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February 6, 2025

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

Dear Professor Bryan, Professor Ganguli, and Professor Myers,

I am writing to apply for the NBER Innovation Research Boot Camp 2025. I am currently a Research Scientist at Boston Dynamics AI Institute, a research & development organization focused on advancing robotics and artificial intelligence in collaboration with academic and industry researchers. Previously, I was a Research Scientist/Economist at Amazon. I completed my Ph.D. in Education Policy and Program Evaluation (economics track) in 2022 and A.M in Statistics in 2019 from Harvard University.

My research studies the impact of policies and technologies aimed to improve society. Currently, I use both natural experiments and randomized field experiments to study the knowledge diffusion of science and emerging technology, and the impacts of robots on workers. Both my past and present research works closely with government and industry partners, in order to answer scientific problems that have immediate use for society.

I am excited about the opportunity to participate in the NBER Innovation Research Boot Camp 2025. I hope to learn about the foundational ideas in innovation research and to offer unique perspectives as a social scientist working in a robotics R&D lab in industry.

I have enclosed my CV, list of completed Ph.D. courses, and essay describing my current and future research interests. Eric Taylor (Associate Professor, Harvard University & NBER Faculty Research Fellow) will submit a letter of recommendation on my behalf.

Thank you in advance for your consideration of my application.

Sincerely,

Nozomi Nakajima

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NOZOMI NAKAJIMA

EDUCATION

Harvard University
Ph.D., Education Policy & Program Evaluation (econ track) 2022
Committee: David Deming, Eric Taylor, Felipe Barrera-Osorio
A.M., Statistics 2019

Stanford University
M.A., International Education & Policy Analysis 2014

Yale University
B.A., Political Science (with distinction) 2013

EMPLOYMENT

Boston Dynamics AI Institute — *Research Scientist* 2024 –
- I work with industry and academic collaborators to conduct social science research on robotics and artificial intelligence.

Amazon — *Research Scientist / Economist* 2022 – 2024
- I was a member of the Central Science team, applying econometric methods to solve business problems related to the labor market.

The World Bank — *Research Analyst* 2014 – 2016
- I worked with senior economists to conduct impact evaluations of education, health, and labor policies in the East Asia and Pacific region.

WORKING PAPERS & PEER-REVIEWED PUBLICATIONS

Link to Google Scholar. All of my papers and code repo are available here. Papers in reverse chronological order:

1. **Nakajima, N.** (2022). “Evidence-Based Decisions and Education Policymakers."

2. **Nakajima, N.**, Hasan, A. & Rangel, M. (2022). “Mama Knows (And Does) Best: Maternal Schooling Opportunities and Child Development in Indonesia." Revise and Resubmit at *Demography*.

3. Barrera-Osorio, F., Gertler, P., **Nakajima, N.**, & Patrinos, H. (2022). “Promoting Parental Involvement in Schools: Evidence From Two Randomized Experiments." Revise and

Resubmit at *Journal of Development Economics.*
– Media coverage: VoxDev, VoxEU, FutureEd, The Hechinger Report, World Bank Blogs

4. **Nakajima, N.** (2022). "Long-Run Effects of Short-Term Grants in Early Childhood Education."

5. **Nakajima, N.**, Hasan, A., Jung, H., Kinnell, A., Maika, A. & Pradhan, M. (2021). "Built to Last: Sustainability of Early Childhood Education Services in Rural Indonesia." *Journal of Development Studies*.

6. Hasan, A., Jung, H., Kinnell, A., Maika, A., **Nakajima, N.**, & Pradhan, M. (2021). "Contrasting Experiences: Understanding the Longer-Term Impact of Improving Access to Preschool Education in Rural Indonesia." *Journal of Research on Educational Effectiveness*.

7. Barrera-Osorio, F., de Barros, A., Dryden-Peterson, S., Mulimbi, B., **Nakajima, N.**, & Uccelli, P. (2020). "Levers for Learning: Relationships Between School-Level Factors and Literacy Outcomes in Low-Income Schools in Colombia." *Comparative Education Review*, 64(2), 269-298.

8. **Nakajima, N.**, Jung, H., Pradhan, M., Hasan, A., Kinnell, A., & Brinkman, S. (2019). "Gender Gaps in Cognitive and Socio-Emotional Skills in Early Primary Grades." *Developmental Science*, e12931.
– Media coverage: The Jakarta Post

9. **Nakajima, N.**, Hasan, A., Jung, H., Brinkman, S., Pradhan, M., & Kinnell, A. (2019). "Investing in School Readiness: A Comparison of Different Early Childhood Education Pathways in Rural Indonesia." *International Journal for Educational Development*, 69, 22-38.
– Policy brief: World Bank Research Digest
– Media coverage: Education for Global Development

10. Al-Samarrai, S., Shrestha, U., Hasan, A., **Nakajima, N.**, Santoso, S., & Wijoyo, W. H. A. (2018). "Introducing a Performance-Based School Grant in Jakarta: What Do We Know About Its Impact After Three Years?" *Economics of Education Review*, 67, 110-136.

11. Brinkman, S. A., Hasan, A., Jung, H., Kinnell, A., **Nakajima, N.**, & Pradhan, M. (2016). "The Role of Preschool Quality in Promoting Child Development." *European Early Childhood Education Research Journal*, 25(4), 483-505.
– Media coverage: Education for Global Development

FELLOWSHIPS & AWARDS

National Academy of Education / Spencer Dissertation Fellowship 2021 – 2022

Bok Center Teaching Certificate, Harvard University	2021
Summer Institute in Computational Social Science, Princeton University	2021
Officers' Research Grant, William T. Grant Foundation	2020 – 2021
Weatherhead Initiative on Gender Inequality Research Grant, Harvard University	2018 – 2019
James M. and Cathleen D. Stone Ph.D. Scholar in the Multidisciplinary Program in Inequality & Social Policy, Harvard University	2017 – 2022
Presidential Scholar Fellowship, Harvard University	2016 – 2017
Dixon Fellowship, Stanford University	2013 – 2014
Edward Zigler Child Development & Social Policy Fellowship, Yale University	2011 – 2013
President's Public Service Fellowship, Yale University	2011

OTHER

Programming: R, Python, Stata, SQL, LaTeX
Languages: English (native), Japanese (native), French (basic), Bahasa Indonesian (basic)

List of Ph.D. courses for Nozomi Nakajima

Economics
ECON 2020A Microeconomic Theory I
ECON 2020B Microeconomic Theory II
ECON 2110 Econometrics I
ECON 2115 Econometrics Methods for Applied Research
ECON 2810A Labor Economics
MIT 14.137 Psychology and Economics

Statistics
STAT 110 Probability
STAT 111 Theoretical Statistics
STAT 115 Multilevel and Longitudinal Models
STAT 131 Time Series and Prediction
STAT 149 Generalized Linear Models
STAT 213 Statistical Inference II
STAT 286 Causal Inference

Education
EDU S800 Ph.D. Proseminar
EDU S803 Education Policy and Program Evaluation Core Seminar
EDU S504 Qualitative Research Methods
EDU S063 Meanings Children Make of Stories about Relational, Social, and Civic Topics
EDU S290 Quantitative Methods for Improving Causal Inference in Educational Research

Multidisciplinary Program in Inequality & Social Policy Fellowship Required Courses
SOC 296A Proseminar on Inequality and Social Policy I
GOV 2340B Proseminar on Inequality and Social Policy II
GOV 2340C Proseminar on Inequality and Social Policy III

Research Statement for Nozomi Nakajima

My current and future research focuses on two main topics: (i) knowledge diffusion of science and emerging technology, and (ii) understanding the impacts of robots on workers.

Knowledge diffusion of science and emerging technology

In my first area of research, I examine how science and emerging technology are communicated to non-scientists, and how these communication channels shape public perception of science and innovation. These questions are important to both scientists and society at large: in order for scientific discoveries to change behavior and policy, they have to diffuse to the public and to policymakers.[1]

One of my on-going projects studies the proliferation of video sharing platforms in the knowledge diffusion of emerging technologies. Leveraging data from Youtube, I document the rapid rise of video demonstrations in robotics. Using unexpected video releases as a natural experiment, I estimate the impact of these videos on investments in robotics companies and research labs, and on public perception of robots. I also survey experts in robotics across industry and academia to understand the challenges they perceive in using video demonstrations to communicate with non-scientists. I find that the most pressing challenges relate to issues of transparency, given non-technical audiences may be biased to believe what they notice (or do not) in the videos. Using a survey experiment across six countries, I document the prevalence of these behavioral biases and test strategies to correct for these biases.

Understanding the impacts of robots on workers

In my second area of research, I study the impacts of robots on workers. With advancements in AI, there has been renewed concern that advances in robotics and AI will lead to massive job losses, wage inequality, and employment polarization.[2]

My research uses randomized field experiments with industry partners in manufacturing and logistics to estimate the impacts of deploying robots at scale. By randomizing the roll out of new, AI-powered robots across plants and warehouses, my research generates direct empirical evidence on what types of tasks get automated, whether workers can switch to complementary tasks, and how non-automated tasks are assigned to different types of workers. Moreover, my research leverages detailed, worker-level data to examine a rich set of outcomes beyond employment and wages, such as health outcomes and political behavior.

NBER Innovation Bootcamp 2025

I am interested in participating in the NBER Innovation Bootcamp for two reasons. First, I would like to take coursework in the economics of innovation, as my Ph.D. training primarily focused on the economics of education and labor. Since transitioning from academia to industry, my research agenda has shifted towards topics about innovation, and I would benefit from an opportunity to engage with the foundational ideas in the field. Second, I would like to learn from and network with other scholars working on innovation research. My current employer, Boston Dynamics AI Institute, is a research organization that sits at the intersection of an academic research lab and a corporate development lab. As a research scientist at the Institute, I am encouraged to collaborate with academic and industry partners to publish in top peer-reviewed journals. If selected to participate at the Bootcamp, I hope to use the opportunity to form new research collaborations.

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[1] Prior research shows that across 68 countries, the majority of people now acquire science and technology-related information through social media instead of traditional news media (Mede et al., 2025).

[2] Existing research on the labor market impacts of robots applies quasi-experimental methods on industry-level or firm-level data of industrial robots, due to limited data availability (Acemoglu and Restrepo 2020; Dauth et al., 2021; Koch et al., 2021)