☎510-847-1132 **Hikari Murayama** ✉hikari_murayama@berkeley.edu

Education

University of California, Berkeley, Berkeley, CA May 2021 – Present
Ph.D. Student in Energy and Resources Group (Expected: May 2026)

University of California, Berkeley, Berkeley, CA August 2019 – May 2021
M.S. in Energy and Resources Group

Wellesley College, Wellesley, MA August 2012 – May 2016
Bachelor of Arts in Chemical Physics
Cum Laude (GPA: 3.71/4.00), Departmental Honors, Sigma Xi
Honors Thesis - DNA G-Quadruplex Formation in the *Bdellovibrio bacteriovorus* Genome: An *in vitro* Study Exploring Temperature, Time, and Crowding

Peer Reviewed Publications

Murayama, H., Noda, E., Chong, T., Druckenmiller, H., Ferguson, J., Greenhill, S., Hsiang, S., Ilin, C., Kee, T., Madestam, A., Nordfors, N., Tompsett, A., Wang, S.. *Developing high resolution, historical land cover maps in Africa using deep learning and an aerial photography archive*. 2025 August. *In Preparation*

Murayama, H., Wang, S., Sherman, L., Cohen, R., Hsiang, S. Parameterizing deep learning for carbon dioxide emission quantification for power plants. 2025 August. *In Preparation*

Proctor, J., Carleton, T., Chong, T., Fransen, T., Greenhill, S., Katz, J., **Murayama, H.,** Sherman, L., Tseng, J., Druckenmiller, H., Hsiang, S.. *What can satellite imagery and machine learning measure?* 2025 June. *In Review*

Brumberg, H., Dee, L., **Murayama, H.,** Barrientos, J.J.A., Bessesen, B., Bouffard, M.G., Burgess, M.G., Cortés, J., Furey, S., Hernández, N., Luger, A., Madden, M., Pauline, E., Schmitt, R.J.P., Siegel, K.J., Vargas-Araya, L., Whitworth, A., Newton, P.. *Canopy to coral: Riparian buffers reduce coastal turbidity and protect marine ecosystems* 2025 June. *In Review*

Brumberg, H., Furey, S., Bouffard, M.G., Mata Quirós, M.J., **Murayama, H**., Neyestani, S., Pauline, E., Whitworth, A., Madden, M. *Increasing forest cover and connectivity both inside and outside of Protected Areas in southwestern Costa Rica*. 2024 March. In: *Remote Sensing*.

Decter-Frain, A., Sachdeva, P., Collingwood, L., Burke, J., **Murayama, H.,** Barreto, M., … Zingher, J. *Comparing Methods for Estimating Demographics in Racially Polarized Voting Analyses*. 2023 August. In: Sociological Methods & Research

Tsao, L.H., Shepardson-Fungairiño, S., **Murayama, H.**, Cecere, A., Wren, E., Núñez, M.. *Assessing the Potential for DNA Quadruplex Formation in the Predatory Bacterium Bdellovibrio bacteriovorus*. 2022 September. In: Biochemistry.

Figueroa, C., **Murayama, H.**, Amorim, P.C., White, A., Quiteri, A., Luo, T., Aguilera, A., Smith, A.D.R., Lyles, C.R., Robinson, V., Von Vacano, C. *Applying the Digital Health Social Justice Guide.* 2022 March. In: Frontiers in Digital Health.

Fellowships and Grants

- 2025 - Quad Fellowship by Institute of International Education – Senior Fellow Ambassador
- 2025 - University of California Dissertation-Year Fellowship – Fellow ($36,000 + tuition/fees)
- 2024 - UC Berkeley Energy and Resources Group – Mini grant ($736)
- 2024 - Quad Fellowship by Institute of International Education – Fellow ($40,000)
- 2024 - UC Berkeley Energy Institute at Haas and the Opportunity Lab: Energy and Environmental Economics Mentoring Program – Mentor ($7,500)
- 2022 - Google Cloud Education Programs – Google Cloud Research Credits ($1,300)
- 2021 - UC Berkeley D-Lab – Senior Data Science Fellow
- 2021 - UC Berkeley Global Policy Lab – Doctoral Fellow
- 2020 - UC Berkeley D-Lab – PIT-UN Fellow and Data Science Fellow
- 2020 - University of Washington eScience Institute – Data Science for Social Good Fellowship ($7,000)
- 2019 - UC Berkeley Graduate Division – Conference Travel Grants ($900)

Awards

American Geophysical Union

- 2024 - Outstanding Student Presentation Award in Atmospheric Chemistry at AGU Fall Meeting 2024

Energy and Resources Group at University of California, Berkeley

- 2021 - Kay Burns Advising and Service Award (*awarded to group: Master's Seminar Series Task Force*)

American Society for Photogrammetry and Remote Sensing

- 2019 - 3rd Place in Student Oral Presentations at Pecora Symposium 2019

Wellesley College

- 2016 - Phyllis Fleming Prize for Excellence in Physics
- 2013 - First-Year Chemistry Award

Research Experience

Global Policy Lab at University of California, Berkeley, Berkeley, CA — January 2021 – Present
Principle Investigator: Solomon Hsiang, PhD
Emissions detection using remote sensing and deep learning
Using historial aerial photography for land cover maps

Lawrence Berkeley National Laboratory, Berkeley, CA — March 2020 – May 2022
Principle Investigator: Daniel Feldman, PhD
Air pollution pattern changes with COVID-19 Shelter in Place orders
Remote sensing for plastic debris quantification

D-Lab at University of California, Berkeley, Berkeley, CA — January 2020 – May 2021
Principle Investigator: Claudia von Vacano, PhD
Digital health social justice

eScience Institute at the University of Washington, Seattle, WA — June 2020 – August 2020
Principle Investigator: Matt Barreto, PhD and Loren Collingwood, PhD
Voting rights dilution

Wellesley College Chemistry Department, Wellesley, MA — September 2014 – May 2016
Principle Investigator: Megan E. Nuñez, PhD.
DNA G-Quadruplex formation using Nuclear Magnetic Resonance (NMR) and Circular Dichromatism

University of California, Berkeley Chemical Engineering Department, Berkeley, CA — June – August 2014
Principle Investigator: Jeffrey Reimer, PhD
Nitrogen vacancy centers in diamonds using NMR and Electron Paramagnetic Resonance

Wellesley College Physics Department, Wellesley, MA — September 2013 – May 2014
Principle Investigator: James Battat, PhD
Cosmic ray muon detection

California Department of Toxic Substances Control, Berkeley, CA — June – August 2013
Principle Investigator: Sabrina Crispo Smith, PhD
Organophosphate flame-retardants in dust and dirt samples

Teaching Experience

University of California, Berkeley, Berkeley, CA

PP275 – Spatial Data Analysis (TA) — Fall 2022

D-Lab – Coding in R workshop (Instructor) — Spring 2020 – Spring 2022
Coding in Python workshop (Instructor)
Data for Housing workshop (*co-developed*)
Digital Health Social Justice workshop (Instructor, *co-developed*)
Geospatial Analysis in R workshop (Instructor, *co-developed*)
Geospatial Analysis in Python workshop (Instructor, *co-developed*)
Geospatial Analysis in QGIS workshop (Instructor, *co-developed*)

ENERES176 – Climate Change Economics (TA) — Fall 2019

Academic Service

Energy and Resources Group at University of California, Berkeley

Hiring committee for Energy and Resources Group Professor — October – December 2022
Master's Seminar Series Task Force — February 2020 – May 2021

Geospatial Innovation Facility (GIF) at University of California, Berkeley

Hiring committee for web developer — June – August 2022

Mentorship Experience

Getting into Graduate School (GiGS) at University of California, Berkeley August 2025 – Present
Mentor

Mentored one undergraduate student in their journey towards applying to graduate school

Data Discovery Program at University of California, Berkeley August 2025 – Present
Mentor

Lead and mentored three undergraduates in research for updating a deep learning pipeline to quantify carbon dioxide emissions from powerplants using a simulated dataset

Environmental and Energy Economics Mentoring Program at University of California, Berkeley August 2024 – May 2025
Mentor

Lead and mentored two undergraduates in conducting research in quantifying tropical cyclone impacts in Madagascar

Volunteer Experience

Ready&, Tokyo, Japan — September 2015 – May 2022
Co-founder, Advisor (2016-2022), Director (2015-2016)

Grassroots, non-profit initiative run by college students to empower Japanese high school girls throughout Japan. Sponsored by American Center Japan, Harvard Club of Japan, Japan-U.S. Friendship Commission among others.

Girls Who Code, Washington D.C. — August 2017 – May 2018
Facilitator

Weekly meetings for 2 hours teaching middle and high school girls how to code in Scratch, Python, and Java.

Work and Professional Experience

NASA DEVELOP National Program, Athens, GA — August 2018 – April 2019
Assistant Center Lead, *Project Lead*

Bates White Economic Consulting, Washington D.C. — September 2016 – August 2018
Consultant II (2017-2018), *Consultant I* (2016-2017)

AIG, Boston, MA — June 2015 – August 2015
Risk Engineer/Loss Prevention Consultant

Skills

Programming	**Geospatial Analysis**	**Languages**
Python, R, Git/GitHub, STATA, MATLAB	Google Earth Engine, Python, R, QGIS	Japanese

Professional Affiliations

American Geophysical Union, American Society for Photogrammetry and Remote Sensing

Conference Presentations

Ikarashi, Y., Li, V., **Murayama, H.,** Sawada, A., Tanaka, H.. *Barriers to reaching potentials: an investigation into Japan's workforce and hope for innovation* [Oral Presentation] In: Quad Fellowship Spring Symposium 2025. 2025 May. Remote.

Murayama, H., Chong, T., Druckenmiller, H., Ferguson, J., Greenhill, S., Hsiang, S., Ilin, C., Kee, T., Madestam, A., Noda, E., Nordfors, N., Tompsett, A., Wang, S.. *Using untapped aerial photography archives to quantify historical forest cover changes in Africa* [Oral Presentation] In: Sustainability Data Science Conference. 2024 April. Palo Alto, CA.

Murayama, H., Wang, S., Sherman, L., Cohen, R.C., Hsiang, S.M.. *Toward a generalizable deep learning approach to estimate CO_2 emissions from power plants* [Oral Presentation] In: American Geophysical Union Fall Meeting 2024. 2024 December. Washington, DC.

Murayama, H., Wang, S., Sherman, L., Cohen, R.C., Hsiang, S.M.. *Quantifying CO_2 emissions using deep learning and remote sensing* [Oral Presentation] In: Graduate Climate Conference 2024. 2024 November. Seattle, WA.

Murayama, H., Chong, T., Druckenmiller, H., Ferguson, J., Greenhill, S., Hsiang, S., Ilin, C., Kee, T., Madestam, A., Noda, E., Nordfors, N., Tompsett, A., Wang, S.. *Developing high resolution, historical land cover maps in Africa using deep learning and an aerial photography archive* [Oral Presentation] In: American Geophysical Union Fall Meeting 2023. 2023 December. San Francisco, CA.

Murayama, H., Wang, S., Cohen, R.C., Hsiang, S.M.. *Measuring CO_2 emissions using deep learning and remote sensing* [Poster] In: American Geophysical Union Fall Meeting 2022. 2022 December. Chicago, IL.

Murayama, H., Carleton, T., Chong, T., Fransen, T., Greenhill, S., Katz, J., Proctor, J., Sherman, L., Tseng, J., Druckenmiller, H., Hsiang, S.. *Mapping over 100 Variables using an image of Earth*. [Oral Presentation] In: The Workshop for Environmental Economics and Data Science. 2022 October. Eugene, OR.

Burke, J., Decter-Frain, A., **Murayama, H.,** Sachdeva, P. *eiCompare: Making Every Vote Count.* [Oral Presentation] In: Learning and Doing Data for Good. 2022 September. Seattle, WA.

von Vacano, C., **Murayama, H.**, Olojo, S. Developing Critical Frameworks for Analyzing STEM Program Structures [Oral Presentation] In: 2021 National Workshop on Data Science Education. 2021 June. Remote.

Bouffard, M., **Murayama, H.**, Furey, S., Bartlett, B., Palmer, R., Bouffard, M., Ingram, S., and Madden, M. *Determining Habitat Suitability to Establish a Jaguar Corridor between the Talamanca Mountains and the Osa Peninsula in Costa Rica*. [Oral Presentation] In: ASPRS 2021 Annual Conference. 2021 April. Remote.

Barreto, M., Burke, J., Collingwood, L., Decter-Frain, A., **Murayama, H.,** Sachdeva, P. *eiCompare: Comparing BISG to CVAP Estimates in Racially Polarized Voting Analyses.* [Oral Presentation] In: Politics of Race, Immigration, & Ethnicity Consortium. 2020 November. Newark, DE.

Murayama, H., Furey, S., Bartlett, B., Palmer, R., Bouffard, M., Ingram, S., and Madden, M. *Geospatial Modeling of Human-Wildlife Conflict and Habitat Suitability for Jaguar Corridors in Costa Rica.* [Oral Presentation] In: PECORA 21/ISRSE 38 Earth Observation – Continuous Monitoring of Our Changing Planet: From Sensors to Decisions. 2019 October. Baltimore, MD.

Murayama, H., Furey, S., Bartlett, B., Palmer, R., Bouffard, M., Ingram, S., and Madden, M. *Determining Habitat Suitability to Establish a Jaguar Corridor between the Talamanca Mountains and the Osa Peninsula in Costa Rica.* [Oral Presentation] In: NASA DEVELOP Southeast Spring Closeout at NOAA National Center for Environmental Information. 2019 April. Asheville, NC.

Murayama, H., Furey, S., Barney, M., Neyestani, S., Bouffard, M., and Madden, M. *Evaluating Potential Sites for Coral Reef Rehabilitation in the Golfo Dulce, Costa Rica Based on Turbidity and Sea Surface Temperature.* [Oral Presentation] In: NASA DEVELOP Southeast Fall Closeout at University of Georgia. 2018 December. Athens, GA.

References

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