

Carlos F. Gould

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ACADEMIC APPOINTMENTS

2023-	Assistant Professor , Herbert Wertheim School of Public Health	UC San Diego
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EDUCATION

Columbia University	New York, NY
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Ph.D., Environmental Health Sciences, 2021
Columbia Mailman School of Public Health, Dept. of Environmental Health Sciences
Dissertation: *As the smoke clears: assessing the air pollution and health benefits of a nationwide transition to clean cooking fuels in Ecuador*
Advisor: Darby W. Jack, PhD

Yale University	New Haven, CT
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B.A., Environmental Studies with honors, 2015
Advisor: Robert Bailis, PhD

PROFESSIONAL EXPERIENCE

2021-2023	Stanford Earth Postdoctoral Fellow , Earth System Science Supervisor: Marshall Burke, PhD	Stanford University
2018-2021	Research Fellow , Initiative for Sustainable Energy Policy Supervisor: Johannes Urpelainen, PhD	Johns Hopkins
2016-2016	Research Assistant , Stockholm Environment Institute Supervisor: Robert Bailis, PhD	Boston, MA
2015-2016	Research Assistant , Berkeley Air Monitoring Group Supervisor: Michael Johnson, PhD and David Pennise, PhD	Berkeley, CA
2013-2015	Research Assistant , Yale School of Forestry & Environmental Studies Supervisor: Robert Bailis, PhD	New Haven, CT

JOURNAL PUBLICATIONS

* Indicates corresponding author, if not first or last.

† Indicates that authors contributed equally.

1. **Gould, C.F.**, Bailis, R., Balakrishnan, K., Burke, M., Espinoza S., Mehta, S., Suarez-Lopez, J., Pillarisetti, A. (2024). In praise of cooking gas subsidies: transitional fuels to advance health and equity. *Environmental research letters*, 19 081002. ([Link](#))
2. Daouda, M., Kaali, S., Spring, E., Mujtaba M., Jack, D.W., Dwommoh Prah, R.K., Colicino E., Tawiah, T., Gennings C., Osei, M., Janevic, T., Chillrud, S.N., Agyei O., Quinn A., **Gould, C.F.**, Lee, A.G., Asante, K.P. (2024). Prenatal household air pollution exposure and childhood blood pressure in rural Ghana. *Environmental health perspectives* 132, 3. ([Link](#))

3. **Gould, C.F.**[†], Davila, L.[†], Bejarano, M.L., Burke, M., Jack, D.W., Schlesinger, S., Mora, J., Valarezo, A. (2024). Exposure to Nitrogen Dioxide and Fine Particulate Matter When Cooking with Electricity Compared to Gas, a Randomized Crossover Study in Quito, Ecuador. *Environmental health perspectives* 132, 1. ([Link](#))
4. **Gould, C.F.**, Heft-Neal, S., Prunicki, M., Aguilera-Mendoza, J.A., Burke, M.[†], Nadeau, K.[†] (2024). Health effects of wildfire smoke exposure. *Annual review of medicine*, 45. ([Link](#))
5. Burke, M.[†], Childs, M.[†], de la Cuesta, B., Qiu, M., Li, J., **Gould, C.F.**, Heft-Neal, S., Wara, M. (2023). Wildfire influence on recent US pollution trends. *Nature* 622, 761-766. ([Link](#)) [NBER Working Paper 30882](#)
6. Heft-Neal, S., **Gould, C.F.**, Childs, M., Kiang, M., Nadeau, K., Duggan, M., Bendavid, E., Burke, M. (2023). Emergency department visits respond nonlinearly to wildfire smoke. *Proceedings of the national academy of sciences* 120 (39) e230240912. ([Link](#)) [NBER Working Paper 30969](#).
7. **Gould, C.F.**, Bejarano, M.L., De la Cuesta, B., Jack, D.W., Schlesinger, S., Valarezo, A., Burke, M. (2023). Climate and health benefits of a transition from gas to electric cooking. *Proceedings of the national academy of sciences* 120 (34) e2301061120. ([Link](#))
8. Valarezo, A., Davila, L., Bejarano, M.L., Nolivo, I., Molina, E., Schlesinger S.B., **Gould, C.F.**, Jack, D.W. (2023). Maintaining household clean cooking fuel use during the COVID-19 pandemic in Ecuador. *Energy for sustainable development* 74, 349-360. ([Link](#))
9. **Gould, C.F.**, Bejarano, M.L., Kioumourtzoglou, M.-A., Lee, A.G., Pillarisetti A., Schlesinger, S., Terán, E., Valarezo, A., Jack, D.W. (2023). Widespread clean cooking fuel scale-up and under-5 lower respiratory infection mortality: an ecological analysis in Ecuador, 1990-2019. *Environmental Health Perspectives* 131, 3. ([Link](#))
10. **Gould, C.F.**[†], Pillarisetti A.[†], Thompson, L., Saluja, S., Nandan, V., Urpelainen, J. (2023). Using high frequency household surveys to describe energy use in rural North India during the COVID-19 pandemic. *Nature Energy* 8, 169-178. ([Link](#))
11. **Gould, C.F.**, Ae-Ngibise, K.A., Yang, Q., Owusu-Agyei, S., Burkart, K., Boama-Kaali, E., Kinney, P., Mujtaba, M., Quinn, A., Manu, G., Jack, D.W., Chillrud, S.N., Asante, K.P. (2022). Using time-resolved monitor wearing data to study the effect of clean cooking interventions on personal air pollution exposures. *Journal of Exposure Science and Environmental Epidemiology* 33, 386-395. ([Link](#))
12. Childs, M., Li, J., Wen, J., Heft-Neal, S., Driscoll, A., Wang, S., **Gould, C.F.**, Qiu, M., Burney, J., Burke, M. (2022). Daily local-level estimates of ambient wildfire smoke PM_{2.5} for the contiguous US. *Environmental Science & Technology* 56, (19) 13607-13621. ([Link](#))
13. **Gould, C.F.**, Jha, S., Patnaik, S., Agrawal, S., Zhang, A.T., Saluja, S., Nandan, V., Mani, S., Urpelainen, J. (2022). Variability in the household use of cooking fuels: the importance of dishes cooked, non-cooking end uses, and seasonality in understanding fuel stacking in rural and urban slum communities in six north Indian states. *World Development* 159, 106051. ([Link](#))
14. Burke, M., Heft-Neal, S., Li, J., Driscoll, A., Baylis, P., Stigler, M., Weill, J., Burney, J., Wen, J., Childs, M., **Gould, C.F.** (2022). Exposures and behavioral responses to wildfire smoke. *Nature Human Behaviour* 6, 1351-1361. ([Link](#))
15. Zhang, A.T., Patnaik, S., Jha, S., Agrawal, S., **Gould, C.F.**, Urpelainen, J. (2022). Evidence of multi-dimensional gender inequality in energy services from a large-scale household survey in India. *Nature Energy* 7, 698-707. ([Link](#))
16. Kaali, S., Jack, D.W., Dommoh Prah, R.K., Chillrud, S.N., Mujtaba M.N., Kinney, P.L., Tawiah, T., Yang, Q., Oppong, F.B., **Gould, C.F.**, et al. (2022). Poorer early childhood growth is associated with impaired lung function: Evidence from a Ghanaian pregnancy cohort. *Pediatric Pulmonology* 57, (9) 2136-2146. ([Link](#))
17. Weaver, A.K., Head, J.R. **Gould, C.F.**, Carlton, E.J., Remais, J.V. (2022). Environmental factors influencing COVID-19 incidence and severity. *Annual Review of Public Health* 43, 271-291. ([Link](#))
18. Boamah-Kaali, E., Jack, D.W., Ae-Ngibise, K.A., Quinn, A., Kaali, S., Dubowski, K., Oppong, F., Wylie, B., Mujtaba, M., **Gould, C.F.** et al. (2021). Prenatal and postnatal household air pollution and infant growth trajectories: Evidence from a rural Ghanaian pregnancy cohort. *Environmental Health Perspectives*, 129, (11) 117009. ([Link](#))

19. Jack, D.W. Ae-Ngibise, K., **Gould, C.F.**, et al. (2021). A cluster randomized trial of cookstove interventions to improve infant health in Ghana. *BMJ Global Health* 6, (8) e005599. ([Link](#))
20. Quinn, A.K., Adjei, I.A., Ae-Ngibise, K.A., Agyei, O., Boamah, E., Burkhart, K., Carrión, D., Chillrud, S.N., **Gould, C.F.**, et al. (2021). Prenatal household air pollutant exposure is associated with reduced size and gestational age at birth among a cohort of Ghanaian infants. *Environment International* 155, 106659. ([Link](#))
21. Khanwilkar, S., **Gould, C.F.**, Defries, R., Habib, B., Urpelainen, J. (2021). Firewood, forests, and fringe populations: Exploring the inequitable socioeconomic dimensions of Liquefied Petroleum Gas (LPG) adoption in India. *Energy Research & Social Science* 75, 102012. ([Link](#))
22. Chillrud, S.N., Ae-Ngibise, K.A., **Gould, C.F.***, Owusu-Agyei, S., Mujtaba, M., Manu, M., Burkart, K., Kinney, P., Quinn, A., Jack, D.W., Asante, K.P. (2021). The effect of clean cooking interventions on maternal and child personal exposure to air pollution: Results from the Ghana Randomized Air Pollution and Health Study. *Journal of Exposure Science and Environmental Epidemiology* 35, 683-698. ([Link](#))
23. Carrión, D., Prah, R., **Gould, C.F.**, Mujtaba, M., Pillarisetti A., Agyei, O., Chillrud, S.N., Tawiah, T., Jack, D.W., Asante, K.P. (2020). Using longitudinal survey and sensor data to understand the social and ecological determinants of suspending clean cookstove use in rural Ghana. *Environmental Research Communications* 2 (9) 095003. ([Link](#))
24. **Gould, C.F.**[†], Hou, X.[†], Sharma, A., Richmond, J., Urpelainen, J. (2020). Jointly modeling the adoption and use of clean cooking fuels in rural India. *Environmental Research Communications* 2 (8) 085004. ([Link](#))
25. **Gould, C.F.**, Molina Rueda, E., Schlesinger, S., Bejarano, M.L., Valarezo, A., Jack, D.W. (2020). Long-standing LPG subsidies, cooking fuel stacking, and personal exposure to air pollution in rural and peri-urban Ecuador. *Journal of Exposure Science and Environmental Epidemiology* 30, 707-720. ([Link](#))
26. Mani, S., Jain, A., Tripathi, S., **Gould, C.F.** (2020). The drivers of sustained use of liquefied petroleum gas in rural India. *Nature Energy* 5, 450-457. ([Link](#)) [Replication Archive](#)
Policy Brief: [Sustained LPG use requires progress on broader development outcomes](#)
27. **Gould, C.F.**, Schlesinger, S., Molina Rueda, E., Bejarano, M.L., Valarezo, A., Jack, D.W. (2020). Household fuel mixes in peri-urban and rural Ecuador: Explaining the context of LPG, patterns of continued firewood use, and the limitations of induction cooking. *Energy Policy* 136, 11053. ([Link](#))
28. **Gould, C.F.**, Urpelainen, J. (2020). The role of education and attitudes in cooking fuel choice: Evidence from two states in India. *Energy for Sustainable Development* 54, 36-50. ([Link](#)) [Replication Archive](#)
29. **Gould, C.F.**, Urpelainen, J. (2019). The gendered nature of LPG adoption in rural India. *Journal of Development Studies* 56 (7), 1309-1329. ([Link](#)) [Replication Archive](#)
30. **Gould, C.F.**, Urpelainen, J. (2018). LPG as a clean cooking fuel: Adoption, use, and impacts in rural India. *Energy Policy* 122, 395-408. ([Link](#)) [Replication Archive](#)
31. **Gould, C.F.**, Chillrud, S.N., Phillips, D., Perzanowski, M.S., & Hernández, D. (2018). Soot and the city: Evaluating the impacts of Clean Heat policies on indoor/outdoor air quality in New York City apartments. *PLOS ONE* 13(6). ([Link](#))
32. **Gould, C.F.**, Schlesinger, S., Ochoa Toasa, A., Thurber, M., Waters, W., Graham, J., & Jack, D. (2018). Government policy, clean fuel access, and persistent fuel stacking in Ecuador. *Energy for Sustainable Development* 46, 111-122. ([Link](#))
33. **Gould, C.F.**, Jagoe, K., Moreno, A.I., Verastegui, A., Pilco, V., Garcia, J., Fort, A., & Johnson, M. (2018). Prevalent degradation and patterns of use, maintenance, repair, and access to post-acquisition services for biomass stoves in Peru. *Energy for Sustainable Development* 45, 79-87. ([Link](#))
34. Garland, C., **Gould, C.F.**, & Pennise, D (2018). Usage and impacts of the Envirofit HM-5000 cookstove. *Indoor Air* 28, 640-650. ([Link](#))
35. **Gould, C.F.**, Perzanowski, M.S., Evans, D., & Bruzzese, J.-M. (2018). Association of exercise-induced wheeze and other asthma symptoms with emergency department visits and hospitalizations in a large cohort of urban adolescents. *Respiratory Medicine* 135, 42-50. ([Link](#))

SUBMITTED ARTICLES

1. Qiu, M., Li, J., **Gould, C.F.**, (9 others), Burke, M. Wildfire smoke exposure and mortality burden in the US under future climate change. (*Submitted*, May 2024) [Preprint](#)
2. **Gould, C.F.**, Heft-Neal, S., Heaney, A.K., Bendavid, E., Callahan, C., Kiang, M.V., Graff Zivin, J., Burke, M. Temperature extremes impact mortality and morbidity differently (*Submitted*, June 2024). [NBER Working Paper 32195](#)
3. Qiu, M., Kelp, M., Heft-Neal, S., Jin, X., **Gould, C.F.**, Tong, D.Q., Burke, M. Evaluating estimation methods for wildfire smoke and their implications for assessing health effects. (*Submitted*, June 2024).
4. Krasovich-Southworth, E., Kawano, A., Qiu, M., Wen, J., **Gould, C.F.**, Heft-Neal, S., Burney, J., Burke, M. Quantifying variations in the chemical composition of ambient fine particulate matter due to wildfire and non-wildfire smoke pollution.

RESEARCH GRANTS

2024–2026	<i>Adaptation and resilience to climate change in the Global South</i> Role: co-PI; other PIs: Drs. Marshall Burke and Steve Steadman	Stanford King Center \$544,075
2020	<i>Ruth L. Kirschstein National Research Service Award Individual Pre-doctoral Fellowship to Promote Diversity in Health-Related Research.</i> Role: Main PI; Grant Number: F31 ES031833	NIEHS 1-year stipend
2020	<i>Resilient clean cooking: Maintaining household clean cooking in Ecuador during the COVID-19 pandemic</i> Role: Co-Investigator; PI: Drs. Darby Jack and Alfredo Valarezo	Fogarty International Center \$32,198
2020	<i>Using repeat surveys to assess the impact of COVID-19 on household energy use in Jharkhand, India</i> Role: Co-Investigator; PI: Drs. Lisa Thompson and Ajay Pillarisetti	Fogarty International Center \$32,338
2019	<i>Longitudinal analysis of cooking behavior in rural Bihar, India</i> Role: Co-Investigator; PI: Dr. Johannes Urpelainen Pre-Analysis Plan	International Growth Centre \$20,000
2019	<i>Clean stacking in Ecuador: Investigating how induction changes household energy use and household air pollution exposures across scales</i> Role: Co-Investigator; PI: Drs. Darby Jack and Alfredo Valarezo	Fogarty International Center \$75,000
2018	<i>Building capacity to evaluate clean cooking in Ecuador</i> Role: Co-Investigator; PI: Drs. Darby Jack and Alfredo Valarezo	Fogarty International Center \$120,000
2017	<i>Household energy scale-up in Ecuador</i> PI: Dr. Darby Jack	Fogarty International Center \$30,000

Individual Grants

2014	<i>Mellon Forum Research Grant</i>	\$500
2014	<i>Trumbull College Richter Summer Fellowship</i>	\$1,000
2014	<i>Yale Summer Environmental Fellowship</i>	\$2,000
2013	<i>Trumbull College Richter Summer Fellowship</i>	\$1,000
2013	<i>Yale Summer Environmental Fellowship</i>	\$1,800

AWARDS

2021-2023	<i>Stanford Earth Postdoctoral Fellow</i> One of three inaugural fellows. The program represents an effort to diversify the academic pipeline by supporting outstanding scholars in the fields of Earth, energy, and environmental sciences whose research and mentorship of undergraduate and graduate students will contribute to the diversity, equity, inclusion, and scientific excellence within the school.	2-year stipend
2019	<i>National Institutes of Health Travel Award</i> Award for travel to the International Society of Environmental Epidemiologists 2019 conference in Urecht, Netherlands.	\$1000
2019	<i>Award for Exemplary Doctoral Teaching Fellow in EHS</i> Awarded to an EHS Doctoral Candidate who has excelled as a teaching fellow in an EHS course.	\$200
2016-2018	<i>Initiative for Maximizing Student Development</i> Funding from NIH/NIGMS to cover stipend and partial tuition for two years. IMSD is a student development program for institutions in research-intensive environments to increase the number of students from underrepresented groups that receive doctoral training in public health and contribute to public health research focusing on those groups that experience health disparities.	2-year stipend.
2018	<i>Student Conference Travel Fund Award</i> Columbia Mailman School of Public Health Award for travel to a conference where the graduate student is presenting. Awarded for travel to the <i>Latin American Studies Association Conference</i> .	\$1100
2015	<i>Gaylord Donnelly Prize for Outstanding Senior Essay</i> Awarded by faculty of the Environmental Studies Program to recognize its most outstanding seniors for their academic achievements. The award is presented at commencement for distinguished pieces of interdisciplinary scholarship.	\$500

PRESENTATIONS

Oral Presentations

2024	American Thoracic Society Annual Meeting (invited)	<i>San Diego</i>
2024	Stanford University Behavioral Sciences and Sustainability Conference (invited)	<i>Stanford</i>
2024	Drexel University Environmental Health Sciences Seminar (invited)	<i>Virtual</i>
2023	Advancing sustainable household energy solutions (ASHES) Seminar (invited)	<i>Virtual</i>
2023	Clean Cooking ISN Capstone Meeting (invited)	<i>NIH</i>
2022	HWSPH Special Seminar (invited)	<i>UC San Diego</i>
2022	Research University Alliance	<i>Caltech</i>
2021	Stanford Center on Food Security and Environment (invited)	<i>Stanford University</i>
2021	Chilean Forest Institute and the Univ. of British Columbia (invited)	<i>Virtual</i>
2021	International Society for Environmental Epidemiology	<i>Virtual</i>
2020	Initiative for Sustainable Energy Policy Webinar Series (Invited)	<i>Virtual</i>
2019	International Society for Environmental Epidemiology	<i>Utrecht, Netherlands</i>
2019	Sustainable Energy Transitions Initiative	<i>Santiago, Chile</i>
2018	Pan-American Health Organization Workshop to Eliminate the Use of Solid Fuels in Latin America (invited)	<i>Mexico City, Mexico</i>
2018	International Society for Environmental Epidemiology	<i>Ottawa, Canada</i>

2018	Latin American Studies Association	<i>Barcelona, Spain</i>
2018	Sustainable Energy Transitions Initiative	<i>Duke University</i>
2017	Global Alliance for Clean Cookstoves Clean Cooking Forum (invited)	<i>Delhi, India</i>

TEACHING EXPERIENCE

University of California San Diego

Spring 2024	Introduction to Environmental and Occupational Health (FMPH 130)	<i>Instructor</i>
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Columbia University Mailman School of Public Health, Department Environmental Health Science

2020	Capstone: Critical Thinking and Analysis in Environmental Health Sciences (P9300) with Gregory Freyer, PhD	<i>Lead Teaching Fellow</i>
2019	Capstone: Critical Thinking and Analysis in Environmental Health Sciences (P9300) with Gregory Freyer, PhD	<i>Lead Teaching Fellow</i>
2018	Capstone: Critical Thinking and Analysis in Environmental Health Sciences (P9300) with Norman Kleiman & Markus Hilpert, PhD	<i>Teaching Fellow</i>
2017	Public Health GIS (P8371) with Jeremy Porter, PhD	<i>Teaching Fellow</i>

Guest Lectures

2024	Health impacts of climate change “Climate change, air pollution, and public health”	<i>UC San Diego</i> Alexandra K. Heaney, PhD
2024	Joint Doctoral Program Seminar “Advancing understanding of how to reduce environmental exposures and improve health”	<i>UC San Diego</i> David Strong, PhD
2022	PEDS 220: COVID-19 Elective “Environmental correlates of COVID-19 incidence and susceptibility”	<i>Stanford University</i> Rishi Mediratta, MD
2021	Program to Inspire Minority Undergraduates in EHS Research “How to summarize scientific work: Discussing how to make quality abstracts and poster presentations”	<i>Columbia University</i> Ana Navas-Acien, MD PhD
2020	The Environmental Determinants of Infectious Disease “The Environmental Determinants of COVID-19: Interactions with Air Pollution”	<i>UC Berkeley</i> Justin Remais, PhD
2020	Program to Inspire Minority Undergraduates in EHS Research “How to summarize scientific work: Discussing how to make quality abstracts and poster presentations”	<i>Columbia University</i> Ana Navas-Acien, MD PhD
2017	Summer Public Health Scholars Program “A Primer on Environmental Health Sciences: Discussion of the origins and effects of household air pollution”	<i>Columbia University</i> Jacqueline Scoon, MD MPH

PROFESSIONAL SERVICE

Ad hoc referee: *Proceedings of the national academy of sciences, Nature Energy, Lancet Planetary Health, One Earth, Energy Policy, Journal of Exposure Science & Environmental Epidemiology, Environment International, Environmental Epidemiology, Environmental Research Letters, Energy Economics, Environmental Research, Energy Research & Social Science, World Development Perspectives, Nature Cities, PLOS ONE, Indoor Air, Atmosphere, Sustainability, Papers in Regional Science, Journal of Development Studies, Development Engineering, Humanities and Social Sciences Communications, Journal of Health and Pollution, Environmental research: climate*

Agents of Change in Environmental Justice Fellow: Spring 2021 fellow. Agents of Change is an ongoing series featuring the stories, analyses and perspectives of next generation environmental health leaders who come

from historically under-represented backgrounds in science and academia. This initiative aims to develop diverse thought leaders who are empowered to develop innovative solutions for environmental justice and health equity. Fellows meet each month in seminars to share and learn from peers and gain new skills in communicating in various media forms. As fellows, we are hosted on the Agents of Change podcast; the transcript and audio for mine are available [here](#). I also published two essays on the Environmental Health Network website: (1) on environmental health technology adoption and poverty [here](#) and (2) a written interview with Black and Latina researchers about health equity research and career advice [here](#).

International Society for Environmental Epidemiology Peer Editor: I serve as a peer editors in the [ISEE Peer Editing Program](#). The goal of the peer editing program is to promote equity and representation in environmental health publications by providing manuscript editing assistance to researchers affiliated with institutions residing in low- and middle-income countries and those from under-represented minority groups. The program is partnered with *Environmental Health Perspectives* and *Environmental Epidemiology*.

Stanford Doerr School of Sustainability Dean's Postdoctoral Fellowship Selection Committee: I served on the selection committee for this postdoctoral fellowship (which supported my own time at Stanford).

Mentorship: Formal and informal mentor to Emilio Molina Rueda (then Universidad San Francisco de Quito; now Colorado State University, PhD student) 2018–2021, Jenni Shearston (Columbia University, PhD Candidate, now postdoc at UC Berkeley) 2018–Present, Sarika Khanwilkar (Columbia University, PhD candidate) 2019–2021, Misbath Daouda (Columbia University, PhD candidate, now Asst. Prof at UC Berkeley) 2019–Present, Nina Flores (Columbia University, 1st Year PhD Student) 2020–2021, Jeff Wen (Stanford University, PhD candidate, now at Tesla) 2022–2023, Iván Higuera-Mendieta (Stanford University PhD Student) 2022–Present, Emma Krasovich Southworth (Stanford University PhD student) 2023–Present, Divyansh Agrawal (HS Student) 2023–Present, Rhokaya Khalaf (Summer Undergraduate Research Fellow, Gannon University) 2023, Kayleigh Korner (UC San Diego MPH, 2023–Present; Master's Thesis Advisor).

Membership: International Society of Environmental Epidemiology

LANGUAGES

English (native); Spanish (fluent)