

Curriculum Vitae

Joseph Karanja

Ph.D. Student (GIScience) and Teaching Assistant
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EDUCATION

- 2021-Present **Ph.D. GIScience, Arizona State University (ASU)**, Tempe, Arizona.
- Thesis: *Optimal Predictors of Heat-Health Outcomes using Surface, Near-Surface and Social Metrics.*
 - Committee: Dr. Matei Georgescu (chair), Dr. David Hondula, and Dr. Amy Frazier.
- 2019-2021 **M.S. Geosciences (geography concentration), Georgia State University (GSU)**, Atlanta, Georgia
- Thesis: *Evolution of Composite Heat Vulnerability Indices in Atlanta using Multiple Weighting Mechanics.*
 - Committee: Dr. Lawrence Kiage (chair), Dr. Dajun Dai, and Dr. Ricardo Nogueira.
- Postgraduate Certificate in GIS, Georgia State University** Atlanta, Georgia.
- 2014-2017 **M.S. Environmental Education (Climate Change and Sustainability), Kenyatta University (KU)**, Nairobi.
- Thesis: *Quality of Geothermal Effluents and Emissions from Climate Change Resilient Technologies in Eburru and Olkaria, Nakuru County.*
 - Committee: Dr. Daniel Mang'uriu (chair) and Dr. Ezekiel Ndunda.
- 2009-2013 **Bachelor of Environmental Planning and Management, Kenyatta University**
Attained **First Class Honours**.
- Project: Understanding Settlement Challenges in Kihoto Informal Settlement along the Lake Naivasha Floodplain.
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RESEARCH INTERESTS

- Heat vulnerability: generating metrics for social vulnerability, heat-hazard exposure, and their composites.
 - Geographic Information Science: scale issues, data visualization, spatial data transformations, and the integration of GIS in heat-health studies.
 - Heat-Hazard characterization: comparing satellite and meteorological datasets to study spatial-temporal dynamics associated with heat and resultant health outcomes
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PUBLICATIONS (PEER-REVIEWED)

1. **Karanja, J.**, Kiage, L.M. Scale implications and evolution of a social vulnerability index in Atlanta, Georgia, USA. *Nat Hazards* (2022). <https://doi.org/10.1007/s11069-022-05324-9>
 2. **Karanja, J.**, Kiage, L., & Wanyama, D. (2021). Weighting Mechanics and the Spatial Pattern of Composite Metrics of Heat Vulnerability in Atlanta, Georgia, USA. *Science of the Total Environment*. <https://doi.org/10.1016/j.scitotenv.2021.151432>
 3. **Karanja, J.**, & Kiage, L. (2021) Perspectives on Spatial Representation of Urban Heat Vulnerability. *Science of the Total Environment*. Vol 774 (220). <https://doi.org/10.1016/j.scitotenv.2021.145634>
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MANUSCRIPTS IN PREPARATION

1. **Karanja, J.**, Georgescu, M., Svoma, B., & J., Walter. Examining the Pacific and Atlantic Oceans Teleconnections Influencing Southwest USA Winter Precipitation Variability. Article proposal accepted by Environmental Research Letters journal.
 2. **Karanja, J.**, Vanos, J., Georgescu, M., & D. Hondula. Methodological Rationale for Heat Vulnerability Indices as Predictor Variables of Heat-Health Outcomes.
 3. Garima, J., Malladi, T., & **J. Karanja**. Spatial Vulnerability: Conceptual Positioning and Application for Decision-Making.
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NON-PEER REVIEWED REPORTS

1. **Karanja, J.**, (2013). Assessing settlement challenge in Kihoto informal settlement along the lake Naivasha flood plain (KU library).
 2. Assessing land-use conflicts to the sustainability of land use of Maasai Mara ecosystem. February 2013 (KU library)
 3. Assessing the effectiveness of Community Forest Associations (CFAs) in forest management in Kieni East district. October 2012 (KU library).
 4. Sustainable spatial plan of Nyahururu municipality to the year 2030. September 2011. (KU library).
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GRANTS AND FELLOWSHIPS

- Recipient of Interdisciplinary enrichment fellowship 2021-2022, ASU. Award amount \$47,925
 - ASU graduate college conference award 2021-2022. Award amount \$245
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HONORS AND AWARDS

- Geography graduate student of the year 2020-2021, GSU
- Geosciences teaching assistant of the year 2020-2021, GSU
- Nominated for International Student of the year 2020-2021, GSU

POSITIONS HELD

- 2022-
Present: **Teaching Assistant, Arizona State University**
- Instructor of Record for Introduction to Meteorology, Fall 2022
- 2021-2022 **Graduate Research Assistant, Arizona State University**
- I am working on an NSF-funded project examining the effects of a warmer climate on future Salt-Verde watershed winter precipitation using convection-permitting regional climate models. A joint project between ASU and Salt River Project (SRP).
 - I analyze precipitation data (1951-2021) to determine contemporary winters for simulations to the year 2100.
 - Working on a systematic review article as the lead author exploring climate modes in the Pacific and Atlantic oceans and how they impact southwest USA winter precipitation.
- 2020-2021 **Lead Teaching Assistant, Georgia State University**
- In charge of 12 teaching assistants (TAs) and 29 labs (approximately 28 students per lab).
 - Steered the weather and climate **lab innovation plan** for the department of Geosciences.
 - Aligned the lab modules with culturally responsive pedagogy and transitioned to online delivery during the pandemic.
- 2019-2021 **Teaching Assistant, Georgia State University**
- Courses taught: Weather and climate
Introduction to GIS
Advanced GIS
Introduction to remote sensing
- 2017-2019 **Manager, M&N Enterprises, Naivasha**
- Implemented a business management system, and output grew five-fold under my leadership.
- 2012-2013 **Trainee at Kenya Electricity Generating Company, Naivasha**
- Sections attached: meteorology, occupational safety and health, community liaison, environmental laboratory, and GIS lab.
 - Monitored daily air quality and noise levels, conducted statutory inspections of worksites and toxicity analysis for geothermal effluents.

LEADERSHIP ROLES

- 2020-2021
- President, Geosciences Graduate Students Alliance, Georgia State University.
 - Student representative to the Graduate Council, College of Arts and Sciences, GSU.
 - Student member to the curriculum committee. Participated in the review of the college curriculum and voted on committee issues.

PROFESSIONAL PRESENTATIONS (bolded author name presented)

- 2021
- **Karanja, J.**, Vanos, J., Georgescu, M., & D. Hondula. Methodological Rationale for Heat Vulnerability Indices as Predictor Variables of Heat-Health Outcomes. American Association of Geographers Annual Meeting.
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PROFESSIONAL CERTIFICATIONS

- Certified associate expert for environmental impact assessment, Kenya. Certificate issued by National Environmental Management Authority, since September 2016.
 - Certificate in transformational leadership skills awarded by Kenyatta University, December 2013.
 - Certificate on entrepreneurial promotion sponsored by Kenyatta University, University of Lüneburg (Germany), and UNESCO (United Nations Educational, Scientific, Cultural Organization), November 2012.
 - Introduction to GIS and remote sensing certification awarded by Regional Center for Mapping of Resources for Development, Nairobi, April 2012.
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PROFESSIONAL ASSOCIATIONS

- Student member, American Association of Geographers (AAG)
 - Member, Board of Urban Environment, American Meteorological Society (AMS)
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OTHER COMPETENCIES

- Proficiency in ArcMap, ArcGIS Pro, QGIS, Erdas Imagine, and SPSS software
 - Python Programming (Introduction)
 - R-Programming (Introduction)
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COMMUNITY WORK

- Counselor, Naivasha District Hospital. Volunteered at the comprehensive care center for HIV-infected people and checked their daily progress
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