerry) Qian
Department of Economics, UVA
248 McCormick Road
Charlottesville, VA 22903

February 12, 2026

National Bureau of Economic Research
1050 Massachusetts Avenue
Cambridge, MA 02138

Dear Review Committee Members,

I am writing to express my interest in attending NBER's fifth *Innovation Research Boot Camp* in July 2026. I am a Ph.D. candidate in Economics at the University of Virginia. My research focuses on Innovation, the Economics of Science, AI, and Economic Growth. I am particularly interested in how new technologies like AI may shape the direction of scientific knowledge production.

I have included the following materials for your reference:

- A copy of my Curriculum Vitae with all current and completed PhD courses listed.
- A personal statement that includes a description of my current and future research and specific reasons for my interest in attending this program.

I would also like to highlight that one of my advisors, Prof. Anton Korinek, has kindly agreed to write a recommendation letter on my behalf. Prof. Korinek is well-positioned to attest to my academic abilities, research potential, and commitment to this field. He can be reached via email at `akorinek@virginia.edu`.

Thank you for taking the time to consider my application. Please let me know if you have any questions or require any additional materials.

Sincerely,
Jiarui (Jerry) Qian

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EDUCATION

University of Virginia Aug 2022 – Present
Ph.D. in Economics
Committee: John Pepper, Sandip Sukhtankar, Tim Layton, Anton Korinek

University of Chicago Sept 2018 – June 2020
M.A. in Public Policy with a Certificate in Research Methods

China Agricultural University Sept 2014 – June 2018
B.A. in Agricultural Economics

FIELDS OF INTEREST

Innovation, Economics of Science, Digital Economics and AI, Economic Growth

WORKING PAPERS

"AI in the Lab: AlphaFold2's Impacts on Human-Produced Knowledge"

WORK IN PROGRESS

"Who Benefits from Scientific AI? Evidence from Structural Biology"
"How Universities Adapt to Federal Funding Shifts" with Tim Layton and Andrew Simon

RESEARCH EXPERIENCE

University of Virginia 2023 – 2024
Research Assistant to Eric Young
Project: "Health Savings Accounts and Life-Cycle Saving"

Harvard University 2020 – 2022
Remote Predoc Research Assistant to David Y. Yang
Project: "Policy Experimentation in China: The Political Economy of Policy Learning"
Published in *Journal of Political Economy, 133(7), 2025*

TEACHING EXPERIENCE

University of Virginia, *Graduate Teaching Assistant* 2023 – 2025
- ECON 7710: Econometrics I (PhD)
- ECON 7720: Econometrics II (PhD)
- ECON 3720: Introduction to Econometrics (Undergraduate)

China Europe International Business School, *Teaching Assistant* 2021
- ECON 052: Economic Growth and Innovation (MBA, EMBA)

CONFERENCE PRESENTATIONS & INVITED SEMINARS

The 2nd Annual IESE's Economics of AI Conference	*Barcelona, Spain*	2026
The 12th Economic Research Colloquium	*Charlottesville, VA, USA*	2025
NBER Digital Economics and AI Tutorial & Meeting	*Stanford, CA, USA*	2025

GRANTS & AWARDS

AI at Work Research Grant ($55,754)	*Schmidt Sciences*	2025
Snavely Prize for Best Dissertation Proposal	*University of Virginia*	2025
Quantitative Collaborative Graduate Fellow	*University of Virginia*	2025
Snavely Prize for Best Second Year Paper	*University of Virginia*	2024
Bartlett Fellowship ($8,250)	*University of Chicago*	2019
National Scholarship	*Ministry of Education of the P.R.C.*	2017

A LIST OF PHD-LEVEL COURSES TAKEN

At the University of Virginia

Course Name	Status
ECON 5090 Mathematical Economics I	Completed
ECON 7010 Microeconomic Theory I	Completed
ECON 7030 Microeconomic Theory II	Completed
ECON 8010 Microeconomic Theory III	Completed
ECON 7020 Macroeconomic Theory I	Completed
ECON 7040 Macroeconomic Theory II	Completed
ECON 7710 Econometrics I	Completed
ECON 7720 Econometrics II	Completed
ECON 8170 Industrial Organization I	Completed
ECON 8180 Industrial Organization II	Completed
ECON 8190 Economics of Underdeveloped Areas	Completed
ECON 8510 Topics in Growth Theory	Completed
ECON 8310 Public Economics I	Completed
ECON 8350 Advanced Macroeconomic Theory	Completed
ECON 8360 The Economics of AI	Completed
ECON 8559 Numerical Methods for Economic Analysis	Completed
ECON 8720 Time Series Econometrics	Completed
ECON 8730 Econometric Methods for Data-Rich Environments	Completed

At the University of Chicago

Course Name	Status
ECON 33530 Firm Dynamics and Economic Growth	Completed
ECON 41001 Behavioral Economics	Completed
ECON 34610 Household Decisions and Markets	Completed
ECON 34901 Social Interactions and Inequality	Completed
ECON 33000 Theory of Income I	Completed
PPHA 44100 Advanced Microeconomics for Policy Analysis I	Completed
PPHA 44200 Advanced Microeconomics for Policy Analysis II	Completed
PPHA 41101 Political Economy I: Introduction to Applied Game Theory	Completed
PPHA 41102 Political Economy II: Intermediate Applied Theory	Completed
PPHA 41103 Political Economy 3: Testing Theories of Political Institutions	Completed
PPHA 42000 Applied Econometrics I	Completed
PPHA 42100 Applied Econometrics II	Completed

Related Online Courses

Course Name	Status
STEG-PEDL Virtual Course on "Private Enterprise, Productivity, and Economic Growth" (2026)	In Progress
IFP Virtual Course on 'Economics of Ideas, Science, and Innovation' (2024)	Completed

Summary. My current research mainly focuses on understanding how AI is integrated into the scientific discovery process. By constructing novel dataset linking AI exposure to scientific outputs, researcher careers, and university finances, I estimate how the introduction of AI predictions may change what knowledge gets produced, who benefits in the scientific labor market, and how institutions adjust capacity through spending, hiring, and infrastructure. Besides, I also study how universities adapt to the federal research funding shifts, which may affects scientists' access to tools and laboratory capacity.

Project 1: AI in the Lab: AlphaFold2's Impacts on Human Knowledge Production. I study the release of AlphaFold2 (AF2) in structural biology to understand whether AI predictions complement or substitute for human scientists' work and how it affects the direction of human-produced knowledge. I link protein-level AF2 confidence to experimentally determined structures in the Protein Data Bank (PDB) and to downstream publication outcomes. A difference-in-differences design is used to compare proteins AF2 predicts well versus poorly before and after the release.
Main results. The total experimental output continues to grow, but its composition shifts away from targets AF2 predicts accurately: experimental work on well-predicted proteins falls by about 35%, with larger declines for targets that are more costly to study or have lower downstream demand. Importantly, this reallocation is tool-specific: it is concentrated in widely accessible X-ray crystallography and largely absent in capital-intensive cryo–electron microscopy (Cryo-EM). I also find that AF2's main impact operates through revealed incentives rather than execution quality: among previously un-attempted yet well-predicted targets, the reward to being first to solve largely disappears. Together, these patterns suggest that prediction AI does not uniformly replace experimentation; instead, it redirects effort along the margin that is most substitutable given tool constraints and access, shifting attention toward underexplored bottlenecks.

Project 2: Who Benefits from Scientific AI? Evidence from Structural Biology. Building on Project 1, this project traces the origin of the reallocation of scientists' work. I am constructing a scientist-level panel by extracting contributors and their roles from PDB records and linking them to publications, affiliations, collaboration networks, career stage, and grant support (via Dimensions). I measure individual exposure to AF2 using (i) the share of a scientist's pre-release work on proteins AF2 predicts well and (ii) whether their primary experimental approach is more substitutable by AF2. I then test how more- versus less-exposed scientists adjust after AF2's release, including shifting research portfolios, changing team formation and collaboration networks, and moving across sectors (academia versus industry). A central goal is to quantify whether AI amplifies inequality by differentially benefiting scientists with scarce instruments (e.g., Cryo-EM) or complementary capabilities.

Project 3: How Universities Adapt to Federal Funding Shifts (with Tim Layton and Andrew Simon). Complementing my AI work, I examine how NIH funding affects universities' total R&D expenditure and capacity-building. Specifically, I study whether NIH dollars "crowd out" other funding or "crowd in" additional resources, and how universities respond through hiring and infrastructure investment.

Why this camp. I would especially value spending a few days learning from faculty doing frontier work in the economics of innovation and from graduate students pursuing closely related questions. It would also be a timely opportunity to receive concentrated feedback and build connections with researchers in this area as my projects mature and I approach the job market.

Dear Members of the Review Committee,

I am writing to recommend **Jiarui (Jerry) Qian**, a PhD candidate in Economics at the University of Virginia, for the 2026 NBER Innovation Research Boot Camp. I serve on Jerry's dissertation committee and have worked closely with him over the past several years. He is among the strongest students I have advised in my career, and I believe he would be an outstanding fit for this program.

Jerry's research agenda sits squarely in the economics of science and innovation policy. He constructs novel datasets and uses credible causal designs to study how the production of knowledge and innovation outcomes that are downstream are reshaped by technologies, budgets, and incentives. His work on AlphaFold2 provides compelling causal evidence that prediction AI changes the direction and composition of scientific effort, with implications for productivity, inequality across researchers, and the reorganization of research in the era of AI. These are all topics central to the Boot Camp's mission. This is a high-promise research agenda at the frontier of AI and innovation, and the quality and ambition of the work are remarkable for a student at his stage.

The timing of this Boot Camp is also quite ideal for Jerry. His projects have reached a stage of maturity where targeted feedback from the innovation community would have an especially high return, particularly as he approaches the job market. I am also confident that he would be a positive contributor to the cohort. Jerry is collaborative, thoughtful, and constructive - he is exactly the kind of participant who enriches the learning environment for everyone.

I recommend Jerry without reservation and hope you will give his application serious consideration. Please let me know if you have any questions about him.

Sincerely,

Anton Korinek
Professor of Economics
University of Virginia
https://www.korinek.com