Andrew Kao Email: andrewkao@g.harvard.edu Phone: +1 617 335 8987
1805 Cambridge St
Cambridge, MA 02138

Recommender: David Y. Yang

Cover letter

Dear Kevin Bryan, Ina Ganguli, and Kyle Myers,

I am a PhD student in economics at Harvard University interested in the political economy of innovation.

Some of the research I have conducted up until now has examined the role that the state has played in the development of AI, and the consequences of AI when used as a tool for social control. I am working on several early stage projects related to innovation and am especially keen to understand how forces of political economy can shape the level and direction of innovation.

I hope that this boot camp will provide me with the tools necessary to investigate these questions in greater depth, and that it will provide the opportunity to connect with like-minded students and faculty to discuss new ideas and foster potential collaboration.

Best,
Andrew

Andrew J. Kao

Harvard University
Department of Economics
Cambridge MA, 02138

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Website: https://andrew-kao.github.io/

Education

Ph.D., Economics

Harvard University (2022-ongoing)

B.S., Computational and Applied Math and B.A., Economics (with honors)

The University of Chicago (2016-2020)

Research Positions

Predoctoral Fellow, David Yang (2020–2022)

Research Assistant, Leonardo Bursztyn (2018–2020)

Research

Publications

"AI-tocracy" with Martin Beraja, David Yang, and Noam Yuchtman (2023)

Quarterly Journal of Economics, Volume 138, Issue 3 (August)

Working Papers

"Exporting the Surveillance State via Trade in AI" with Martin Beraja, David Yang, and Noam Yuchtman (2023)

Working Paper, NBER and Brookings Center for Regulation and Markets

"Protests" with Davide Cantoni, David Yang, and Noam Yuchtman (2023)

Working Paper, NBER

Works in Progress

"Seeing is Believing: Identity, Inequality, and the Impact of Television on the Hispanic Achievement Gap"

Affiliations

Center for American Political Studies at Harvard University, Affiliate (2023-present)
Harvard Kennedy School Evidence for Policy Design, Research Fellow (2020-2022)

Honors, Awards, & Fellowships

Berkeley Center for Effective Global Action, Digital Credit Observatory Grant (2023)
Oxford Global Priorities Fellowship (2023)
Center for American Political Studies, Research Seed Grant (2023)
Harvard Data Science Initiative, Azure Credits (2023)
AEFP Roe L. Johns Grant (2022)
National Science Foundation Graduate Research Fellowship Program (2021 and 2022)

Seminars, Colloquia, and Conferences

Bank of Canada & University of Toronto Conference on the Chinese Economy, China Global Priorities Group, Oxford GPF Final Conference (2023)
AEFP, ASSA*, NBER Privacy* (2022)
NBER Development/BREAD Program Meeting*, NBER Political Economy Program Meeting* (2021)

* presented by coauthor

Policy Articles

"How the surveillance state is exported through trade in AI" with Martin Beraja, David Yang, and Noam Yuchtman. VoxDev column (2023)
"Autocratic AI dystopias: From science fiction to social science fact" with Martin Beraja, David Yang, and Noam Yuchtman. VoxDev column (2023)
"Autocratic AI dystopias: From science fiction to social science fact" with Martin Beraja, David Yang, and Noam Yuchtman. VoxEU column (2021)

Academic Service

Referee: Journal of Economic Behavior and Organization, Quarterly Journal of Economics

Harvard Economics Peer Support Network, Co-leader (2023-present)
Harvard China Economics Reading Group, Organizer (2023-present)

Harvard/MIT Application Assistance Mentoring Program, Mentor (2023-present)

Other Experiences

UChicago Oeconomica (undergraduate research organization), Treasurer (2019-2020) and Existential Risk Cohort Leader (2018-2019)

UChicago Writer's Workshop, Vice President (2019-2020) and Workshop Leader (2017-2020)

Teach For Hong Kong, Program Development Intern (2018)

UChicago Effective Altruists, Co-President (2017-2020)

Telligent Capital Management, Research Intern (2017)

Rich Sea LLC, Private Equity Intern (2017)

Harvard University

Cambridge, Massachusetts 02138

Harvard Kenneth C. Griffin Graduate School of Arts and Sciences

Kao, Andrew Jia-Chuan

HUID: **61504699**

Good Academic Standing

Beginning of Harvard Kenneth C. Griffin Graduate School of Arts and Sciences Record

2022 Fall

Program: Doctor of Philosophy
Subject: Economics

Course	Description	Earned	Grade
ECON 2010A	Economic Theory	4.000	A
ECON 2010C	Economic Theory	4.000	A
ECON 2120	Principles of Econometrics	4.000	A
ECON 2329	Topics in Political Economy	4.000	A
ECON 2921	Early Stage Research and Discussions on the Economy in China	4.000	A

2023 Spring

Program: Doctor of Philosophy
Subject: Economics

Course	Description	Earned	Grade
ECON 2010B	Economic Theory	4.000	A
ECON 2010D	Economic Theory	4.000	A-
ECON 2140	Econometric Methods	4.000	A-
ECON 2355	Unleashing Novel Data at Scale	4.000	A

2023 Fall

Program: Doctor of Philosophy
Subject: Economics

Course	Description	Earned	Grade
ECON 2000	Introduction to Quantitative Economics	4.000	A
ECON 2418	Political Economy of Non-Democracies	4.000	A
ECON 2530A	International Trade	4.000	A
ECON 2610	Industrial Organization I	4.000	A
ECON 2921	Early Stage Research and Discussions on the Economy in China	4.000	A
ECON 3010	Alberto Alesina Graduate Student Workshop in Political Economy and Culture	4.000	SAT

2024 Spring

Program: Doctor of Philosophy
Subject: Economics

Program: Master of Arts
Subject: Economics

Course	Description	Earned	Grade
ECON 2003	Computing for Economists		
ECON 2148	Topics in Econometrics		
ECON 2329	Political Economy of Electoral Democracies		
ECON 2535	Advanced Topics in International Trade		
ECON 2611	Industrial Organization II		
ECON 3010	Alberto Alesina Graduate Student Workshop in Political Economy and Culture		

End of Harvard Kenneth C. Griffin Graduate School of Arts and Sciences Record

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Erika J. McDonald, Registrar
Not official unless signed and sealed

Research statement

My research interests lie at the intersection of political economy and innovation. I seek to understand how governments can spur frontier innovation, and in turn, how innovation may shape governance and our broader society. Much of the research I have conducted up until now has analysed the development and proliferation of AI, considering the role that the state has played in its development and the consequences of its capability as a tool for social control. I am working on several early stage projects related to innovation and am especially keen to understand how forces of political economy can shape the level and direction of innovation.

In **AI-tocracy** (with Martin Beraja, David Yang, and Noam Yuchtman, *QJE 2023*), we study the interaction between the Chinese state and facial recognition AI, showing that AI innovation and modern autocracy can mutually reinforce each other. We gather comprehensive data on AI firms, government procurement contracts, and social unrest across China. We first show that autocrats benefit from AI: local unrest leads to greater government procurement of facial recognition AI as a new technology of political control, and this procurement suppresses subsequent unrest. We then show that AI firms benefit too: AI firms innovate more after obtaining contracts, with spillovers from the government to the commercial sector. These findings suggest that part of China's coercive capacity stems from AI, and its politics may not chill AI innovation but rather stimulate it.

One might worry that, if exported abroad, Chinese surveillance AI may beget more autocracies. In **Exporting the Surveillance State via Trade in AI** (with Martin Beraja, David Y. Yang, and Noam Yuchtman, *working paper*), we collect global data on facial recognition AI trade deals. We show that China's comparative advantage is large: it is much more likely to export facial recognition AI than other countries, even when compared against other frontier technologies. We also show that autocracies and weak democracies are more likely to import facial recognition AI from China, in particular those lacking domestic AI investment or experiencing political unrest. No such political bias is observed in AI imports from the US or in imports of other frontier technologies from China. Finally, we show that autocracies are especially likely to import surveillance AI from China during periods of domestic unrest, and that this is associated with a broader decline in institutions.

I also have several early stage projects that examine the interplay between states and innovation. In **Trading Away Safety**, I aim to study how export competition shapes the regulatory environment and subsequent innovation. Automobile firms have incentives to lobby their domestic governments for regulations that favour innovations they have a comparative advantage in (for instance, firms with better access to computer vision experts may support automatic emergency breaking for safety reasons, or firms with strong battery supply chains may push for electric vehicles that pollute less). Governments, too, compete against one another with their regulatory frameworks for benefits in trade. In equilibrium, the net effect of these forces may distort both the level and direction of future innovation. In **Supply Chain Bosses** (with Adrian Kulesza), we aim to study the phenomenon of Chinese supply chain bosses. These are local government officials tasked with growing and regulating the supply chain in key frontier industries, such as biotech, EVs, and AI. We wish to understand whether these officials are able to overcome coordination problems frequently encountered in global value chains, and to see whether they lead to more innovative firm activities (or if they simply lead to firm colocation, potentially raising efficiency but not innovation).

Although I have some existing work studying innovation, I have not received any systematic instruction in the space, and I am eager to catch up to the frontier. My hope is that the NBER innovation research boot camp will (1) equip me with the best tools to analyze questions like these with depth and rigour, (2) provide me with the broader literature and context in which innovation occurs, and (3) help me connect with like-minded students and faculty to discuss new ideas and foster potential collaboration. In turn, I hope that the research that is fostered by this program will help advance our science and industry in safe and sustainable ways.

HARVARD
UNIVERSITY

DEPARTMENT OF ECONOMICS

David Y. Yang
Professor of Economics
Director, Center for History and Economics

January 31, 2024

Dear colleagues,

It is my pleasure to strongly recommend Andrew Kao to attend the NBER Innovation Boot Camp. Simply put, I can't think of stronger candidates than Andrew for the summer school. I also strongly believe that he will benefit tremendously from the program. I give Andrew my ***strongest*** recommendation.

Andrew is an extremely capable and experienced, technically well-prepared, motivated, and intellectually curious candidate. Andrew is among the very best PhD students that I have previously worked with and known.

Andrew is an extremely fast learner, picking up new skills whenever needed, while also meticulously detail oriented. He is careful when handling data, while also ambitious and possess big picture ideas that aim to understand political economy issues. Moreover, Andrew's research agenda centers squarely on the most pressing global issues, especially at the intersection between technology and political economy. Andrew also has the experience and skillsets to undertake his ambitious research projects.

Andrew has demonstrated extraordinarily strong ability and skillsets to excel in academic research in economics. I am particularly confident that he will be able to combine his technical skills with his interest in empirical research in political economy of technology, which would allow him to work with novel datasets and also execute new methods to analyze the data.

Andrew has a number of exciting independent projects that have very high potential. I believe the NBER Innovation Boot Camp will help him to get more exposure with the innovation literature as well as like-minded peers and mentors to bounce of ideas and receive feedbacks on his research.

Please do not hesitate to contact me if I can be of further help.

Sincerely,



David Yang