

Yuzhou Wang

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EDUCATION

University of California, Berkeley

Berkeley, CA, USA

Postdoc

Jul 2023 – Present

- Research Area: Air Quality Modeling; Air Pollution Exposure; Environmental Policy; Machine Learning
- Advisor: Joshua S. Apte

University of Washington

Seattle, WA, USA

Ph.D. in Environmental Engineering

Sep 2017 – Jun 2023

- Dissertation: *Understanding and addressing ambient air pollution exposure inequality*
- Thesis Committee: Julian D. Marshall (Chair), Timothy V. Larson, Lianne Sheppard, Alex Turner

Tsinghua University

Beijing, China

B.E. in Environmental Engineering

Aug 2013 – Jun 2017

B.A. in Business Administration

Aug 2014 – Jun 2017

PUBLICATIONS

Peer-reviewed papers

1. **Yuzhou Wang**, Julian Marshall, Joshua Apte. “US ambient air monitoring network has inadequate coverage under new PM_{2.5} standard.” *Environmental Science & Technology Letters*, 11(11), 1220–1226. DOI: 10.1021/acs.estlett.4c00605. 2024. [[Link](#)]
Highlighted in [ACS Press](#); [Chemical & Engineering News](#); [EOS](#); [Inside Climate News](#)
2. Siyu Zhu, Zhi Li, Mengye Chen, Yixin Wen, Zhong Liu, George Huffman, Theresa Tsoodle, Sebastian Ferraro, **Yuzhou Wang**, Yang Hong. “Evaluation of IMERG climate trends over land in the TRMM and GPM eras.” *Environmental Research Letters*, 20, 014064. DOI: 10.1088/1748-9326/ad984e. 2024. [[Link](#)]
3. **Yuzhou Wang**, Joshua Apte, Jason Hill, Cesunica Ivey, Dana Johnson, Esther Min, Rachel Morello-Frosch, Regan Patterson, Allen Robinson, Christopher Tessum, Julian. Marshall. “Air quality policy should quantify effects on disparities.” *Science*, 381, 6655. DOI: 10.1126/science.adg9931. 2023. [[Link](#)]
Highlighted in [The New York Times](#); [The Associated Press](#); [The Washington Post](#); [National Public Radio](#)
4. **Yuzhou Wang**, Joshua Apte, Jason Hill, Cesunica Ivey, Regan Patterson, Christopher Tessum, Julian Marshall. “Location-specific strategies for eliminating US national racial-ethnic PM_{2.5} exposure inequality.” *Proceedings of the National Academy of Sciences*, 119 (4), e2205548119. DOI: 10.1073/pnas.2205548119. 2022. [[Link](#)]
Highlighted in [Popular Science](#); [UW News](#)
5. **Yuzhou Wang**, Yafeng Wang, Hao Xu, Yaohui Zhao, Julian Marshall. “Ambient air pollution and socioeconomic status in China.” *Environmental Health Perspectives*, 130 (6), 067001. DOI:10.1289/EHP9872. 2022. [[Link](#)]
Highlighted in [UW News](#)
6. **Yuzhou Wang**, Matthew Bechle, Sun-Young Kim, Peter Adams, Spyros Pandis, Arden Pope, Allen Robinson, Lianne Sheppard, Adam Szpiro, and Julian Marshall. “Spatial decomposition analysis of NO₂ and PM_{2.5} air pollution in the United States.” *Atmospheric Environment*, 241, 117470. DOI: 10.1016/j.atmosenv.2020.117470. 2020. [[Link](#)]

7. Jacob Lefler, Joshua Higbee, Richard Burnett, Majid Ezzati, Nathan Coleman, Dalton Mann, Julian Marshall, Matthew Bechle, **Yuzhou Wang**, Allen Robinson, Arden Pope. “Air pollution and mortality in a large, representative US cohort: multiple-pollutant analyses, and spatial and temporal decompositions.” *Environmental Health* 18(101), 1-11. DOI: 10.1186/s12940-019-0544-9. 2019. [[Link](#)]

Working papers

8. **Yuzhou Wang**, Lucas Mendoza, Ling Jin, Joshua Apte. “A reduced-form air quality model for policy assistant in California.”
9. **Yuzhou Wang**, Joshua Apte. “A seasonal air quality model with machine learning”
10. Bujin Bekbulat, **Yuzhou Wang**, Jignesh Patel, Christopher Tessum, Joshua Apte, Julian Marshall. “InMAP Source Receptor Matrix 2.0: Updated reduced complexity air pollution modeling in contiguous US.”
11. Lucas Mendoza, **Yuzhou Wang**, Libby Koolik, Joshua Apte. “Analyzing sources and spatial scales of air pollution disparities for California air basins.”
12. Lucas Mendoza, **Yuzhou Wang**, Neeldip Barman, Joshua Apte, Srinidhi Balasubramanian, Julian Marshall, Chandra Venkataraman. “Evaluating multi-scale heterogeneity in PM_{2.5} exposures for India using an annualized reduced complexity model.”
13. Srinidhi Balasubramanian, Lucas Mendoza, **Yuzhou Wang**, Neeldip Barman, Joshua Apte, Julian Marshall, Chandra Venkataraman. “Air Pollution management and intervention tool for India (PAVITRA): Making a case for multi-scale multi-sector air quality management.”
14. Neeldip Barman, Lucas Mendoza, **Yuzhou Wang**, Joshua Apte, Srinidhi Balasubramanian, Julian Marshall, Chandra Venkataraman. “An airshed approach to mitigating extreme PM_{2.5} levels in India.”

PRESENTATIONS

Conference presentations

- 2024 “Gaps and disparities in U.S. ambient air monitoring network under new PM_{2.5} standard” In AGU Fall Meeting (Poster)
- 2024 “Addressing gaps and disparities in ambient air quality monitoring in the US.” In ISEE Annual Conference (Talk)
- 2023 “How would emission reductions in federally-defined disadvantaged communities reduce national air pollution exposure disparities?” In AGU Fall Meeting (Poster)
- 2023 “How would emission reductions in federally-defined disadvantaged communities reduce national air pollution exposure disparities?” ISEE Annual Conference (Talk)
- 2022 “Addressing U.S. racial-ethnic inequality in air pollution exposure.” ISEE Annual Conference (Talk)
- 2021 “Ambient air pollution and socioeconomic status in China.” ISEE Annual Conference (Talk)
- 2020 “Spatial decomposition analysis of NO₂ and PM_{2.5} air pollution in the United States.” ISEE Annual Conference (Talk)
- 2019 “National disparities of air pollution exposure level by socioeconomic status in China.” ISEE Annual Conference (Poster Discussion)

Invited talks & seminars

- 2025 “Tackling Air Pollution: New Models, Methods, and Policies” In the University of Wisconsin-Madison - Department of Civil and Environmental Engineering
- 2025 “Tackling Air Pollution: New Models, Methods, and Policies” In the Texas A&M University - Zachry Department of Civil and Environmental Engineering
- 2025 “Tackling Air Pollution: New Models, Methods, and Policies” In Stanford University -

Atmospheric Composition and Climate Lab

- 2024 “How to Address Disparities in Exposure to Ambient Air Pollution?” In the University of California, Berkeley - SHE/EQUIS Lab
- 2023 “Location-specific strategies for eliminating US national racial-ethnic PM2.5 exposure inequality.” In Environmental Defense Fund - Air Pollution Inequity Research Seminar
- 2023 “Introduction and application of reduced-form air quality models” Indian Institute of Technology Bombay
- 2023 “InMAP application: Location-specific strategies for eliminating racial-ethnic PM2.5 exposure inequality.” In the Center for Study of Science, Technology, and Policy
- 2023 “Addressing racial-ethnic inequality in air pollution.” In the University of Washington - DEI Town Hall
- 2022 “Addressing racial-ethnic inequality in exposure to PM2.5.” In the University of California, Berkeley - Civil and Environmental Engineering
- 2022 “Addressing U.S. racial-ethnic inequality in ambient air pollution exposure.” In the University of Washington - Atmospheric Physics & Chemistry Seminar
- 2018 “Spatial decomposition analysis of NO₂ and PM_{2.5} air pollution in the United States.” Center for Air, Climate, & Energy Solutions Science Meeting

TEACHING EXPERIENCE

Instructor. Air Quality Modeling Workshop. Feb 2023, Oct 2023, and Dec 2023

- Led three 2-10 day workshops on applications and development of reduced-form air quality modeling.
- Involving 40+ graduate students and research scientists from five research institutions: University of California Berkeley; University of Washington; Howard University; Indian Institute of Technology Bombay; Center for Study of Science, Technology and Policy.

MENTORING EXPERIENCE

Graduate students

- Lucas Mendoza (Jul 2023 - Present, University of California, Berkeley): “*Air pollution management and intervention tool for India*” and “*Sources and spatial scales of air pollution exposure disparities in California*”
 - o AAAR student poster award
- Cassidy Barrientos (Dec 2023 - Present, University of California, Berkeley): “*A reduced-form air quality model and source receptor matrix in California*”
- Bujin Bekbulat (Nov 2021 - Jun 2023, University of Washington): “*Development of national and regional reduced-complexity air pollution modeling*”

Undergraduate students

- Kathryn McLaughlin, Darin Avila, and Julia Kashimura (Summer 2021, Princeton University): “*A Python package for calculating concentration changes from emission interventions*”

PROFESSIONAL EXPERIENCE

Department of Civil and Environmental Engineering, University of California, Berkeley Berkeley, CA, USA
Postdoctoral Scholar July 2023 – present

- Developed a data-driven, high-resolution, and computationally efficient machine-learning air quality model to predict air pollution concentrations from emissions, collaborating with the US and California Environmental Protection Agencies, Office of Environmental Health Hazard Assessment.
- Led a project to quantify and address the gaps and disparities in regulatory air quality monitoring under the new air quality standard, utilizing remote sensing data, empirical models, and raw observational data.

- Mentored PhD students to investigate policies for effective air quality controls in California and India, using high-resolution reduced-complexity air quality models.

Department of Civil and Environmental Engineering, University of Washington
Graduate Research Assistant

Seattle, WA, USA
 August 2017 – June 2023

- Led a cross-institutional research team to develop a multi-objective optimization approach to design the emission intervention policy for achieving the largest environmental and public health benefits.
- Led an interdisciplinary team to utilize statistical machine learning approaches to infer the relationship between air pollution and socioeconomic status in China.
- Developed a spatial decomposition algorithm to attribute the spatial origins of air pollution concentrations for every census block.

Center for Neighborhood Knowledge, University of California, Los Angeles
Research Assistant

Los Angeles, CA, USA
 July 2016 – September 2016

- Analyzed the relationship between retail development from 1990 and 2010 and tract-level socioeconomic status

Center for Earth System Science, Tsinghua University
Research Assistant

Beijing, China
 October 2015 – June 2017

- Built an hourly-based semi-empirical PM2.5 forecast statistical model based on backward trajectory, background concentration, and meteorological data in three megacities in China.

Policy Research Center for Environment and Economy, Ministry of Environmental Protection
Research Assistant

Beijing, China
 June 2015 – August 2015

- Assisted in evaluating the implementation of “*Air Pollutant Emission Standards for Flat Glass Industry*.”

PROFESSIONAL ASSOCIATIONS

Member of the International Society for Environmental Epidemiology, 2023-present

Member of the American Geophysical Union, 2023-present

ACADEMIC & COMMUNITY SERVICE

Journal Reviewer:

- *Nature Cities*
- *Environmental Science & Technology*
- *One Earth*
- *Environmental Pollution*
- *GeoHealth*
- *Environmental Research Letters*
- *Journal of Transport Geography*
- *BMC Public Health*
- *Scientific Reports*
- *Environmental Geochemistry and Health*
- *Population and Environment*
- *International Journal of Data Science and Analytics*

Conference Paper & Presentation Reviewer:

- Transportation Research Board Annual Meeting - 2024
- American Geophysical Union Fall Meeting - 2023; 2024

Conference Convener & Chair:

- 2024 AGU Annual Meeting, oral and poster session “Innovative Models and Tools to Precisely Quantify and Identify Solutions for Air Pollution Exposure Inequality”

Public Comment:

- Written comment on “[Science Advisory Board Project Proposal: SAB Advice on Advancing Environmental Justice Science in Rulemaking](#)”, with Julian Marshall and Joshua Apte. September 2023.
- Written comment on “[Reconsideration of the National Ambient Air Quality Standards for Particulate Matter](#)”, on behalf of the North American Chapter of the International Society for Environmental Epidemiology. March 2023.