Jagger Alexander

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202 E 45th St. #306, Austin, TX, USA 78751

Education

2016 - 2020 **B.A. in Mathematics**, *Vanderbilt University – Nashville, TN*
Minor: Earth & Environmental Sciences | College of Arts & Sciences Honors Program

2020 - 2021 **M.S. in Climate and Health**, *University of Miami – Miami, FL*
Research Fellowship Award Recipient | GPA 4.0 / 4.0

2022 - 2025 (expected) **Ph.D. Candidate in Geosciences**, *University of Texas at Austin – Austin, TX*
Jackson School of Geosciences Fellowship | GPA 4.0 / 4.0

Research focus: High-resolution heatwave prediction to guide heat adaptation measures

Personal Statement

I serve as a connector between climate science and medicine, with strong academic, research, and teaching experience in both fields. My graduate research focused on the health impacts of heatwaves and the interaction between weather and Zika virus epidemiology. I am skilled in global climate models, machine learning, and programming, which I demonstrated by integrating social vulnerability data into a NOAA weather forecasting system. Certified as an NREMT, I am committed to using my expertise to serve communities disproportionately affected by climate change.

Professional Experience

Summer 2023 **PREP-GC Intern,** Global Systems Laboratory, NOAA, Boulder, CO

- Developed front-end code for visualizing social vulnerability and natural hazard impact in a web-based weather visualization system.
- Processed, cleaned, and aggregated data from over two decades of natural hazards across CONUS, creating an application which enables point-radius searches. This is available at http://sites.gsl.noaa.gov/DESI.

Summer 2020 – Fall 2022 **Research Team Leader (Project MEER)**, Rowland Institute at Harvard, Cambridge, MA

- Led interdisciplinary teams comprising undergraduate and graduate students from diverse universities across the nation in the fields of terrestrial ecology, marine ecology, and energy modeling
- Mentored undergraduates, providing guidance on proficient research techniques
- Programmed a comprehensive model of incoming solar radiation for assessing the potential of terrestrial and floating marine mirror-arrays towards climate change mitigation

Teaching Experience

Spring 2024 **Climate: Past, Present, and Future,** University of Texas at Austin, Austin, TX

- Independently designed and implemented lab experiments and assignments for a climate change course, integrating computer simulations, classroom experiments, and lectures to engage non-major undergraduates
- Enhanced student engagement by incorporating current events and encouraging critical thinking, particularly through discussions on controversial topics like artificial cloud seeding, which successfully drew quieter students into active participation

Fall 2023 **Calculus Tutorial for Geoscience**, University of Texas at Austin, Austin, TX

- Designed and delivered curricula for three sections of a calculus tutorial, connecting mathematical concepts to geoscience topics like climate, hydrology, and geology
- Independently managed all course duties, including syllabus creation, grading, and student support, while ensuring consistent classroom expectations
- Fostered a supportive learning environment by building trust with students, offering personalized guidance, and connecting them with research and career opportunities aligned with their interests

Volunteering

Summer 2024 - Present **National Alliance on Mental Illness (NAMI)**, Austin, Texas

- Training to teach short courses on mental health and lead support groups for those struggling with mental illness and their caregivers

Summer 2018 **Big Blue Conservation**, Koh Tao, Thailand

- Used advanced open water diving certification to conduct marine census and build artificial underwater reefs, mitigating climate change related damages in the Gulf of Thailand

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Publications

1. Yamin Qing, Shuo Wang, Zong-Liang Yang, Pierre Gentine, Boen Zhang, and **Jagger Alexander**. Accelerated soil drying linked to increasing evaporative demand in wet regions. npj Clim Atmos Sci 6, 205 (2023). https://doi.org/10.1038/s41612-023-00531-y

2. **Jagger Alexander**, et al. (2022). Using machine learning to understand microgeographic determinants of the Zika vector, Aedes aegypti. PLOS ONE 17(12): e0265472. https://doi.org/10.1371/journal.pone.0265472

3. Marca Alexander, **Jagger Alexander**, Mohit Arora, Chloe Slocum, James Middleton (2019). A bellweather for climate change and disability: educational needs of rehabilitation professionals regarding disasters and spinal cord injuries. Spinal Cord Series and Cases 5(85). https://doi.org/10.1038/s41394-019-0239-z

4. Larisa R. G. DeSantis, **Jagger Alexander**, Eva M. Biedron, et al. (2019). Effects of climate on dental mesowear of extant koalas and two broadly distributed kangaroos throughout their geographic range. PLoS ONE 13(8): e0201962. https://doi.org/10.1371/journal.pone.0201962

5. Marca Alexander, Conley Carr, **Jagger Alexander**, Yuying Chen, Amie McLain (2018). Assessing the ability of the Sacral Autonomic Standards to document bladder and bowel function based upon the Asia Impairment Scale. Spinal Cord Series and Cases 5(85). https://doi.org/10.1038/s41394-019-0228-2.

Presentations

1. **Jagger Alexander**, Rob Howlett, and Travis Wilson (2023). Visualizing natural hazard vulnerability and impact. Presented at Climate and Health Conference 2023 at Zucker School of Medicine in Hempstead, NY. Also presented at American Geophysical Union Fall Meeting in San Francisco, CA.

2. **Jagger Alexander** (2022). Weather Conditions and COVID-19 Incidence in Florida – Machine Learning and Classical Approaches. Presented at University of Miami Climate and Health Symposium in Miami, FL.

Skills

Certifications

- Emergency Medicine Technician (National Registry and Texas Certified)
- CPR and BLS
- Advanced Open Water Diver with 80+ dives

Geospatial

- ArcGIS
- GIS Technology

Software

- JavaScript
- HTML
- Selenium
- Python
- R
- Microsoft Office Suite

Laboratory Techniques

- Biology
- Chemistry
- Organic Chemistry

Data analysis

- Machine learning (random forest, boosting, clustering)
- Data interpolation (kriging, etc.)
- Probability testing

Field Research

- Vertebrate Species Identification
- Field Counting Methods
- Mist-Netting
- Compass & Navigation

Honors

Jackson School of Geosciences Graduate Fellowship - Cornelius Vanderbilt Scholarship Recipient
UMiami Climate and Health Graduate Fellowship - Weeks Climate Fellowship Honorable Mention
National Merit Scholarship Recipient
