

Mentor HEI Summer Fellowship Opportunities

#	Mentor	Affiliation	State
<i>New England</i>			
1	Daniel Carrión , Assistant Professor	Yale University, School of Public Health	CT
2	Robin Dodson , Associate Director of Research Operations	Silent Spring Institute	MA
3	Jon Levy , Professor and Chair	Boston University, School of Public Health	MA
<i>Middle Atlantic</i>			
4	Marianthi-Anna Kioumourtzoglou , Associate Professor	Columbia University, Mailman School of Public Health	NY
5	Daniel Westervelt , Associate Research Professor	Columbia University, Climate School, Lamont-Doherty Earth Observatory	NY
6	Yvonne Michael , Professor and Chair	Drexel University, Dornsife School of Public Health	PA
7	Albert Presto , Research Professor	Carnegie Mellon University, College of Engineering	PA
8	Kabindra Shakya , Associate Professor	Villanova University, College of Liberal Arts and Sciences	PA
<i>Midwest</i>			
9	Mehdi Amouei Torkmahalleh , Assistant Professor	University of Illinois at Chicago, School of Public Health	IL
10	Carina Gronlund , Research Assistant Professor	University of Michigan, Institute for Social Research	MI
11	Shenyue Jia , Assistant Professor	Miami University, College of Arts and Sciences	OH
<i>South</i>			
12	Armistead Russell , Professor	Georgia Institute of Technology, College of Engineering	GA
13	Jane Hoppin , Professor	North Carolina State University, College of Sciences	NC
14	Jennifer Richmond-Bryant , Associate Professor of the Practice	North Carolina State University, College of Natural Resources	NC
15	Gunnar W. Schade , Associate Professor	Texas A&M University, College of Arts and Sciences	TX
<i>West</i>			
16	Chris Lim , Assistant Professor	University of Arizona, College of Public Health	AZ
17	Regan Patterson , Assistant Professor	University of California, Los Angeles, School of Engineering	CA
18	Jun Wu , Professor	University of California, Irvine, Program in Public Health	CA
19	Esther Erdei , Associate Professor	University of New Mexico, Health Sciences Center	NM
<i>Remote</i>			
20	Colleen Marciel Rosales , Strategic Partnerships Director	OpenAQ	N/A

Detailed mentor descriptions are listed below.

New England

1. Daniel Carrión, Yale University, School of Public Health, Department of Environmental Health Sciences

Assistant Professor

Research description: My research sits at the intersection of climate change, energy, and health (in)equity. This involves several different areas and approaches: 1) exposure science and environmental and climate epidemiology of air pollution and temperature, 2) investigating the role of contemporary housing and energy policies on environmental exposure disparities, and 3) analyzing opportunities for climate and health equity co-benefits of particular policy futures using health impact studies.

➤ **Opportunity Overview**

Student project description: Projects for the summer would depend on the fellow's interests, but could include 1) working to compile databases on energy transitions in Connecticut to understand potential enablers and barriers to household electrification, 2) supporting environmental epidemiological studies of temperature and air pollution in relation to cardiovascular disease and/or preterm birth, or 3) operationalizing the use of measures of racial residential segregation in exposure science studies.

Anticipated skills or experiences gained: Data analysis, literature review, writing, outreach to affected communities, participating in seminars or other trainings, working in a team.

Mentoring and support: I will directly supervise and will have a formal meeting with the fellow at least once per week. The student's primary daily communication will be with myself and a research scientist, a postdoc, or a graduate student in my lab.

Work environment: The student will spend 40-60% of their time working in person. The following meetings will be held in person: lab or group meetings and departmental meetings.

Lab size: 1 faculty and research staff, 0 postdocs, 0 PhD students, 2 master's students, and 1 undergraduate student. 2-5 undergraduates are typically present in the lab or department in the summer.

Other resources available to the fellow include desk/office space, access to high-powered computing cluster, departmental seminars or professional seminars.

Additional information about this opportunity: I am continuing to develop community-based collaborations in New York and Connecticut, and the ultimate project may depend on established and expressed needs from those collaborators.

2. Robin Dodson, Silent Spring Institute

Associate Director of Research Operations

Website: www.silentspring.org

Research description: We conduct community-engaged environmental health research. We are a collaborative, multi-disciplinary team with expertise in exposure science, epidemiology, toxicology, chemistry, social science, and communications. Our current research focuses on exposure to endocrine-disrupting compounds, environmental justice and disparities in chemical exposures, chemical toxicity testing, and community-engaged research.

➤ **Opportunity Overview**

Student project description:

- Identify, review, and summarize toxicological data for chemicals used in consumer products, including chemicals marketed as safer.
- Inventory local and online retailers to evaluate accessibility of safer consumer products.
- Systematically review literature about chemical exposures in various occupations, geographies, or demographic groups.
- Use R programming to organize and visualize different types of measurement data, for example, chemical exposure measurements.
- Review scientific literature to gather parameters needed to develop fate and transport groundwater models for persistent PFAS compounds.
- Contribute to systematic reviews of epidemiological studies of environmental contributors to breast cancer or other outcomes.
- Contribute to blog post on the implementation of the Toxic Substances Control Act (TSCA) and its implications for public health.
- Use python programming to organize big data, for example, develop tools that cross chemical features with biological activities and exposures.
- Develop structural QSAR models using AI and machine learning to predict chemical biological activities from structural properties.

Anticipated skills or experiences gained: Data analysis, research presentations, science communication, working in a team.

Mentoring and support: I will directly supervise and will have a formal meeting with the fellow at least once per week. The student's primary daily communication will be with myself and a research scientist, a postdoc, or a graduate student in my lab.

Work environment: The student will spend 40-60% of their time working in person. The following meetings will be held in person: meetings with primary direct supervisor and lab or group meetings.

Lab size: 8 faculty and research staff, 2 postdocs, 0 PhD students, 5 master's students, and 0 undergraduate students. 2-5 undergraduates are typically present in the lab or department in the summer.

Other resources available to the fellow include desk/office space, computer, presentations to lab group, departmental seminars or professional seminars (1/week)

Additional information about this opportunity: The applicant will also attend a weekly group meeting of R users and weekly staff meetings, so will learn how a nonprofit operates.

3. Jon Levy, Boston University, School of Public Health, Department of Environmental Health

Professor and Chair

Website: <https://www.bu.edu/sph/profile/jonathan-levy/>

Research description: My research focuses on urban environmental exposure and health risk modeling, with an emphasis on air pollution, climate change, and environmental justice issues. Major ongoing and anticipated projects include monitoring studies of air pollution near airports for source attribution, epidemiological investigations of noise and cardiovascular health, characterization of the health effects of simultaneous exposure to chemical and climate stressors, and investigation of the exposure and health benefits of improvements to indoor air quality.

➤ **Opportunity Overview**

Student project description: We have multiple projects that are expected to include air pollution monitoring, so a fellow might have the opportunity to go into the field and collect data, as well as to process those data and conduct preliminary analyses. Other major projects involve geospatial data gathered for both epidemiological analyses and community prioritization, so a fellow might help to build StoryMaps or data dashboards for geospatial data. Any project would involve a large research team and some non-academic stakeholders to ensure diverse experiences.

Anticipated skills or experiences gained: Fieldwork, data analysis, writing, outreach to affected communities, science communication, working in a team.

Mentoring and support: I will directly supervise and will have a formal meeting with the fellow at least once per week. The student's primary daily communication will be with myself. Please note that the mentoring structure will depend on the specific project, but would involve me as primary contact and others to provide routine training and support.

Work environment: The student will spend more than 60% of their time working in person. The following meetings will be held in person: meetings with primary direct supervisor, lab or group meetings, and departmental meetings.

Lab size: 5 faculty and research staff, 2 postdocs, 2 PhD students, 2 master's students, and 0 undergraduate students. 2-5 undergraduates are typically present in the lab or department in the summer. Note: these numbers are guesses, and it really depends on the project.

Other resources available to the fellow include desk/office space, laboratory supplies and access to equipment, access to high-powered computing cluster, library access, access to peer-reviewed literature, presentations to lab group, departmental seminars or professional seminars (ad hoc over the summer).

Additional information about this opportunity: The Department of Environmental Health at BUSPH has numerous research projects around the world covering an array of topics. We would hope that you would have an opportunity to engage with multiple people in the department and take on a range of tasks, including research translation and science communication.

Middle Atlantic

4. Marianthi-Anna Kioumourtzoglou, Columbia University, Mailman School of Public Health, Department of Environmental Health

Associate Professor

Research description: health impacts of air pollution and climate change-relevant exposures, mixtures analysis, environmental health data science, and urban health.

➤ **Opportunity Overview**

Student project description: The student can work on projects to characterize the effects of air pollution and/or climate change-relevant exposures on adverse health.

Anticipated skills or experiences gained: Data analysis, literature review, writing, exploring potential career opportunities, applying for graduate school or jobs, working in a team.

Mentoring and support: I will directly supervise and will have a formal meeting with the fellow at least once per week. The student's primary daily communication will be with myself and a research scientist, a postdoc, or a graduate student in my lab.

Work environment: The student will spend less than 40% of their time working in person. The following meetings will be held in person: meetings with primary direct supervisor. Note: not all meetings will necessarily be in person, given travel requirements.

Lab size: 1-2 faculty and research staff, 2 postdocs, 0 PhD students, 0 master's students, and 1 undergraduate student. 2-5 undergraduates are typically present in the lab or department in the summer.

Other resources available to the fellow include desk/office space, access to high-powered computing cluster, access to peer-reviewed literature, presentations to lab group, departmental seminars or professional seminars (usually once or occasionally twice per week, but in the summer unfortunately maybe once per month).

5. Daniel Westervelt, Columbia University, Climate School, Lamont-Doherty Earth Observatory

Associate Research Professor

Website: <https://aerosol.ldeo.columbia.edu/>

Research description: We are a group of researchers working at the intersection of atmospheric chemistry, air quality, and climate change. Our current research spans from air quality and climate modeling to deployment and calibration of low-cost sensors for air quality. We run the Columbia Air Sensors Lab located at Lamont-Doherty, in which we have access to cutting-edge aerosol mass, size, and composition instrumentation and a plethora of different DIY custom-built and also purchased air sensors. We also run and operate several air quality and climate models on local high-performance computing clusters at Columbia and Lamont, and through collaborations with NASA, NOAA, and NCAR.

➤ **Opportunity Overview**

Student project description: Building, testing, and deploying air sensors for environmental justice studies in the USA (New York City). Also deploying sensors and reference monitors in the Global South (several countries in Africa) in collaboration with in-country experts and stakeholders. Conducting surveys of emissions sources and health outcomes in communities where sensors are deployed. Data analysis of air quality, health, and socio-economic data. Other projects possible as new proposals get funded.

Anticipated skills or experiences gained: Fieldwork, data analysis, literature review, laboratory analysis, writing, research presentations, exploring potential career opportunities, outreach to affected communities, participating in seminars or other trainings, working in a team.

Mentoring and support: I will directly supervise and will have a formal meeting with the fellow at least once per week. The student's primary daily communication will be with myself and a research scientist, a postdoc, or a graduate student in my lab.

Work environment: The student will spend more than 60% of their time working in person. The following meetings will be held in person: meetings with primary direct supervisor, lab or group meetings, and departmental meetings.

Lab size: 4 faculty and research staff, 2 postdocs, 5 PhD students, 0 master's students, and 2 undergraduate students. More than 10 undergraduates are typically present in the lab or department in the summer.

Other resources available to the fellow include desk/office space, laboratory supplies and access to equipment, access to high-powered computing cluster, specialized software, library access, access to peer-reviewed literature, presentations to lab group, ability to attend trainings provided by other summer programs, departmental seminars or professional seminars (weekly).

6. Yvonne Michael, Drexel University, Dornsife School of Public Health, Department of Epidemiology and Biostatistics

Professor and Chair

Website: <https://drexel.edu/dornsife/academics/faculty/Yvonne%20Michael/>

Research description: This study aims to uncover the potential connection between climate-related disasters and the incidence of Alzheimer's disease and related dementia (ADRD), while also investigating disparities in ADRD among various communities. To do this, researchers are taking a multi-faceted approach that combines ecological and social factors. The study examines how climate-related disasters, such as hurricanes, wildfires, and floods, impact communities. These disasters can disrupt daily life, damage infrastructure, and cause emotional distress, which may contribute to ADRD. Researchers are particularly interested in how these disasters affect middle-aged and older adults, especially those who are already vulnerable due to factors like age, socioeconomic status, or pre-existing health conditions. To gather data, the study uses information from long-term cohort studies that include a diverse range of participants. These studies provide detailed information about individuals' health and personal characteristics over time. Researchers then link this data with records of climate-related disasters and measures of community resilience. Community resilience refers to a community's ability to bounce back from disasters and provide support to its residents. By analyzing this extensive dataset, the study aims to estimate the risk of developing ADRD following climate-related disasters and identify any disparities in risk among different populations. Ultimately, this research could help us better understand the complex relationship between environmental factors, community resilience, and the onset of ADRD, with the goal of improving preventive strategies and support systems for those at risk.

➤ Opportunity Overview

Student project description: In this 10-week undergraduate project, students will focus on conducting a descriptive analysis using existing data from the larger epidemiological study on climate-related disasters and Alzheimer's disease and related dementia (ADRD). Using statistical software such as R or SAS, they will explore and summarize the available data on the incidence of ADRD, climate disasters, and community resilience. Their analysis will aim to identify trends, patterns, and potential associations between climate disasters and ADRD, while also considering disparities within the dataset. By working with the existing data, students will contribute to the ongoing research by providing valuable insights and helping to lay the foundation for more advanced analyses in the future.

Anticipated skills or experiences gained: Data analysis, literature review, writing, research presentations, exploring potential career opportunities, applying for graduate school or jobs, science communication, working in a team.

Mentoring and support: I will directly supervise and will have a formal meeting with the fellow at least once per week. The student's primary daily communication will be with myself, my lab's Co-PI, and a research scientist, a postdoc, or a graduate student in my lab.

Work environment: The student will spend 40-60% of their time working in person. The following meetings will be held in person: meetings with primary direct supervisor.

Lab size: 8 faculty and research staff, 0 postdocs, 2 PhD students, 2 master's students, and 2 undergraduate students. 2-5 undergraduates are typically present in the lab or department in the summer.

Other resources available to the fellow include desk/office space, computer, specialized software, library access, access to peer-reviewed literature, presentations to lab group, departmental seminars or professional seminars (usually 1/month in summer).

Additional information about this opportunity: The student would work with students and researchers at the Dornife School of Public Health and the Urban Health Collaborative at Drexel University. Our dynamic urban health research center offers vibrant academic engagement and ample collaborative prospects for trainees, fostering innovation in public health.

7. Albert Presto, Carnegie Mellon University, College of Engineering, Department of Mechanical Engineering

Research Professor

Website: <http://www.cmu.edu/particulate-matter/>

Research description: My group studies atmospheric chemistry and air pollution, with a strong focus on human exposures. We have done a lot of work to quantify the spatial variations in ambient exposure to both criteria pollutants (PM_{2.5}, NO₂) and to more novel species (ultrafine particles, PM_{2.5} components). We measure concentration patterns in the field using both mobile monitoring and low-cost sensors, and in turn use that data to build spatial exposure models such as land use regressions. We couple our ambient measurements with laboratory studies to quantify emissions and subsequent atmospheric transformations of those emissions. My group collaborates with doctors and epidemiologists to help translate our exposure data to human health.

➤ Opportunity Overview

Student project description: In summer 2024, we are likely to have active field and lab work that includes (1) quantification of air toxics and other novel pollutants with mobile sampling, (2) offline analysis of PM composition from samples collected at US embassies, and (3) using aerosol mass spectrometry to understand the impacts of transported wildfire smoke on air quality in US cities. In addition, there are opportunities to analyze existing datasets in new ways (e.g., to dive into our about 7-year dataset of low-cost sensor data).

Anticipated skills or experiences gained: Fieldwork, data analysis, literature review, laboratory analysis, writing, research presentations, exploring potential career opportunities, participating in seminars or other trainings, working in a team.

Mentoring and support: I will directly supervise and will have a formal meeting with the fellow at least once per week. The student's primary daily communication will be with a research scientist, a postdoc, or a graduate student in my lab.

Work environment: The student will spend more than 60% of their time working in person. The following meetings will be held in person: meetings with primary direct supervisor and lab or group meetings.

Lab size: 1 faculty and research staff, 0 postdocs, 0 PhD students, 1 master's student, and 0 undergraduate students. 2-5 undergraduates are typically present in the lab or department in the summer.

Other resources available to the fellow include desk/office space, dedicated laboratory space, laboratory supplies and access to equipment, specialized software, library access, access to peer-reviewed literature, presentations to lab group, ability to attend trainings provided by other summer programs, departmental seminars or professional seminars (weekly seminars in our center).

Additional information about this opportunity: The Center for Atmospheric Particle Studies (CAPS) at Carnegie Mellon is an interdisciplinary center that includes 7 faculty and 25-30 PhD students. It is an excellent place for students to be exposed to multiple areas of atmospheric, policy, and exposure research.

**8. Kabindra Shakya, Villanova University, College of Liberal Arts and Sciences,
Department of Geography and the Environment**
Associate Professor

Website: www24.homepage.villanova.edu/kabindra.shakya/

Research description: Our research group works on measuring air and soil pollution around the Philadelphia region. To measure air pollution, various portable instruments and passive samplers are used. We have previously published studies analyzing air pollution in the region using mobile monitoring and passive sampling techniques. Our group has also analyzed trace metal contamination in soils from community gardens, parks, and residences. We are also interested in assessing the health effects and pollutant exposure in environmental justice communities. Ongoing research projects are funded by NSF, NIH, and US EPA. Please visit the above website for more information.

➤ **Opportunity Overview**

Student project description: Students will get the opportunity to design their own research projects. Students are encouraged to design a project that focuses on assessing pollutant exposures in environmental justice communities. Students will get the opportunities to work with other group members and learn various analytical tools.

Anticipated skills or experiences gained: Fieldwork, data analysis, literature review, laboratory analysis, writing, science communication, collaborative skills.

Mentoring and support: I will directly supervise and will have a formal meeting with the fellow at least once per week. The student's primary daily communication will be with myself.

Work environment: The student will spend most of their time working in person in the lab. The following meetings will be held in person: meetings with primary direct supervisor, lab or group meetings, and departmental meetings.

Lab size: 3 faculty and research staff, 0 postdocs, 0 PhD students, 1 master's student, and 2 undergraduate students. 2-5 undergraduates are typically present in the lab or department in the summer.

Other resources available to the fellow include desk/office space, dedicated laboratory space, laboratory supplies and access to equipment, computer, access to peer-reviewed literature, presentations to lab group, ability to attend trainings provided by other summer programs, departmental seminars or professional seminars.

Midwest

9. Mehdi Amouei Torkmahalleh, University of Illinois at Chicago, School of Public Health, Department of Environmental and Occupational Health Sciences

Assistant Professor

Research description: My research interests address the exposure to ultrafine (nano) particles in indoor and outdoor environments, as well as workplaces. In particular, I am interested in characterizing cooking-generated ultrafine particles and their neurological impact.

➤ **Opportunity Overview**

Student project description: There are two possible areas of research during the summer 2024. The first project investigates the effectiveness of air purifiers in schools across the state of IL. This is a project funded by the Illinois Department of Public Health (IDPH). This is a field-measurement type project with opportunities for data analyses. The second project aims to characterize aerosol particles emitted from different cooking activities. This project includes laboratory work, data analysis, and international collaborations.

Anticipated skills or experiences gained: Fieldwork, data analysis, literature review, laboratory analysis, research presentations, applying for graduate school or jobs, working in a team.

Mentoring and support: I will directly supervise and will have a formal meeting with the fellow at least once per week. The student's primary daily communication will be with myself and a research scientist, a postdoc, or a graduate student in my lab.

Work environment: The student will spend less than 40% of their time working in person. The following meetings will be held in person: meetings with primary direct supervisor.

Lab size: 1 faculty and research staff, 1 postdoc, 1 PhD student, 0 master's students, and 0 undergraduate students. This person will be the only undergraduate typically present in the lab or department in the summer.

Other resources available to the fellow include desk/office space, dedicated laboratory space, laboratory supplies and access to equipment, library access, access to peer-reviewed literature, departmental seminars or professional seminars.

Additional information about this opportunity: This is an excellent research opportunity to learn about indoor air quality.

10. Carina Gronlund, University of Michigan, School of Public Health, Institute for Social Research

Research Assistant Professor

Website: <https://sites.google.com/umich.edu/hhh-partnership/home> and <https://seh.isr.umich.edu/about-us/carina-gronlund/>

Research description: With community and government partners, we study how social, economic, health, and built environment characteristics and air quality affect vulnerability to extreme heat, extreme precipitation, and pollen. We also study interventions to reduce exposures to these climate change effects. This research will help communities and policy makers understand how to adapt to heat, heat waves, higher pollen levels, and heavy rainfall in a changing climate.

➤ **Opportunity Overview**

Student project description: Depending on the skills and interests, we have projects analyzing Medicare records linked to environmental exposures to examine climate change vulnerability, primary survey data collection opportunities, preparing study results summaries in layperson's terms, and literature reviews.

Anticipated skills or experiences gained: Fieldwork, data analysis, literature review, writing, research presentations, exploring potential career opportunities, applying for graduate school or jobs, outreach to affected communities, science communication, participating in seminars or other trainings, working in a team.

Mentoring and support: I will directly supervise and will have a formal meeting with the fellow at least once per week. The student's primary daily communication will be with myself and a research scientist, a postdoc, or a graduate student in my lab.

Work environment: The student will spend 40-60% of their time working in person. All meetings are hybrid.

Lab size: 3 faculty and research staff, 1 postdoc, 0 PhD students, 1 master's student, and 0 undergraduate students. This person will be the only undergraduate typically present in the lab or department in the summer.

Other resources available to the fellow include desk/office space, access to high-powered computing cluster, specialized software, library access, access to peer-reviewed literature, presentations to lab group, departmental seminars or professional seminars (weekly).

Additional information about this opportunity: We have flexible opportunities in terms of interests, from CBPR to data analysis.

11. Shenyue Jia, Miami University, College of Arts and Sciences, Department of Geography

Assistant Professor

Website: www.jiashenyue.info

Research description: I investigate how power outages induced by wildfires and other natural disasters, as well as mitigation measures for disasters (e.g. Public Safety Power Shutoffs), can affect the medically vulnerable population's access to continued healthcare in a home setting, especially those who are Medicare beneficiaries and durable medical equipment users. The outcomes of this work are expected to influence the improvement of disaster response practices to address the needs of this less visible vulnerable group of population. Areas of interest include California and other wildfire-prone Western U.S. states, but I have an interest in scaling up this investigation to hurricane-prone states on the East Coast. The long-term goal is to build a platform to track the at-risk medically vulnerable populations during major natural-disaster-induced power outages and their access to healthcare resources. A precedent work on a similar topic has been conducted under the umbrella of CrisisReady, a project focusing on data analytics and situation reporting the at-risk populations during disasters, supported by Google.org and managed by Harvard University Chan School of Public Health.

➤ **Opportunity Overview**

Student project description: The fellow will derive a metric to estimate the share of healthcare resources (e.g., health centers, shelters with power outlets) available for California's power-dependent medically vulnerable population should a massive power outage occur. Data on the medically vulnerable population, the likelihood of experiencing a wildfire-induced power outage are available. The fellow can explore good indicators of healthcare resources through data from HRSA Health Center Program and FEMA's OpenFEMA platform, or other sources the fellow might identify. The fellow is also expected to translate their findings into captivating and informative visualization products that are suitable for science communication.

Anticipated skills or experiences gained: Data analysis, writing, research presentations, applying for graduate school or jobs, science communication, participating in seminars or other trainings, working in a team.

Mentoring and support: I will directly supervise and will have a formal meeting with the fellow at least once per week. The student's primary daily communication will be with myself and a research scientist, a postdoc, or a graduate student in my lab.

Work environment: The student will spend more than 60% of their time working in person. The following meetings will be held in person: meetings with primary direct supervisor and lab or group meetings.

Lab size: 1 faculty and research staff, 0 postdocs, 0 PhD students, 1 master's student, and 1-2 undergraduate students. 1-2 undergraduates are typically present in the lab or department in the summer.

Other resources available to the fellow include desk/office space, dedicated laboratory space, computer, access to high-performance computing cluster, specialized software, library access, access to peer-reviewed literature, presentations to lab group, ability to attend trainings provided by other summer programs, departmental seminars or professional seminars (one per month).

Additional information about this opportunity: I am a passionate new PI conducting transdisciplinary research in a Geography Department. My frequent collaborators include scholars from top medical schools (Stanford, Northwestern, Boston Univ.), Harvard Chan School of Public Health, and practitioners from disaster response (Direct Relief). You will be my colleague and a public health expert/epidemiologist in training, and I will greatly

value your opinions in this field. I hope this transdisciplinary experience can help you explore opportunities outside the public health/medical schools. Plus, we are in a college town where housing and living are very affordable, and resources for undergraduate students are ample.

South

12. Armistead (Ted) Russell, Georgia Institute of Technology, College of Engineering, School of Civil and Environmental Engineering

Professor

Website: <https://russellgroup.ce.gatech.edu/>

Research description: My research focuses on understanding the linkage between air pollutant emissions, pollutant concentrations, and human and environmental impacts. A particular focus has been on the linkage between sources and resulting exposures using and integrating advanced air quality modeling (a specific focus of our group) and both in situ (ground-based) and remotely sensed (satellite-based instruments, in particular) pollutants. Research in this area includes assessing how specific sources (cars/trucks, airports, railyards, shipping ports, power plants, and forest fires) impact particulate matter, ozone and other pollutants exposures and the resulting health impacts. Along those lines, we also assess how specific policies have led to health benefits. Much of our research is done in collaboration with Emory University, which enjoys world-class public health and medical schools, providing for multidisciplinary research. We also work with local, state, and federal agencies to conduct very policy-relevant research. Current research projects include assessing how regulations in Los Angeles, New York, and Atlanta have impacted health (joint with Emory and Rochester), forecasting fire plumes and the impacts on public health, using satellite and in situ data along with photochemical modeling to quantify the impact of “ports” (airports, shipping ports, rail yards, and warehouses) on air quality.

➤ **Opportunity Overview**

Student project description: A student in this program would likely work on integrating satellite data (a new satellite, TEMPO, will be providing observations) and air quality observations (from our ASCENT network) with air quality model fields to develop highly resolved exposure fields. They would be working with a more senior graduate student, a post-doctoral fellow, and the PI, and it would likely involve interaction with Emory. We have weekly group meetings.

Anticipated skills or experiences gained: Data analysis, literature review, writing, research presentations, exploring potential career opportunities, science communication, participating in seminars or other trainings, working in a team.

Mentoring and support: I will directly supervise and will have a formal meeting with the fellow at least once per week. The student’s primary daily communication will be with myself and a research scientist, a postdoc, or a graduate student in my lab. I typically take a vacation during the summer, although other than that, I am typically in the office, and I am usually available while traveling. When I am not around, my post-doc or other senior personnel are typically available. This work would also likely involve one or two of my colleagues (Jennifer Kaiser, satellites, and Sally Ng, PI of the ASCENT project measuring PM_{2.5} speciation and size).

Work environment: The student will spend more than 60% of their time working in person. The following meetings will be held in person: meetings with primary direct supervisor and lab or group meetings.

Lab size: 4 faculty and research staff, 1 postdoc, 4-5 PhD students, 0 master’s students, and 1 undergraduate student. 2-5 undergraduates are typically present in the lab or department in the summer.

Other resources available to the fellow include desk/office space, dedicated laboratory space, laboratory supplies and access to equipment, computer, access to high-powered computing cluster, specialized software,

library access, access to peer-reviewed literature, presentations to lab group, departmental seminars or professional seminars (not frequent during the summer, say 1 or 2).

Additional information about this opportunity: This opportunity will be primarily computer-based research, although the student will have the opportunity to see field sampling sites (one is on-campus, and our ASCENT site is collocated with the state's monitors about 7 miles away). An expectation is to interact, at least some, with colleagues in Emory's Environmental Health group. Having a car is a benefit in Atlanta to go to sampling sites and to enjoy the various activities in Atlanta and elsewhere (the mountains, the beaches).

13. Jane Hoppin, North Carolina State University, College of Sciences, Center for Human Health and the Environment

Professor and Environmental Epidemiologist

Website: www.genxstudy.ncsu.edu

Research description: We look at how people are exposed to PFAS chemicals throughout the Cape Fear River Basin. We conduct environmental epidemiology studies using blood measurements of PFAS. We are also looking at other PFAS that are not detectable in blood called PFEAs (per and polyfluoroether acids).

➤ **Opportunity Overview**

Student project description: The fellow could work on statistical analysis of data, preparing lay summaries to share with study participants, and collecting environmental samples.

Anticipated skills or experiences gained: Fieldwork, data analysis, literature review, writing, research presentations, exploring potential career opportunities, outreach to affected communities, science communication, participating in seminars or other trainings, working in a team.

Mentoring and support: Someone else in my lab will directly supervise and will have a formal meeting with the fellow at least once per week. The student's primary daily communication will be with a research scientist, a postdoc, or a graduate student in my lab.

Work environment: The student will spend less than 40% of their time working in person. The following meetings will be held in person: meetings with primary direct supervisor and lab or group meetings.

Lab size: 4 faculty and research staff, 1 postdoc, 1 PhD student, 0 master's students, and 3 undergraduate students. 2-5 undergraduates are typically present in the lab or department in the summer.

Other resources available to the fellow include desk/office space, computer, specialized software, library access, access to peer-reviewed literature, presentations to lab group, ability to attend trainings provided by other summer programs, departmental seminars or professional seminars.

Additional information about this opportunity: The GenX Study is a community-based study focusing on a emerging health threat to over 1 million people in North Carolina. We want to train people who can help share this information broadly.

14. Jennifer Richmond-Bryant, North Carolina State University, College of Natural Resources, Department of Forestry and Environmental Resources

Associate Professor of the Practice

Website: <https://cnr.ncsu.edu/directory/jennifer-bryant/>

Research description: Much of our group's work has an "environmental justice" focus in which we characterize exposures in marginalized communities. In our lab, we maintain the perspective that community data belongs to communities, so we provide frequent updates to community partners on our findings and what they might mean. My research uses different quantitative and qualitative methods to characterize air pollution levels around sources. In a quantitative analysis, a researcher in our lab might model spatial patterns in emissions or concentrations based on existing data or transport and dispersion models. We might compare those results across demographic groups. Or, we might test different relationships between air pollutant exposures and health outcomes and test if those relationships vary for different demographic or social conditions. From a qualitative perspective, we have recently performed oral history interviews for community partners and then used the information gleaned from our interviews to look for patterns in diagnosed conditions or symptoms. We were able to use that information to also explore questions about exclusion of community partners from decision-making processes.

➤ **Opportunity Overview**

Student project description: The HEI Summer Fellow will have several options for research experiences during their time in our lab: sample collection, quantitative data analysis, modeling, or qualitative data analysis. Because our lab has a variety of ongoing projects, the student can select one project of interest or can dabble in a couple of projects. The student may also perform some literature review to support their project. The student will be expected to create a poster to present during NC State's Summer Undergraduate Research Symposium. We will also spend some time on career development (resume, LinkedIn, applying to graduate school or jobs).

Anticipated skills or experiences gained: Fieldwork, data analysis, literature review, writing, research presentations, exploring potential career opportunities, applying for graduate school or jobs, outreach to affected communities, science communication, working in a team.

Mentoring and support: I will directly supervise and will have a formal meeting with the fellow at least once per week. The student's primary daily communication will be with myself and a research scientist, a postdoc, or a graduate student in my lab.

Work environment: The student will spend more than 60% of their time working in person. The following meetings will be held in person: meetings with primary direct supervisor.

Lab size: 2 faculty and research staff, 1 postdoc, 4 PhD students, 2 master's students, and 0 undergraduate students. More than 10 undergraduates are typically present in the lab or department in the summer.

Other resources available to the fellow include desk/office space, specialized software, library access, access to peer-reviewed literature, presentations to lab group, ability to attend trainings provided by other summer programs, departmental seminars or professional seminars (1-2 per week).

Additional information about this opportunity: We can be flexible to suit the HEI Summer Fellow's goals for the program.

**15. Gunnar W. Schade, Texas A&M University, College of Arts and Sciences,
Department of Atmospheric Sciences**
Associate Professor

Website: <https://atmo.tamu.edu/people/profiles/faculty/schadegunnar.html>

Research description: I study air pollutant emissions and atmospheric chemistry, mostly through field measurements and associated data analyses. My focus has shifted over time from studying live plant emissions, to complex urban area emission dynamics, to rural areas air pollutant exposure. My current focus is on air pollutant emissions from the oil and gas industry and the resulting exposure to selected air toxics, such as benzene. I carry out passively sampled hydrocarbon measurements in shale oil and gas production areas, currently sponsored by the Health Effects Institute (HEI-Energy). I work with volunteers in the field who assist us in collecting and turning over samples, and graduate and undergraduate students in the lab who assist in processing samples and archiving and analyzing data. Other projects involve a similar focus on air quality and its trends, in that case using mostly publicly available data.

➤ **Opportunity Overview**

Student project description: Similar to current students, the fellow would be involved in occasional field work, but mostly sample processing and data curation and analysis.

Anticipated skills or experiences gained: Fieldwork, data analysis, literature review, laboratory analysis, writing, research presentations, outreach to affected communities, science communication, participating in seminars or other trainings, working in a team.

Mentoring and support: I will directly supervise and will have a formal meeting with the fellow at least once per week. The student's primary daily communication will be with myself and a research scientist, a postdoc, or a graduate student in my lab.

Work environment: The student will spend more than 60% of their time working in person. The following meetings will be held in person: meetings with primary direct supervisor, lab or group meetings, and meetings with volunteers and other stakeholders in the field.

Lab size: 1 faculty and research staff, 0 postdocs, 0 PhD students, 1 master's student, and 1 undergraduate student. 2-5 undergraduates are typically present in the lab or department in the summer.

Other resources available to the fellow include desk/office space, dedicated laboratory space, laboratory supplies and access to equipment, computer, library access, access to peer-reviewed literature, departmental seminars or professional seminars.

Additional information about this opportunity: Students may be asked to carry out unsupervised lab and field work after sufficient training. Field work includes long travel hours; thus, a driver's license is recommended, but not mandatory.

West

16. Chris Lim, The University of Arizona, College of Public Health, Department of Community, Environment, and Policy

Assistant Professor

Research description: Dr. Lim's research examines how the environment impacts human health applying epidemiologic, statistical, and data science methods. Specifically, he is interested in the health effects of air pollution and climate change, and whether there are disparities in the exposures and associated health outcomes. He also explores the potential application of low-cost sensor technologies for personal-level exposure assessment, urban air pollution modeling, and community-based environmental justice projects.

➤ **Opportunity Overview**

Student project description: Sensor maintenance, installation, and calibration curve development; environmental justice analyses using open data, GIS, and R looking at disparities across communities; environmental epidemiology projects looking at the built environment and cancer.

Anticipated skills or experiences gained: Fieldwork, data analysis, literature review, laboratory analysis, writing, research presentations, exploring potential career opportunities, applying for graduate school or jobs, outreach to affected communities, science communication, participating in seminars or other trainings, working in a team.

Mentoring and support: I will directly supervise and will have a formal meeting with the fellow at least once per week. The student's primary daily communication will be with myself and a research scientist, a postdoc, or a graduate student in my lab.

Work environment: The student will spend 40-60% of their time working in person. The following meetings will be held in person: meetings with primary direct supervisor and lab or group meetings.

Lab size: 1 faculty and research staff, 1 postdoc, 3 PhD students, 3 master's students, and 3 undergraduate students. 2-5 undergraduates are typically present in the lab or department in the summer.

Other resources available to the fellow include desk/office space, computer, access to high-powered computing cluster, specialized software, departmental seminars or professional seminars.

Additional information about this opportunity: We have additional training opportunities through the recently funded P20 grant and other centers funded by NIEHS, DoE, and EPA.

**17. Regan Patterson, University of California, Los Angeles, School of Engineering,
Department of Civil and Environmental Engineering**
Assistant Professor

Website: <https://samueli.ucla.edu/people/regan-patterson/>

Research description: I am the Principal Investigator of the Engineering Environmental Justice Lab at UCLA. My research focuses on the intersection of air quality, transportation equity, environmental justice, and community engagement. More specifically, my lab examines and models the impact of policies and place-based, community-driven interventions on pollution exposure disparities and environmental justice. Several projects employ participatory action research. The goals of my research-to-action projects are to inform mitigation efforts and improve environmental justice outcomes. My research is interdisciplinary, so I welcome students from various disciplines.

➤ **Opportunity Overview**

Student project description: The fellow will support a community-led air quality monitoring project in the South Los Angeles neighborhood of Leimert Park. Leimert Park is an environmental justice community that is disproportionately exposed to air pollution. The project aims to provide hyperlocal air quality data, increase community education and awareness, and inform policy initiatives that promote a healthy environment. In collaboration with our local community-based organization partner, the student will help expand the low-cost air monitoring network at community-identified sites. The student will install and maintain monitors, analyze the data, and develop the data visualization platform to share data with community members.

Anticipated skills or experiences gained: Fieldwork, data analysis, outreach to affected communities, science communication, working in a team.

Mentoring and support: I will directly supervise and will have a formal meeting with the fellow at least once per week. The student's primary daily communication will be with a research scientist, a postdoc, or a graduate student in my lab.

Work environment: The student will spend 40-60% of their time working in person. The following meetings will be held in person: lab or group meetings and meetings with the community partner.

Lab size: 1 faculty and research staff, 0 postdocs, 1 PhD student, 1 master's student, and 2 undergraduate students. 2-5 undergraduates are typically present in the lab or department in the summer.

Other resources available to the fellow include desk/office space, computer, library access, access to peer-reviewed literature, presentations to lab group, departmental seminars or professional seminars.

Additional information about this opportunity: My lab focuses on environmental justice. This particular project will help reveal insights into the distribution of air pollution and inform community-led solutions that address air pollution disparities and promote equitable access to clean and healthy air.

18. Jun Wu, University of California, Irvine, Program in Public Health, Department of Environmental and Occupational Health

Professor

Website: <https://drwulab.net/>

Research description: Jun Wu's lab at University of California, Irvine focuses on providing scientific evidence to protect public health from environmental exposures such as air pollution, built environment, and climate factors through exposure assessment and environmental epidemiological studies. For environmental exposure assessment, we develop advanced exposure assessment methods using big data, geographical information system techniques, global positioning system tracking, spatiotemporal modeling, and sophisticated statistical methods. Previous research has included characterization ambient and personal exposure to environmental agents, including air pollutant mixtures, meteorology, soil lead, and built environment; development of advanced statistical methods for spatiotemporal modeling of environmental agents; and characterization of time-activity patterns using questionnaire and GPS tracking. For environmental epidemiology, we focus on the impact of air pollution, meteorology, and built environment on maternal health, pregnancy outcomes, children's health, and cancer. In addition to quantitative methods, we work extensively on addressing environmental injustice and health disparity issues (e.g. air pollution, lead contamination, wildfire impacts) in disadvantaged communities in Southern California through close collaboration with multiple local community partners.

➤ **Opportunity Overview**

Student project description: A fellow can work on a community-centered project entitled "Inequities in Childhood Life-Course Lead Exposure and Academic and Neuro-behavioral Outcomes (I-CLEAN)." We will establish a prospective longitudinal cohort of 600 elementary school children in Santa Ana, California, focusing on the impact of life-course exposure to low-levels of metals, including lead on children's behavioral development and school academic performance. Through community-academic partnership, the study will also develop, disseminate, pilot, and evaluate a multi-level Public Health Equity Action Plan to raise awareness of the health and academic implications of lead exposures and mitigation strategies.

Anticipated skills or experiences gained: Fieldwork, data analysis, literature review, research presentations, outreach to affected communities, science communication, participating in seminars or other trainings, working in a team.

Mentoring and support: I will directly supervise and will have a formal meeting with the fellow at least once per week. The student's primary daily communication will be with a research scientist, a postdoc, or a graduate student in my lab.

Work environment: The student will spend 40-60% of their time working in person. The following meetings will be held in person: meetings with primary direct supervisor.

Lab size: 2 faculty and research staff, 0 postdocs, 2 PhD students, 1 master's student, and 0 undergraduate students. 2-5 undergraduates are typically present in the lab or department in the summer.

Other resources available to the fellow include desk/office space, computer, specialized software, access to peer-reviewed literature, presentations to lab group, ability to attend trainings provided by other summer programs, departmental seminars or professional seminars.

19. Esther Erdei, University of New Mexico, College of Pharmacy, Health Sciences Center

Associate Professor

Research description:

- Grantee of an innovative health care provider environmental health/toxicology and genetics training education NIH/NIEHS grant to improve toxicant-exposed Tribal and minority communities' provider knowledge and engagement in environmental injustice and chemical contamination problems (special focus on air pollution and PM-driven exposure pathways in chronic disease developments)
- Leader of the only community-based research grant from NIH/NIEHS investigating multigenerational household exposures, indoor toxicants and the spread as well as severity of COVID-19 disease in 23 rural communities of Cheyenne River Sioux Tribe, South Dakota
- Co-PI of a large NIEHS Research to Action grant w/ NYU SOM supporting toxicological research, biomonitoring, and food sovereignty of the Ramapough Nation Turtle Clan living on contaminated Superfund site in the State of New Jersey. Various pathways of exposures, air, diet, and soil PM are investigated
- New grantee of a Cheyenne River Sioux community-driven USEPA air pollution measurement award (3 years support) and metal composition analysis of detected PM and air Hg determination focus to allow improvements of rural outdoor air pollution analyses.

➤ **Opportunity Overview**

Student project description:

- Improve exposure modeling of mixture analyses and mathematical/innovative statistical modeling of air contaminants in rural outdoor pollution.
- Create GIS modeling of CRST outdoor air pollution data (need to be collected by spring of 2024).
- Communication tool, infographics, and meeting material development that are culturally appropriate and scientifically solid but strictly providing 6-10th grade level information- great for a journalism or communication major EJ community fellow.

Anticipated skills or experiences gained: Fieldwork, data analysis, literature review, writing, research presentations, exploring potential career opportunities, outreach to affected communities, science communication, participating in seminars or other trainings, working in a team.

Mentoring and support: I will directly supervise and will have a formal meeting with the fellow at least once per week. The student's primary daily communication will be with myself and a research scientist, a postdoc, or a graduate student in my lab.

Work environment: The student will spend less than 40% of their time working in person. The following meetings will be held in person: meetings with primary direct supervisor and lab or group meetings. Meetings can be virtual if travel to SW USA is a concern.

Lab size: 2 faculty and research staff, 0 postdocs, 0 PhD students, 1 master's student, and 0 undergraduate students. 2-5 undergraduates are typically present in the lab or department in the summer.

Other resources available to the fellow include desk/office space, computer, library access, access to peer-reviewed literature, presentations to lab group, ability to attend trainings provided by other summer programs, departmental seminars or professional seminars (biweekly during summer semester).

Additional information about this opportunity: UNM has both UP pipeline program and undergraduate student research support at UNM HSC. Grants are also available to provide opportunities and presentation options.

Remote

20. Colleen Marciel Rosales, OpenAQ

Strategic Partnerships Director

Website: <https://openaq.org/>

Research description: We are a nonprofit organization fighting air inequality by providing open and universal access to real-time and historical air quality data through our platform and various tools such as the Explorer, API, and command line interface.

➤ Opportunity Overview

Student project description: (1) Outreach to community-based and public health organizations, environmental justice groups, and university units working in public health, and initiate and form a relationship with OpenAQ. (2) Writing impact stories from the data gathered from scraping the web for impacts and mentions of OpenAQ. The intern is also welcome to use more advanced data and visualization tools or impact trackers (e.g., Web of Science, Google Scholar API) to write these. They are also welcome to do more data-intensive analysis if they so choose. (3) Curating social media prompts and digital assets related to OpenAQ.

Anticipated skills or experiences gained: Data analysis, literature review, writing, outreach to affected communities, science communication, working in a team.

Mentoring and support: I will directly supervise and will have a formal meeting with the fellow at least once per week. The student's primary daily communication will be with myself.

Work environment: The student will spend less than 40% of their time working in person. All meetings will be virtual.

Lab size: 1 faculty and research staff, 0 postdocs, 0 PhD students, 0 master's students, and 0 undergraduate students. This person will be the only undergraduate typically present in the lab or department in the summer.

Other resources available to the fellow include specialized software, access to peer-reviewed literature, ability to attend trainings provided by other summer programs, departmental seminars or professional seminars.

Additional information about this opportunity: We are a completely remote organization; thus, we won't be able to provide a physical office space. This internship is intended for those interested in outreach and science communication on a global scale, and although it will not be intensive on learning to use the OpenAQ platform, the resources and the software team will be available.