Kelsea B. Best, PhD

Assistant Professor - Urban Climate Resilience and Adaptation Disparities
The Ohio State University
Department of Civil, Environmental, and Geodetic Engineering
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ORCID: https://orcid.org/0000-0002-9040-6244
Google Scholar: https://scholar.google.com/citations?user=isMyIb4AAAAJ&hl=en

RESEARCH INTERESTS: coupled human-natural systems in coastal communities, environmental migration, agent-based modeling, equitable adaptation to climate change, climate resilience, climate gentrification, machine learning

EDUCATION
Vanderbilt University, Nashville, TN
Ph.D. Earth and Environmental Sciences, 2022
> Dissertation: "Dynamics of Environmental Change, Livelihoods, and Migration in Bangladesh: An agent-based modeling approach"
> Committee: Jonathan Gilligan (chair), Hiba Baroud, Amanda Carrico, David Furbish, Steve Goodbred

Vanderbilt University, Nashville, TN
M.S. Earth and Environmental Sciences, 2019
> Thesis: "A Data-Driven Analysis of Environmental Migration in Coastal Bangladesh"
> Committee: Jonathan Gilligan (chair), Hiba Baroud, David Furbish

Princeton University, Princeton, NJ
B.S.E. Chemical and Biological Engineering, 2015
> Concentration: Environmental Studies

EMPLOYMENT
Assistant Professor, the Ohio State University *(August 2023-present)*
> Department of Civil, Environmental and Geodetic Engineering (70% appointment)
> City and Regional Planning Section of the Knowlton School (30% appointment)
> Race, Inclusion and Social Equity (RAISE) initiative faculty

Postdoctoral Researcher, University of Maryland, *(June 2022-August 2023)*
> Department of Civil and Environmental Engineering

Graduate Research Assistant, Vanderbilt University, (*2017-2022*)
> Department of Earth and Environmental Science,
> NSF Coupled Human-Natural Systems Grant No. 1716909

Graduate Research Assistant, Vanderbilt University (*December 2020- 2022*)
> Grand Challenge on Climate and Society

PUBLICATIONS

Journal publications (Student authors underlined)

"Growth ≠ Density: Zoning deregulation and the enduring problem of sprawl", Serkin, C., Best, K., *Pepperdine Law Review* 50 (3): 557–78 https://digitalcommons.pepperdine.edu/plr/vol50/iss3/3 (2023)

"How do migration decisions and rivers differ against extreme environmental events?" Mallick, B., **Best, K.B.,** Carrico, A., Ghosh, T., Priodarshini, R., Sultana, Z., Samanta, G. (accepted, *Environmental Hazards*)

"Spatial regression identifies socioeconomic inequality in multi-stage power outage recovery after Hurricane Isaac" **Best, K.B.,** Kerr, S., Reilly, A.C., Niemeier, D., Patwardhan, A., Guikema, S. *Natural Hazards* https://doi.org/10.1007/s11069-023-05886-2. (2023)

"Vulnerability to climate gentrification is increasing along the U.S. East Coast" **Best, K.B.,** Jouzi, Z., Islam, S., Kirby, T., Nixon, R., Hossan, A., Nyiawung, R. *Urban Climate* 48:101430. https://doi.org/10.1016/j.uclim.2023.101430 (2023)

"Place attachment, environmental perceptions, and migration in south-western Bangladesh" **Best, K.B.,** Carrico, A., Donato, K., Mallick, B. *Translational Issues in Psychological Science* https://doi.org/10.1037/tps0000347 (2022)

"Applying Machine Learning to Social Datasets: A Study of Migration in Southwestern Bangladesh Using Random Forests" **Best, K.B.**, Gilligan, J., Baroud, H., Carrico, A., Donato, K., Mallick, B. *Regional Environmental Change.* https://doi.org/10.1007/s10113-022-01915-1 (2022)

"Climate Gentrification: Methods, Gaps, and Framework for Future Research", **Best, K.**, & Jouzi, Z.. *Frontiers in Climate*, *4*. https://doi.org/10.3389/fclim.2022.828067 (2022)

"Modeling multi-level patterns of environmental migration in Bangladesh: An agent-based approach" **Best, K.B.,** Qu, A., Gilligan, J. In *2021 Winter Simulation Conference (WSC)*. https://doi.org/10.1109/WSC52266.2021.9715380 (2021)

"The risks of invisibilization of populations & places in environment-migration research", Borderon, M., **Best, K.B**., Bailey, K., Hopping, D.L., Dove, M.C., Cervantes de Bloise, C.L. *Humanities and Social Sciences Communications*, *8*(1), 1–11. https://doi.org/10.1057/s41599-021-00999-0 (2021)

"Data-driven decision support tools for assessing the vulnerability of community water systems to groundwater contamination in Los Angeles County" **Best, K**., Miro, M., Kaynar, N., Kirpes, R., Chesler Najera, A. *Environmental Science and Policy*, *124*, 393–400. https://doi.org/10.1016/j.envsci.2021.07.015 (2021).

"Extreme weather and marriage among girls and women in Bangladesh" Carrico, A. R., Donato, K. M., **Best, K. B.**, & Gilligan, J. *Global Environmental Change*, *65*, 102160. https://doi.org/10.1016/j.gloenvcha.2020.102160 (2020)

"A first-order geochemical budget for suspended sediment discharge to the Bay of Bengal from the Ganges-Brahmaputra river system" Dietrich, M., **Best, K.B.**, Raff, J.L., Ronay, E.R. *Science of the Total Environment,* doi:10.1016/j.scitotenv.2020.138667 (2020)

"Random Forest Analysis of Two Household Surveys Can Identify Important Predictors of Migration in Bangladesh" **Best, K.B.**, Gilligan, J., Baroud, H., Carrico, A., Donato, K., Ackerly, B., Mallick, B. *Journal of Computational Social Science*,

https://doi.org/10.1007/s42001-020-00066-9 (2020)

"Bioconjugated Core–Shell Microparticles for High-Force Optical Trapping" Cordova, J.C., Reinemann, D.N., Laky, D.J, Hesse, W.R., Tushak, S.K., Weltman, Z.L., **Best, K.B.**, Bardhan, R., Lang, M.J. *Particle & Particle Systems Characterization* (2018)

Journal publications in review (Student authors underlined)

"Statistical learning to identify salient factors influencing FEMA Public Assistance outlays" Ghaedi, H., **Best, K.,** Reilly, A., Niemeier, D. (*in review, Natural Hazards*)

"Under-reported and under-served: Disparities in U.S. disaster federal aid-to-damage ratios after hurricanes" Waters, L., **Best, K.,** Miao, Q., Davlasheridze, M., Reilly, A. (*in review, International Journal of Disaster Risk Reduction*)

"Rent affordability after hurricanes: Longitudinal evidence from U.S. coastal states" **Best, K.B.**, He, Q., Reilly, A., Tran, N., Niemeier, D., (in review, *Risk Analysis)*

"Social and economic disparity in isolation risk due to sea level rise in the United States" **Best, K.B.,** He, Q., Reilly, A.C., Niemeier, D., Logan, T., Magoulick, P. (in review, *Nature Communications)*

Book chapters

"Approaches to Analyzing the Vulnerability of Community Water Systems to Groundwater Contamination in Los Angeles County" Miro, M. E., **Best, K.**, Kaynar, N., Kirpes, R., & Najera Chesler, A. In M. Lee & A. Najera Chesler (Eds.), *Research in Mathematics and Public Policy* (pp. 19–28). Cham: Springer International Publishing. https://doi.org/10.1007/978-3-030-58748-2_2 (2020)

Software

"bestkb/Environmental-Migration-ABM-Public: Winter Sim 2021 Version (1.1.0)" [Computer software] **Best, K.**. Zenodo. https://doi.org/10.5281/ZENODO.4526330 (2021)

Other publications

"The topic of clean energy has been neglected in mayoral election" **Best, K.B.**, Tasich, C.M., The Tennessean Newspaper, Opinions, (July 19, 2019)

PRESENTATIONS

Invited talks

National Geospatial-Intelligence Agency, "Environmental Migration in Bangladesh", February, 2023

University of Maryland Center for Disaster Resilience, "Social and Economic Disparity in Isolation Risk due to Sea Level Rise in the United States", December 2022

Climate, Migration, and Human Security, the World-Wide Human Geography Data Working Group (WWHGD), "Environmental Migration in Bangladesh: Internal and International Implications", November 2022

University of Maryland Center for Disaster Resilience, "Equity Implications of Disasters: from COVID-19 to Future Sea Level Rise" with Qian He, September 2022

Vanderbilt University Distinguished Lecture Series, Voicing Complexity: Publicness, Ethics, and Politics, "Modeling as Political Engagement: Active Mobility and Climate Change" panel with Dr. Pratim Sengupta, Dr. Jonathan Gilligan, and

Karly Ross, March 2021
STEM Consortium: Girls in STEM micro conference, "Justice, Equity, Diversity, and Inclusion (JEDI) in STEM: An example from the geosciences", February 2021
Graduate Climate Conference (virtual), Panelist, "AI Methods in Climate", October 2020
Federation of American Societies for Experimental Biology (FASEB), "Mental Health Matters: Finding Space in a University Setting", May 2020
Mote Marine Laboratory and Aquarium Endless Oceans Adult Education Program, Climate Science and the Ocean, November 2018
Graduate Administrators & Coordinators Regional Conference, Vanderbilt University, Panel, An Inside Look at How Graduate Students Perceive Campus Safety and Wellbeing, October 2018
Vanderbilt Center for Talented Youth VSA Talks, Vanderbilt University, "Changing with the Tides: Environmental Migration in Bangladesh", July 2018
Earth and Environmental Science Research Gala, Vanderbilt University, "Women in Earth and Environmental Science", January 2018
Invited Lecture, Wake Forest University School of Business, "Packaging Innovation and Sustainability", January 2016
Invited Lecture, Rice University School of Business Net Impact Club, "Sustainable Procurement at ExxonMobil", November 2015

Oral presentations
At What Point Managed Retreat? Habitability and Mobility in an Era of Climate Change, "Climate change and housing justice: implications for equitable adaptation", Columbia University, June 2023
American Association of Geographers (AAG) Annual Meeting, "Disasters, Rent Affordability, and Evictions: Longitudinal evidence from the United States", March 2023
Society for Risk Analysis (SRA) Annual Meeting, Tampa, Florida "Social and Economic Disparity in Isolation Risk due to Sea Level Rise in the United States", December 2022
NSF Funded Coastlines and People (CoPe) Workshop, Florida International University, "Social and Economic Disparity in Isolation Risk due to Sea Level Rise in the United States", October, 2022
Gobeshona Global Conference, session on non-migration as local-led adaptation in the context of climate change, "Mapping Narratives of Environmental Migrants in Dhaka", March 2022
American Association of Geographers (AAG) Annual Meeting, "Machine learning for climate gentrification research", February 2022
RISKKAN Workshop on Understanding and Modeling Complex Risks in Coupled Human-Environment Systems, "Combined machine learning and agent-based modeling for studying environmental migration dynamics", February 2022
Winter Simulation Conference 2021, "Modeling Multi-Level Patterns of Environmental Migration in Bangladesh: An Agent-Based Approach", December 2021
Winter Simulation Conference 2021 PhD Colloquium, "Modeling Multi-Level Patterns of Environmental Migration in Bangladesh: An Agent-Based Approach", December 2021
At What Point Managed Retreat? Resilience, Relocation and Climate Justice virtual

conference, "Identifying Climate Gentrification Across the East Coast of the United States: A Machine Learning Approach", June 2021

Women in Data Science (WiDS) Raleigh and Nashville: Data Science in Coupled Human and Natural Systems, virtual, "Mixed-methods Data Science for Environmental Migration", April 2021

Environmental Non-migration: Framework, Methods, and Cases, Dresden, Germany, "Applying Machine Learning to Social Datasets: A Study of Migration in Southwestern Bangladesh Using Random Forests", June 2019

AGU Fall Meeting, Washington D.C., "A Machine Learning Analysis of Multiple Social Surveys to Understand Environmental Migration in Coastal Bangladesh", December 2018

Conferences and Sessions Organized

At What Point Managed Retreat? Habitability and Mobility in an Era of Climate Change, "Resilient, Equitable, and Sustainable Infrastructure for Coastal Communities: Challenges and Opportunities", Columbia University, June 2023

American Association of Geographers (AAG) Annual Meeting, "Emerging research methods for social and economic equity in community resilience and climate adaptation research", March 2023

Convener, Estuarine Coastlines and People (CoPe) Workshop: Closing the Gap Between Science and Implementation in Coastal Adaptation, Annapolis, MD (*November 14-15, 2022)*

- Panel moderator, "Marsh shoreline projects: marsh processes, financing, social interactions" and "Beyond the individual project: ecosystem interactions, hydrodynamics, regional policy and infrastructure"

American Association of Geographers (AAG) Annual Meeting, "Climate gentrification: Emerging themes and methods", February-March 2022

Poster presentations and conference abstracts

Natural Hazards Research Summit, Washington, D.C., "Social and Economic Disparity in Isolation Risk due to Sea Level Rise in the United States", **Best, K.B.**, He, Q., Reilly, A.C., Logan, T., Niemeier, D., Jin, S., Anderson, M., October, 2022

Population Association of America (PAA) Annual Meeting, Atlanta, GA, "Place attachment, community cohesion, and migration in southwestern Bangladesh", **Best, K.B.,** Carrico, A., Donato, K., Mallick, B., April 2022

Population Association of America (PAA) Annual Meeting, Atlanta, GA, "Women's Internal Migration in Bangladesh: Investigating Type, Timing, and Environmental Intersections", Burns, H., Carrico, A., Donato, K., Mallick, **Best, K.B.**, April 2022

CSDMS Annual Fall Meeting, University of Colorado Boulder (virtual), "Pattern-oriented modeling to test frameworks of environmental migration decisions in Bangladesh", May 2021

AGU Fall Meeting, virtual, "An agent-based model of migration and environmental shock in Bangladesh", December 2020

Graduate Climate Conference, virtual, "Number of dangerous heat days in Bangladesh will increase with future climate change", October 2020

CSDMS Annual Fall Meeting, University of Colorado Boulder,
    "Environmental Migration and Land Inundation: An Agent-Based Modeling
    Approach", May 2019
Climate Change, Human Migration and Health: Integrating social and environmental data
    to accelerate innovative science, University of Colorado Boulder,
    "Machine Learning to Understand Salient Variables in Models of Migration in
    Southwestern Bangladesh", May 2019
Data Science Symposium, Vanderbilt University,
    "Environmental Migration in Bangladesh: Insights from Machine Learning",
    April 2019
Graduate Climate Conference, University of Washington,
    "Dynamics of Changing Environment, Livelihood, and Migration in
    Bangladesh", November 2018
CSDMS Annual Fall Meeting, University of Colorado Boulder,
    "Machine Learning to Predict Migration in Coastal Bangladesh", May 2018
Advanced Spatial Analysis Poster Session, Vanderbilt University,
    "Spatial Analysis of Internal Migration and Proximity to Transportation Networks
    in Southwestern Bangladesh", April 2018
Data Science Symposium, Vanderbilt University,
    "Machine Learning to Predict Migration in Coastal Bangladesh", March 2018
Earth and Environmental Science Research Gala, Vanderbilt University-
    "Migration Decisions: A random forest approach", January 2018
Chemical Engineering Senior Thesis Presentations, Princeton University,
    "Optimization of Root Depth Profile to Improve Representation of Dynamic
    Rooting Decisions of Two Tree Species", April 2015
Environmental Studies Senior Thesis Presentations, Princeton University,
    "Optimization of Root Depth Profile to Improve Representation of Dynamic
    Rooting Decisions of Two Tree Species", April 2015

TEACHING ACTIVITIES
Students Mentored
- Served on master's thesis committee: Farrah Hasan (University of Washington)
- Graduate students: Shuyu Jin (UMD)
- Undergraduate students: Mia Matteucci (Colorado College), Oluwatobi Ajiboye
  (UMD), Vahin Reddy (UMD), Nhi Tran (UMD), Annushka Aliev (UMD), Maham
  Sohail (UMD), Erin McCubbin (UMD), Jim Peng (UMD), Robin Young
  (Vanderbilt), Farrah Hasan (Vanderbilt)
- Undergraduate student summer projects: Mia Matteucci (NSF REU, summer 2023),
  Joshua McDuffie (Vanderbilt, Leadership Alliance Summer Program)

Instructor and Course Design
- STEM Summer Institute, The Harpeth Hall School, Nashville, TN (*June 14-18, 2021*)
- STEM Summer Institute, The Harpeth Hall School, Nashville, TN (*June 10-14, 2019*)
- "Climate Change: Where Policy Meets Science", Vanderbilt Summer Academy in
  Program for Talented Youth, Nashville, TN (*January 2018-July 2018*)

Head Graduate Teaching Assistant
- Probability and Statistics, Vanderbilt University, Nashville, TN (Spring 2022-

graduate and undergraduate level)
- Climate and Society: Drowning Cities, Vanderbilt University, Nashville, TN (Fall 2020- graduate and undergraduate level)
- Global Climate Change, Vanderbilt University, Nashville, TN (Fall 2018, Spring 2020- graduate and undergraduate level)

Graduate Teaching Assistant
- Oceanography, Vanderbilt University, Nashville, TN (Fall 2017)

Guest Lecturer
- Data Analytics for Engineers, Vanderbilt University, Nashville, TN, (*Spring 2023*)- "Random forest analysis of two household surveys can identify important predictors of migration in Bangladesh: From Project to Publication" (4/12)
- Graduate Seminar on Risk and Resilience, University of Maryland, College Park, MD (*Fall 2022*)- "Social and Economic Disparities of Isolation Risk due to Sea Level Rise in the U.S." (10/5)
- Introduction to Literary and Cultural Analysis, Vanderbilt University, Nashville, TN (*Spring 2022)*- "Climate and Migration in Bangladesh" (2/24)
- Regional Perspectives of Environmental Migration and Non-migration, Technical University of Dresden, Dresden, Germany (virtual) (*Spring 2022*)- "Interdisciplinary methods and teams for environmental migration research"
- Nations, Borders, and Migration, Appalachian State University, Boone, NC (virtual) (*Spring 2021*)- "Climate and Migration: The Case of Bangladesh" (3/11)
- Social Contexts of Public Policy, Vanderbilt University, Nashville, TN (*Spring 2021*)- "Data invisibility in climate migration research" (2/24)
- Data Analytics for Engineers, Vanderbilt University, Nashville, TN, (*Fall 2020*)- "Random forest analysis of two household surveys can identify important predictors of migration in Bangladesh: From Project to Publication" (11/17)
- Climate and Society: Drowning Cities, Vanderbilt University, Nashville, TN, (2 lectures, *Fall 2020*)- "Climate Gentrification" (11/16), "Climate and Migration in Bangladesh" (10/19)
- 6th Grade Science Class, Templeton Academy, Nashville, TN, *Spring 2020*- "Introduction to climate change" (1/23)
- Climate Change and the Global Response: A Multi-Disciplinary Perspective, Vanderbilt University, Nashville, TN, *Fall 2019*- "What is climate justice?" (10/16)
- Global Climate Change, Vanderbilt University, Nashville, TN (3 lectures, *Fall 2018)*- "Greenhouse Effect" (8/27), "Greenhouse Gases" (8/29), "How Will Climate Change Effect Our Lives?" (10/8)

Other
- Graduate Mentor, Leadership Alliance Summer Research - Early Identification Program (SR-EIP), Vanderbilt University, Nashville, TN (*June 2019 – August 2019*)
- Volunteer Teacher, One Heart Source, Ndagaa, Zanzibar (*June 2013*)
- Math and Science Tutor, Princeton Tutors, Princeton, NJ (*2013-2015*)

PROFESSIONAL DEVELOPMENT ACTIVITIES AND SERVICE
- Faculty Board Member at Large, American Association of Geographers (AAG) Human Dimensions of Global Change (HDGC) subgroup (*2023-2025 term*)

- Treasurer and Secretary, Society for Risk Analysis (SRA) Justice, Equity and Risk Specialty Group (JERSG) *(2023-2024 term)*
- Consultant for the U.S. Department of State, June 2023
- Review Editor, Frontiers in Climate- Climate Mobility (*April 2022 – present*)
- Merit reviewer and panelist, NSF EPSCoR Program
- Merit review and panelist, NSF DRRG Program
- Review journal manuscripts for *PNAS (April 2023), Climatic Change (April 2023), Journal of Population and Sustainability (February 2023), Nature Communications (December 2022), Scientific Reports (November 2022), Risk Analysis (November 2022, May 2023), Journal of Infrastructure Systems (November 2022), Population and Environment (March 2023, November 2022), Land Use Policy (October 2021)*
- Winter Simulation Conference 2021, Session Chair (*December 2021*)
- MIT Rising Stars in Civil and Environmental Engineering (by application), Massachusetts Institute of Technology, Boston, MA (*October 2021*)
- Earth Educators' Rendezvous Preparing for an Academic Career (*July 2021*)
- Vanderbilt Institute for Energy and the Environment (VIEE) (*August 2017 – June 2021)*, graduate student member
- Women in Data Science (WiDS) Ambassador (*Spring 2021*)
- Organized "Women in Data Science (WiDS) Raleigh and Nashville: Data Science in Coupled Human and Natural Systems" event, April 22, 2021
- Gobeshona Global Conference (*January 2021*), attendee
- U.S. Department of State Critical Language Scholarship virtual institute in Bangla (*September – November 2020)*
- ESSA-BEHAVE Summer School 2020, Behave Lab and European Social Simulation Association (ESSA), Advanced course on "Agent-Based Modelling for Social Scientists", virtual, (*September 2020*)
- Fair Play Anti-Racism Workshop (*August 2020*)
- Regression Modeling Short Course with Frank Harrell, Nashville, TN (*May 2020*)
- Mental Health Awareness & Prevention of Suicide training (*April 2020*)
- UN Climate Change Conference, Madrid, Spain (*December 2019*)
- 17th Development and Climate Days at COP25, Madrid, Spain (*December 2019*)
- Graduate Student Workshop on Socio-Environmental Synthesis: Interdisciplinary Skill Building, Proposal Writing and Collaborating (by application), SESYNC, Annapolis, MD (*August 2019*)
- Collaborative Teamwork Workshop with Kei Koizumi (by invitation), Vanderbilt University (*March 2019*)
- AAAS DoSER Science Communication and Engagement with Religious Audiences Workshop, Vanderbilt University (*March 2019*)
- Women in Mathematics and Public Policy workshop (by application), University of California, Los Angeles (*January 2019*)
- Federal STEM Policy Workshop (by application), Washington, D.C. (*October 2018*)
- Data Visualization Workshop with Alberto Cairo (by application), Vanderbilt University (*September 2018)*
- Certificate in College Teaching, Center for Teaching, Vanderbilt University (*Fall 2018 – present*)

- Diversity Symposium to Support Career Development of Women and Minorities in STEM, Vanderbilt University (*August 2018*)
- Organizer, VISOR Workshop on Data in Gentrification and Equitable Development, Vanderbilt University (*April 2017*)

<u>INSTITUTIONAL SERVICE AND LEADERSHIP</u>

- Vice President, Association for Women Geoscientists Vanderbilt Chapter (*December 2020 – May 2022*)
    - Pod leader, Vanderbilt AWG Unlearning Racism in the Geosciences (URGE) (*January 2021 – May 2021*)
- Department Representative, Graduate Student Council, Vanderbilt University (*August 2020 – August 2021)*
- Secretary, Earth and Environmental Science Graduate Student Association (*August 2020 – August 2021)*
- Graduate Student Representative, Department Diversity, Equity, and Inclusion Committee, Earth and Environmental Sciences, Vanderbilt University (*August 2020 – August 2021*)
- President, Graduate Student Council, Vanderbilt University (*July 2019 – August 2020)*
    - 2020 Winner of Vanderbilt Award for Leadership Excellence (VALE) Best Health and Wellness Program for Mental Health Bill of Rights and Responsibilities
    - Successfully advocated for Graduate Student and Post-doc Poster Printing and Dependent Care Travel Grants
    - Implemented improvements to University Grievance Procedure in Student Handbook
    - Led navigation of graduate student issues related to COVID-19 pandemic
- Council member, Vanderbilt University Sustainability Advisory Council (*January 2019 – Fall 2020)*
- Council member, Provost's Council for Women's Advancement and Equity, Vanderbilt University (*August 2019 – August 2020*)
- Council member, University Diversity Council, Vanderbilt University (*August 2019 – August 2020*)
- Council member, Graduate Leadership Development Institute, Advisory Committee (*January 2019 – August 2020*)
- Academic Chair, Earth and Environmental Science Graduate Student Association (*August 2019 – August 2020)*
- Member, University 2019-2020 Academic Calendar Committee, Vanderbilt University (*August 2019 – August 2020*)
- Graduate Student Representative, Chancellor Search Advisory Committee, Vanderbilt University, (*May – September 2019*)
- Student Life Liaison, Graduate Student Council, Vanderbilt University (*July 2018-July 2019*)
    - Finalized University Mental Health Bill of Rights and Responsibilities (featured in *Nature* and *Inside Higher Ed*)
    - Advocated for Graduate Student Hardship Fund

- Seminar Committee Representative, Department of Earth and Environmental Science, Vanderbilt University (*2018- Spring 2020*)
- Graduate Honor Council volunteer councilmember (*April 2019, June 2020, December 2020*)
- Department Recruiter, Organized trip and attended National Association of Black Geosciences Conference for first time with department for diversity recruiting, National Association of Black Geoscientists Annual Meeting, Houston, TX (*September 2018*)
- Co-Founder, Earth and Environmental Science Diversity Committee, Vanderbilt University (*2017-2019*)
- Group leader, Department strategy for inclusive recruitment, Graduate Diversity and Inclusion Committee, Vanderbilt University (*2017-2019)*
- Member, Association for Women Geoscientists Vanderbilt Chapter, Vanderbilt University (*2017-present*)
- Member, New Faculty Search Graduate Student Committee, Vanderbilt University (*Spring 2018*)

PROFESSIONAL EXPERIENCE

Stop Slavery Analyst: Thomson Reuters Foundation Trust Conference (2017-2018)
- Volunteer analyst for Trust Conference Stop Slavery Awards, which recognizes companies striving to eradicate forced labor in their supply chains. Reviewed, ranked, and summarized company applications for Judging Board.

Sustainability Associate: ExxonMobil Global Sustainable Procurement, Houston, TX (August 2015-2017)
- Designed and implemented environmental performance program in the supply chain to enhance supply chain sustainability.
- Served as environmental advisor for upcoming Procurement bids as well as Fuels and Lubricants and Chemical Company projects.
- Communications lead of cross-functional Houston Campus Sustainability Team to engage and educate employees on sustainability issues including recycling, waste reduction, paper reduction, and wildlife.
- Led communications for first and second ExxonMobil Houston Earth Days.

Procurement Intern: ExxonMobil Global Services, Fairfax, VA (Summer 2014)
- Conducted a drum reconditioning study to enhance sustainability of Fuels and Lubricants packaging at Lube Oil Blending Plants in the US.

OUTREACH AND COMMUNITY SERVICE
- Pen Pals with a Purpose mentor, Metro Nashville Public Schools, Nashville, TN, *August 2018- August 2020*
- Project advisor, Middle School Water Project, Harpeth Hall School, Nashville, TN, *January 2020*
- Event coordinator, "Caring for Creation: A discussion of climate change, religion, and a sustainable future", Nashville, TN, *August 2019*
- Expert judge, Middle School Water Project, Harpeth Hall School, Nashville, TN, *January 2019*

- Assistant facilitator, STEM Consortium: Reinforcing our unbreakable commitment to girls in STEM, Harpeth Hall School, Nashville, TN, *November 2018*
- Volunteer scientist, Vanderbilt SAVY Hydrology Camp for first grade students, Vanderbilt University, Nashville, TN, *October 2018*
- Mentor lunch, Harpeth Hall STEM Camp, Harpeth Hall School, Nashville, TN, *June 2018*
- Student mentor, Glencliff Girls STEM Day, Vanderbilt University, Nashville, TN, *March 2018*
- Visiting scientist to discuss responsible resource use with second grade class, A.Z. Kelley Elementary School, Antioch, TN, *January 2018*

GRANTS AND FELLOWSHIPS

- Environments Graduate Student Fellowship and Cohort Leader, 2021-2022, The Robert Penn Warren Center for the Humanities and the Climate and Society Grand Challenge Initiative, Vanderbilt University ($2,500)
- Curb Center Public Scholar, 2020-2022 Cohort, The Curb Center for Art, Enterprise & Public Policy, Vanderbilt University ($2,000)
- 2020 Critical Language Scholarship Finalist in Bangla, American Councils for International Education ($750)
- Socio-Environmental Analysis of Climate Gentrification along the East Coast of the United States (PI) 2020 National Socio-environmental Synthesis Center (SESYNC) Graduate Pursuit ($14,000 for stipends)
- Student scholarship, Community Surface Dynamics Modeling System Annual Meeting, Boulder, CO ($600), *March 2020 (meeting in person cancelled)*
- Alberstadt-Reesman-Stearns Fund, Vanderbilt Earth and Environmental Sciences, Nashville, TN ($2,000), *October 2019*
- Early Career Scientist Grant, Environmental Non-migration: Framework, Methods, and Cases Conference in Dresden, Germany (€500), *June 2019*
- AAAS Dialogue on Science, Ethics, and Religion Engaging Scientists in the Science and Religion Dialogue Public Engagement Contest ($1,000), *May 2019*
- Travel award, Climate Change, Human Migration and Health: Integrating social and environmental data to accelerate innovative science, University of Colorado Boulder ($500), *May 2019*
- Vanderbilt Graduate School Travel Grant ($500), *November 2018*
- National Merit Scholarship, *2011-2015*

AWARDS AND HONORS

- Winner, Graduate Leadership Anchor Awards, Vanderbilt University, 2021
- Finalist and third place overall, Three Minute Thesis (3MT) Competition, Vanderbilt University, *2021*
- Ward Prize for Creative Writing, Princeton University, *2015*

PROFESSIONAL AFFILIATIONS

- Society for Risk Analysis (SRA)
- American Geophysical Union (AGU)

- Population Association of America (PAA)
- American Association of Geographers (AAG)
- Association for Women Geoscientists (AWG)
- Society of Women Engineers (SWE)
- Leadership Alliance
- American Institute of Chemical Engineers (AIChE)

SKILLS AND LANGUAGES
- Coding in R, Python, NetLogo, ArcGIS, QGIS
- Intermediate High in Bangla language, American Council on the Teaching of Foreign Languages Oral Proficiency Interview (OPI)

PROFESSIONAL REFERENCES

Deb Niemeier , Clark Distinguished Chair Professor, Department of Civil and Environmental Engineering, Director of Center for Disaster Resilience, University of Maryland, College Park, niemeier@umd.edu

Allison Reilly, Professor of Civil and Environmental Engineering, University of Maryland, College Park, areilly2@umd.edu

Jonathan Gilligan, Professor of Earth and Environmental Science, Vanderbilt University, jonathan.gilligan@vanderbilt.edu

Hiba Baroud, Professor of Civil and Environmental Engineering, Vanderbilt University, hiba.baroud@vanderbilt.edu

David Furbish, Professor of Earth and Environmental Science, Vanderbilt University, david.j.furbish@vanderbilt.edu

Amanda Carrico, Professor of Environmental Studies, University of Colorado, Boulder, amanda.carrico@colorado.edu