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APPOINTMENTS	California Institute of Technology Division of the Humanities and Social Sciences Assistant Professor of Economics William H. Hurt Scholar	2023 – 2023 –
	National Bureau of Economic Research Faculty Research Fellow	2024 –
	Resources for the Future University Fellow Fellow	2023 – 2021 – 23

EDUCATION	University of California, Berkeley Ph.D. in Agricultural and Resource Economics Chairs: Solomon Hsiang and Joseph S. Shapiro	2021
	M.S. in Agricultural and Resource Economics	2018
	Stanford University B.S. in Earth Systems, <i>with honors and distinction</i>	2014

RESEARCH INTERESTS Environmental and resource economics and policy, ecosystem valuation, climate impacts and adaptation

PUBLISHED PAPERS “Using markets to adapt to climate change” with S. Greenhill, S. Hsiang, C. Balboni, L. Barrage, I.W. Bolliger, J. Boomhower, D. Diaz, T. Garg, M. Hino, H. Hong, C. Kousky, J. Martinich, I. Nath, K.L. Oremus, R.J. Park, T. Phan, J. Proctor, W. Rafey, M.C. Sarofim, W. Schlenker, and B. Simon. *Science* (2026). [Available here.](#)

“Global high-resolution estimates of the U.N. Human Development Index using satellite imagery and machine learning” with L. Sherman, J. Proctor, H. Tapia, and S. Hsiang. *Nature Communications* (2026). [Available here.](#)

“Removing development incentives in risky areas promotes climate adaptation” with P. Liao, S. Pesek, S. Zhang, and M. Walls. *Nature Climate Change* (2024). [Available here.](#)

“Machine learning predicts which rivers, streams, and wetlands the Clean Water Act regulates” with S. Greenhill, S. Wang, D.A. Keiser, M. Giroto, J.K.

Moore, N. Yamaguchi, A. Todeschini, and J.S. Shapiro, *Science* (2024). [Available here.](#)

“A machine learning pipeline for merging and georeferencing very large archives of historical aerial photographs” with E. Noda, L. Huang, T. Chong, S. Jain, A. Madestam, A. Tompsett, and S. Hsiang. *IEEE International Conference on Big Data* (2024). [Available here.](#)

“Wetlands, flooding, and the Clean Water Act” with C.A. Taylor, *American Economic Review* (2022). [Available here.](#)

“Accounting for ecosystem service values in climate policy” *Nature Climate Change* (2022). [Available here.](#)

“The effect of large-scale anti-contagion policies on the COVID-19 pandemic” with S. Hsiang, D. Allen, S. Annan-Phan, K. Bell, I. Bolliger, T. Chong, L. Huang, A. Hultgren, E. Krasovich, P. Lau, J. Lee, E. Rolf, J. Tseng, and T. Wu, *Nature* (2020). [Available here.](#)

WORKING PAPERS

“Consequences of land use regulation under the Clean Water Act ” with J. Shapiro and C. Taylor.

“Buyer aversion to flood-resistant homes” with J. Choi and B. Babis.

“Accounting for unobservable heterogeneity in cross section using spatial first differences” with S. Hsiang.

“One million high-resolution aerial photographs capture Africa’s 20th-century transformation” with E. Noda, S. Berggreen, J. Ferguson, S. Greenhill, S. Hsiang, T. Kee, A. Madestam, H. Murayama, N. Nordfors, and A. Tompsett.

“Cooling where it counts: A framework for targeting urban heat mitigation investments” with A. Shreevastava, Q. Dehaene, A. Halsey, C. Yoo, S. Prasanth, G. Hulley, C. Frankenburg, and Y. Yin.

“What can satellite imagery and machine learning measure?” with J. Proctor, T. Carleton, T. Chong, T. Fransen, S. Greenhill, J. Katz, H. Murayama, L. Sherman, J. Tseng, and S. Hsiang

“The value of forests: Evidence from tree mortality in the American West.”

GRANTS, FELLOWSHIPS & AWARDS

“How Does Clean Water Act Regulation Impact New Development?” Arnold Ventures Building Evidence Grant (with J.S. Shapiro and C.A. Taylor) 2026

“Building for the Future: The Effects of Climate-Resilient Codes on Housing Supply and Affordability” (with M. Walls and P. Liao) 2026

“New Tools for Estimating Location-specific Ecosystem Values at National Scale to Inform Sustainable Management”, Resnick Sustainability Institute Impact Grant, \$839,965 (with G. Gkioxari)	2024
“Antarctic Ocean-Ice Interactions: Pathways to Catastrophic Sea Level Rise”, Resnick Sustainability Institute Impact Grant (with A. Thompson, J. Bae, R. Fu, and M. Simons)	2024
“A new era of Earth Action: linking coral health and societal wellbeing through NASA earth observations” President and Director’s Research Development Fund, Jet Propulsion Laboratory, \$750,000 (with C. Lee)	2024
“Wetland Regulation And Us Rural Economic Development”, USDA National Institute of Food and Agriculture, \$650,000 (with J.S. Shapiro, C. Taylor, and S. Wang)	2024
“New tools for estimating location-specific ecosystem values to inform sustainable management”, William H. Hurt Scholar Fund, \$200,000 (with G. Gkioxari)	2024
“Adapting To Variable Weather: The Roles And Impacts Of Crop Insurance And Conservation Decisions In Rural Communities”, USDA National Institute of Food and Agriculture, \$650,000 (with P. Liao and M. Walls)	2022
“Can removing development subsidies promote adaptation? The Coastal Barrier Resources System as a natural experiment”, Lincoln Institute of Land Policy, \$100,000 (with M. Walls and P. Liao)	2021
“A new approach to measuring the wealth of nations: understanding long-run economic growth using historical aerial photographs”, Riksbankens Jubileumsfond, \$6,218,140 (with A. Madestam, A. Tompsett, and S. Hsiang)	2020
Outstanding Graduate Student Instructor Award, UC Berkeley	2019
Doctoral Fellow, Global Policy Laboratory, UC Berkeley	2017
National Science Foundation Graduate Research Fellowship Program (NSF GRFP)	2016
The Berkeley Fellowship, UC Berkeley	2016
Firestone Medal for Excellence in Undergraduate Research, Stanford University	2014

Dean's Award for Academic Achievement, School of Earth Sciences, Stanford University 2014

RECENT
INVITED
TALKS

2026 (*scheduled*): UT Austin Environmental and Energy Economics Seminar; ASU Environmental Economics and Sustainability Policy Seminar; UW-Madison Applied Economics Seminar; UCSD Environmental Economics Seminar; Claremont McKenna College Economics Seminar; Cal Poly San Luis Obispo Economics and Finance Seminar; Transatlantic Seminar on Environmental and Energy Economics

2025: Stanford Doerr School of Sustainability Social Sciences Seminar; UCSB Environmental and Energy Economics Seminar; UCSB Bren School Seminar; USC PIPE Collaborative Workshop; Resnick Sustainable Institute Young Investigators Symposium; UC Davis Environmental and Energy Economics; Association of Environmental and Resource Economics Fall Workshop

2024: Stanford Natural Capital Symposium; University of Illinois Gies College of Business; University of Calgary Economics Seminar

2023: University of Chicago EPIC; Yale School of the Environment; ASSA Annual Meeting; The Workshop in Environmental Economics and Data Science (TWEEDS); Caltech Geological and Planetary Sciences; Caltech Environmental Sciences and Engineering

CONFERENCE
ORGANIZATION

NBER Summer Institute, Environmental and Energy Economics 2025

The Workshop in Environmental Economics and Data Science (TWEEDS) 2025 –

Innovations in the Science and Policy of Water Quality Measurement, Caltech 2024

PROFESSIONAL
SERVICE

Environmental Defense Fund, Economics Advisory Council Member 2025 –

Fifth National Climate Assessment, Technical Contributor 2023

REFEREEING

American Economic Journal: Applied Economics; American Economic Journal: Economic Policy; American Economic Review; American Economic Review: Insights; Journal of the Association of Environmental and Resource Economists; Journal of Environmental Economics and Management; Journal of Health Economics; Journal of Political Economy: Microeconomics; Journal of Public Economics; Nature Communications; Nature Food; Political Analysis; Proceedings of the National Academy of Sciences; Resource and Energy Economics; Science; Science Advances

TEACHING

Division of Humanities and Social Sciences, Caltech

ESE 179: Climate Change Impacts, Adaptation, and Mitigation 2025
(22 students in Winter 2025)

Ec/BEM/ESE 119: Environmental Economics 2024 – 26
(40 students in Spring 2025)

Ec 11: Principles of Economics 2025
(115 students in Fall 2025)

SS 282: Graduate Proseminar in Social Science 2026
(15 students in Winter 2026)

School of International and Public Affairs, Columbia University

OMAF 6065: Economics of Energy 2022
(60 students in Spring 2022)