Yanelli Núñez, PhD

Education

Oct. 2020 **Doctor of Philosophy, Environmental Health Sciences**
Columbia University, New York, NY
Awards: *The I. Bernard Weinstein Award for Academic Excellence in the PhD*
Dissertation: "The effect of air pollution on aggravation of neurodegenerative diseases: an analysis of long-term exposure to fine particulate matter and its chemical components"

Aug. 2011 **Bachelor of Science in Biology & Public Health**
San Diego State University, San Diego, CA
Senior Project: "In-vitro modeling of neurological diseases using induced pluripotent stem cells"

Technical Skills

Programming
Languages: **R** (advanced)
Tools: **GIS** (QGIS: intermediate, R: advanced); **LaTeX** (intermediate); **Git** (intermediate);
Languages: **Spanish** (native)
Others: Experience using Google Workspace, Google Analytics, and Slack

Research Experience

Jul. 2022– **PSE Healthy Energy**, *Oakland, CA*
present Scientist, Clean Energy & Health
Overview: Analysis of the health and economic benefits of transitioning to renewable energy sources.

Oct. 2020– **Columbia University, Mailman School of Public Health**, *New York, NY*
Jul.2022 Postdoctoral Research Scientist, Climate and Health Program
Overview: Investigate racial and economic disparities in air pollution emissions reductions across the contiguous United States, and lead two epidemiological studies to assess the health impacts of air pollution exposure.
- Build regression models to estimate causal health effects
- Analyze spatiotemporal trends in emissions data from multiple sources, including the transportation, commercial, agriculture, and energy sectors
- Compile, process, and analyze large datasets (e.g., demographic, health, and air quality data)
- Interpret quantitative results and distill them into visuals to communicate discoveries to technical and non-technical audiences
- Review code for colleagues and mentees
- Communicate research findings through presentations in seminars and conferences
- Write manuscripts for peer-reviewed publications

2015–2020 **Columbia University, Mailman School of Public Health**, *New York, NY*
Graduate Researcher, Environmental Health Sciences Dept.
Overview: Completed scientific projects from inception to peer-reviewed publication; characterized causal relationships between $PM_{2.5}$ exposure and disease aggravation in degenerative diseases using applied statistics and epidemiology methods; and worked with a team of statisticians, engineers, and epidemiologist to apply machine learning methods in the analysis of high dimensional environmental data, including multi-pollutant air pollution data.
- Gathered, organized, and analyzed geospatial air pollution data from prediction models, emissions inventories, and federal and state air quality monitors

- Created visuals of geospatial data using mapping techniques in R and QGIS
- Applied a variety of statistical methods, including generalized mixed models, weighted quantile sum regression, penalized regression, Bayesian Kernel machine regression, principal component analysis, clustering, and factor analysis
- Synthesized scientific information for presentations
- Wrote manuscripts for peer-reviewed publications
- Completed coursework on neuroscience, toxicology, epidemiology, environmental health, biostatistics, and others; participated in weekly seminars discussing topics in energy and climate, environmental justice, health equity, and others
- Worked as a teaching assistant in four master-level courses and two summer boot camps on data science

2011–2013 **Salk Institute for Biological Studies**, *La Jolla, California*

Research Assistant

Overview: Developed induced pluripotent stem cell (iPSC) lines to help characterized autism neuronal pathology in vitro. My work contributed to peer-reviewed publications and the cell lines I created are still being used by my colleagues in the Salk.
- Derived and characterized iPSC lines by reprogramming fibroblasts from autistic patients and controls
- Developed in vitro neuronal models from iPSCs to study the cell pathology of autism
- Created and maintained stem cell inventories and biobank

Global Health Experience

2013–2015 **Peace Corps**, *Senegal, West Africa*

Public Health Volunteer

Overview: Collaborated with Senegalese counterparts to develop and implement programs that promoted and supported public health.
- Coordinated the development and implementation of public health workshops on maternal and children's nutritional health
- Planned and led a community garden initiative in partnership with Senegalese community leaders resulting in four community gardens that provided vegetables for about twenty families
- Served as liaison between Peace Corps volunteers in the Senegal, Podor region and Peace Corps Headquarters in Dakar

Leadership and Policy Experience

Jan.–present **American Geophysical Union**

Trainee in the Local Science Partners Program, a program that coaches scientists through the process of building long-lasting partnerships with local politicians and effectively communicating science to influence legislation to benefit humanity and the environment

2020–present **International Society for Environmental Epidemiology**

Member of the Steering Committee in the Students and New Researchers Network and junior scientist liaison to the Policy Committee

2018–2020 **Hispanic Organization of Toxicologists**

Graduate Student Leadership Committee

Awards: Outstanding Officer Award and Career Development Award

Mentoring

Sept. 2020– **Tow Doctoral Scholars Pilot Program**, *New York, NY*

present Mentor, Environmental Health Sciences Dept. Columbia University

Mentor master students from underrepresented backgrounds in their journey to apply to doctoral programs

2017–2019 **Science Matters Research Internship**, *New York, NY*

Mentor, Columbia University in collaboration with New York City high schools

Mentored high school students from disadvantaged backgrounds; introduced them to scientific research and STEM careers

2008–2009 **San Diego State University tutoring program**, *San Diego, CA*
Science Tutor, Hoover High School
Tutored students from disadvantaged backgrounds in science courses

Science Communication

Sept. 2021– **Science Communication Network**
present Fellow training in communicating scientific research to the media and the general public

Professional Affiliations

2021–present **American Geophysical Union**
2021–present **National Science Policy Network**
2019–present **International Society for Environmental Epidemiology**

Selected Publications

Click on the citations bellow to access the publication. See yanellinunez.com for a complete list of publications

1 Perez-Benavides J, Rowland S, Shearston AJ, Darby J, **Nunez Y**, and Kioumourtzoglou M-A. Methods for evaluating environmental health impacts at different stages of the policy process in cities. Current Environmental Health Reports. 2022 April.

2 **Nunez Y**, Boehme AK, Li M, Goldsmith JA, Weisskopf MG, Re DB, Navas-Acien A, Donkelaar A, Martin RV,and Kioumourtzoglou M-A. Parkinson's disease hospitalizations in association with fine particle components in New York State. Environmental Research. 2021 Oct.

3 **Nunez Y**, Boehme AK, Weisskopf MG, Re DB, Martin RV, Navas-Acien A, and Kioumourtzoglou M-A. Fine Particle Exposure and Clinical Aggravation in Neurodegenerative Diseases in New York State. Environmental Health Perspectives. 2021 Feb.

4 Gibson AE*, **Nunez Y***, Abuawad A, Zota RA, Renzetti S, Devick LK, Gennings C, Goldsmith JA, Coull AB, and Kioumourtzoglou M-A. An Overview of Methods to Address Distinct Research Questions on Environmental Mixtures: An Application to Persistent Organic Pollutants and Leukocyte Telomere Length. Environmental Health. 2019 Aug. *Equal contribution. Article selected as NIEHS November, 2019 Paper of the Month.

Selected Oral Presentations

1 *Trends in air pollution emissions across the United States over the last 40 years: differences by race, ethnicity, and economic status.* Oral presentation at: Environmental Health Sciences dept. Seminar, Columbia University. 2022 Feb. 7

2 *The effect of air pollution on aggravation of neurodegenerative diseases: an analysis of long-term exposure to fine particulate matter and its components.* Oral presentation at: Environmental Health Sciences dept. Seminar, Columbia University. 2020 September 9; virtual

3 *An Overview of Methods to Address Distinct Research Questions on Environmental Mixtures: An Application to Persistent Organic Pollutants and Leukocyte Telomere Length.* Oral presentation at: International Society for Environmental Epidemiology Annual Meeting. 2019 Aug. 25-28; Utrech, Netherlands