GUANGXIAO HU

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EDUCATION

2019-2023 Ph.D. in Geographical Sciences, University of Maryland, College Park, USA
2016-2019 MSc in Environmental Sciences, Peking University, Beijing, China
2012-2016 BA in Economics, Hunan University, Hunan, China

RESEARCH INTERESTS

Environmental justice | Environmental economics | Hazards and vulnerability | Spatial analysis | Climate mitigation pathway | Sustainable energy development

EMPLOYMENT

August, 2025 ~ present: Assistant Professor, Department of Earth, Environment, and Planning, East Carolina university, USA
July, 2023 ~ July, 2025: Postdoctoral Associate, the Center for Global Sustainability, School of Public Policy, University of Maryland, USA

PUBLICATION

Peer-reviewed Journal Papers

[J9] Ma, Z., **Hu, G.,** Lin, T. S., Li, L., Hu, S., Hagen, L., & Baecher, G. B. 2025. Analyzing public response to wildfires: A socio-spatial study using SIR models and NLP techniques. Computers, Environment and Urban Systems, 121, 102333. (corresponding author).

[J8] Lou J., **Hu, G.**, Shen X., Cui, Y., 2025. Quantify the economy-wide employment effect from coal-fired power plants: two different cases China and the United States. Applied Energy, 377 (Part C), 124561.

[J7] **Hu, G**., Feng, K., Sun, L. 2023. A multiscale analysis of the relationship between toxic chemical hazard risks and racial/ethnic, socioeconomic groups in Texas, USA. Environmental Science & Technology, 57 (5), pp.2019-2030.

[J6] **Hu, G**., Feng, K., Sun, L., Baiocchi, G. 2023. Tracing toxic chemical releases embodied in U.S. interstate trade and their unequal distribution. Environment International, 171, p.107681.

[J5] **Hu, G**., Hamovit, N., Croft K., Roberts, J. D., Niemeier, D. 2022. Assessing Inequities Underlying Racial Disparities of COVID-19 Mortality in Louisiana. Proceedings of the National Academy of Sciences of the United States of America (PNAS). 119(27): e2123533119.

[J4] Nakalembe, C., Becker-Reshef, I., Bonifacio, R., **Hu, G.**, Humber, M.L., Justice, C.J., Keniston, J., Mwangi, K., Rembold, F., Shukla, S. and Urbano, F., 2021. A review of satellite-based global agricultural monitoring systems available for Africa. Global Food Security, 29, p.100543.

[J3] **Hu, G**., Ma, X. and Ji, J., 2019. Scenarios and policies for sustainable urban energy development based on LEAP model–A case study of a postindustrial city: Shenzhen China. Applied Energy, 238, pp.876-886.

[J2] **Hu, G**., Ma, X. and Ji, J., 2017. A stochastic optimization model for carbon mitigation path under demand uncertainty of the power sector in Shenzhen, China. Sustainability, 9(11), p.1942.

[J1] Xie, R., **Hu, G**., Zhang, Y. and Liu, Y., 2017. Provincial transfers of enabled carbon emissions in China: A supply-side perspective. Energy Policy, 107, pp.688-697.

Conference Papers

[C2] Ji, J., **Hu, G.,** Wu, Y. and Ma, X., 2017, March. China's fast growing CO2 emissions driven by increasing consumption in 1992-2012: A structural decomposition analysis. In IOP Conference Series: Earth and Environmental Science (Vol. 59, No. 1, p. 012051). IOP Publishing.

[C1] **Hu, G.,** Sun, L., Ma, X. and Ji, J., 2016, December. Influencing Factors of CO_2 Emissions in China's Manufacturing——An Analysis Based on Manufacturing Structural Changes. In 2016 5th International Conference on Sustainable Energy and Environment Engineering (ICSEEE 2016) (pp. 621-627). Atlantis Press.

PROFESSIONAL ACTIVITY

Talks and presentations

Hu, G., 2023, December. Revealing variations in environmental inequality, invited by Weihai Institute for Interdisciplinary Research, Shandong University, China.

Hu, G., Lou J. 2023, November. Quantify the Economy-wide Employment effect from Coal-fired Power Plants - Two Different Cases China and the United States, at Center for Sustainability, University of Maryland, USA.

Hu, G., Feng, K., Sun, L. 2023, May. Multiscale Analysis of the Relationship between Toxic Chemical Hazard Risks and Racial/Ethnic and Socioeconomic Groups in Texas, USA. In 2023 BSOS Resilience Research Showcase.

Hu, G., Feng, K., Sun, L. 2023, March. Is pollution inequality improved or worsen over time? Spatiotemporal heterogeneity of the impact of racial disparities and socioeconomic development on toxic risk. In 2023 AAG Annual Meeting.

Hu, G. 2021, December. Pollution Inequality of Toxic Chemical Release Embodied in Final Demand by States and Income Groups in the US. In AGU Fall Meeting (GC25G-0729).

Hu, G., Feng, K. 2021, June. Pollution inequality of toxic chemical release embodied in interregional trade in US. In International Industrial Ecology Day 2021.

Reviewed Journals

Sustainable Production and Consumption, Science of The Total Environment, Environmental Research Letters, Environmental Research: Energy

Membership

Member, American Geophysical Union (AGU)

Member, American Association of Geographers (AAG)

Member, International Society for Industrial Ecology

TEACHING EXPERIENCE

2025 | Instructor, Department of Earth, Environment, and Planning, East Carolina University, USA

- Fall 2025: GEOG6430 Advanced Geographical Information Systems / GEOG4430 Geographical Information Systems II

2024 | Instructor, Department of Geographical Sciences, University of Maryland, USA

- Fall 2024: GEOG276-FC01: Principles of Python Programming and Geocomputing
    - Developed and delivered curriculum focusing on Python programming principles;
    - Created and managed course content on Canvas, including assignments, practical exercises, and quizzes to enhance hands-on learning.

2024 | Guest Instructor, School of Public Policy, University of Maryland, USA

- Fall 2024: PLCY798N-0101: Readings in Public Policy; Energy Economics
    - Guest lectured specific topics including externalities of energy use; economics of energy efficiency; and R&D and innovation in energy markets.

2021-2023 | Instructor, Department of Geographical Sciences, University of Maryland, USA

- Summer 2023, summer 2022, winter 2022, summer 2021, winter 2021: GEOG 140 Natural Disasters: Earthquakes, Floods, and Fire.
    - Designed comprehensive course materials and maintained Canvas pages to optimize the asynchronous learning environment;
    - Delivered lectures, graded assignments and quizzes, and continuously refined the course based on student feedback.

2019-2023 | Teaching assistant, Department of Geographical Sciences, University of Maryland, USA

- All Spring and Fall semesters: GEOG 140 Natural Disasters: Earthquakes, Floods, and Fire.
    - Led discussions on the impacts of natural disasters on human populations and their responses to these hazards;
    - Assisted in course design, including lecture slides, quizzes, assignments, and Canvas page management;
    - Served as a guest lecturer on specialized topics.
- Summer 2020: GEOG 663 Big Data Analytics
    - Led lab sessions covering R programming, clustering analysis, regression in ArcGIS and R, text analysis, Ubuntu and Hadoop, Amazon AWS, and more.
- Summer 2021: GEOG 373 Introduction to Geographic Information Systems
    - Conducted lab sessions on Geographic Information Systems (GIS), including topics such as projection and coordinate systems, geodatabases, cartography, spatial analysis, and data collection.

RESEARCH EXPERIENCE

July, 2023 – July 2025 | Postdoctoral Associate, School of Public Policy, University of Maryland, USA

- Socio-economic impacts (employment and property value) of energy transition [S2, S4, S5, J8]
- Maldives gender and energy roadmap project, collaborated with World Bank Group
- Near-term methane mitigation potential in China [S1]
- Inequitable social responses to natural hazards: wildfires [S6]
- Submitted research proposal: Developing Geospatial Approaches to Analyzing Academic Outcomes across Nationwide School Districts in the U.S. Institute of Education Sciences. Sun (PI) 10/01/24-09/01/27.

2019-2023 | Ph.D. student researcher, Department of Geographical Sciences, University of Maryland, USA

- Spatial analysis of environmental justice: natural and anthropogenic hazards [J5, J7]
- Toxic chemical releases embodied in trade using Input-output model [J6]
- Fellow in The Global STEWARDS (STEM Training at the Nexus of Energy, WAter Reuse and FooD Systems) Program [J5]

2022 | Research Assistant, School of Public Policy, University of Maryland, USA

- Policy, data and geospatial analysis for the Sloan Innovation Project and the China Coal and Renewable Energy Employment Projects [S4, S5]

2020 | Research Assistant, Center for Global Agricultural Monitoring Research, University of Maryland, USA

- Earth Observation for National Agricultural Monitoring Project funded by NASA Harvest
- Training Kenya's cropland and non-cropland data using Google Earth and QGIS, reviewing existing application-ready national agricultural monitoring systems [J4].

2016-2019 | Research Assistant, Peking University, China

- Shenzhen energy-saving and carbon-reduction data platform and Analysis technology engineering Laboratory
- Compilation of greenhouse gas inventories in Shenzhen from 2012 to 2015
- Decomposition of target in achieving carbon emission peak in Shenzhen
- Leader and pioneer: the pattern, path and challenge of low carbon development of Shenzhen [J2, J3, C1, C2]

2015-2016 | Research Assistant, Hunan University, China

- The impact of environmental regulation on energy-economy-environment system and path choice of regulation: Based on dynamic CGE model [J1]

SOCIAL MEDIA COVERAGE

University of Maryland. "Structural racism drives higher COVID-19 death rates in Louisiana, study finds: Researchers track health vulnerabilities linked to discrimination." ScienceDaily. ScienceDaily, 27 June 2022. <www.sciencedaily.com/releases/2022/06/220627165951.htm>.

Gianna Melillo. “Structural racism associated with higher COVID-19 death rates in Louisiana”. The Hill. 28 June 2022. <https://thehill.com/changing-america/well-being/longevity/3539370-structural-racism-associated-with-higher-covid-19-death-rates-in-louisiana/>.

HONOURS AND AWARDS

Excellence in Graduate Research Outstanding at the Department of Geographical Sciences, UMD	2023
Human Dimensions of Global Change Geographical Sciences Summer Research Fellowship at the Department of Geographical Sciences, UMD	2021
BSOS Dean’s Research Initiative	2020-2021
Dean’s Fellowship in University of Maryland	2019
National Scholarship in China (3 times, top 0.2%)	2016-2018
The honor of outstanding graduates in Hunan Province (Top 2%)	2016
The honor of outstanding student leader, Hunan University (Top 3%)	2014

SKILLS

Languages: Mandarin Chinese (Native); English (Proficient)
Skills: Exploratory (Spatial) Data Analysis, Causal inference, Multi-regional Input-output Analysis, Hypothesis Testing, Spatial econometrics, Spatial-Temporal Regression Modeling, Deep learning, Natural Language Processing
Programming Languages: R, Python, SQL, LATEX
Miscellaneous Tech: ArcGIS, QGIS, MGWR, Hadoop, LEAP, Microsoft Office Packages

Updated: August 25, 2025