Curriculum Vitae

Abraham Arbelaez

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Education

Starting in 08/23 **PhD in Statistics**
Kansas State University, Manhattan, KS
Adviser: Trevor J. Hefley

09/19 – 05/23 **Bachelor of Science in Statistics**
The Pennsylvania State University, University Park, PA
Minor: Economics
Adviser: Ephraim M. Hanks

Research Interests

Spatio-temporal statistics. Bayesian statistics. Environmental statistics.

Research Experience

05/23 – Current **Kansas State University**
Position: Research Technician
Mentor: Trevor J. Hefley
• Conducting literature review, developing critical thinking, and organizing future plans.
• Meeting two times per week with faculty advisor to update on research progress and identify next steps.
• Working thirty hours per week on literature review.

01/22 – 05/23 **The Pennsylvania State University**
Position: Undergraduate Research Assistant
Mentor: Ephraim M. Hanks
• Synthesized research into an academic paper that will be sent for review in the Spatial Statistics Journal.
• Analyzed thousands of cases on golden eagle and bald eagle migration data.
• Extracted columns and classified raw data into lists of matrices.
• Built informative data visualization and animated plots on the animal movement data that was part of the Exploratory Data Analysis.
• Analyzed golden eagles and bald eagles with archetype analysis.
• Coded Bayesian Hierarchical Models and ran Markov Chain Monte Carlo simulations in R.
• Constructed a new approach to archetype analysis considering covariates using a Bayesian framework.
• Worked on Bayesian Modeling of Spatio-Temporal data fifteen hours per week.

05/22 – 07/22 **McNair Summer Research Program**
Position: Undergraduate Researcher
Mentor: Ephraim M. Hanks
• Analyzed hundreds of cases on golden eagle migration data with Bayesian Methods and Spatio-Temporal Statistics.
• Developed code for Bayesian Models of Spatio-Temporal in R.
• Presented findings at the Office of Graduate Educational Equity Program (OGEEP) research Symposium at the Pennsylvania State University.
• Wrote and published a journal article describing the findings of the research.

Works in Progress

Arbelaez, A., and Hanks, E. M. Archetype analysis of bird migration patterns using bayesian methods. 2023

Oral Presentations

Spatial Statistics Conference 2023, July 17-21, 2023. Arbelaez, A., and Hanks, E. M. Archetype analysis of bird migration patterns using bayesian methods. 2023

2023 Pennsylvania Regional Math Alliance Conference, February 18, 2023. Arbelaez, A., and Hanks, E. M. Archetype analysis of golden eagle migration patterns using bayesian methods. *The McNair Journal at The Pennsylvania State University 25* (2022)

30th Annual UMBC McNair Scholars Research Conference, September 15 - 17, 2022. Arbelaez, A., and Hanks, E. M. Archetype analysis of golden eagle migration patterns using bayesian methods. *The McNair Journal at The Pennsylvania State University 25* (2022)

Office of Graduate Educational Equity Program (OGEEP) Research Symposium at the Pennsylvania State University, July 25, 2022. Arbelaez, A., and Hanks, E. M. Archetype analysis of golden eagle migration patterns using bayesian methods. *The McNair Journal at The Pennsylvania State University 25* (2022)

Eberly College of Science Undergraduate Poster Exhibition, October 6, 2022. Arbelaez, A., and Hanks, E. M. Archetype analysis of bird migration patterns using bayesian methods. 2023

Poster Presentations

2023 Undergraduate Poster Exhibition, April 12, 2023. Arbelaez, A., and Hanks, E. M. Archetype analysis of bird migration patterns using bayesian methods. 2023

Eberly College of Science Undergraduate Poster Exhibition, October 6, 2022. Arbelaez, A., and Hanks, E. M. Archetype analysis of golden eagle migration patterns using bayesian methods. *The McNair Journal at The Pennsylvania State University 25* (2022)

Community Services

Student Volunteer

10/22 Promoted undergraduate research opportunities and collaborated in an informal informational panel for a first-year seminar class for more than twenty students regarding my experiences

03/22 Promoted undergraduate research opportunities and collaborated in an informal informational panel for a first-year seminar class for more than fifteen students regarding my experiences

Honors, Awards & Scholarships

08/23	Timothy R. Donoghue Graduate Scholarship
04/23	Data Fest at Penn State 2021 - Best Data Visualization
02/23	Norman Freed Undergraduate Research Award in the Eberly College of Science
10/22	Second Place in Eberly College of Science Undergraduate Poster Exhibition - Mathematical Division Awardee
01/22	Ronald E. McNair Post-Baccalaureate Achievement Program
04/22	Data Fest at Penn State 2022 - Runner up
08/21	Dr. George and Diana Kosco Trustee Scholarship
05/21	Summer Success Scholarship 2021
03/21	Data Fest at Penn State 2021 - Best Insight
19-20	Edmund J. Elder Trustee Scholarship

Technical Skills

Programming: R, Python, SAS, SQL, Tableau, Minitab, LaTeX, Microsoft Office, HTML, CSS

Professional Training

Data Science Professional Resource Group Mentee, Liberty Mutual, Fall 2022
Mentor: Kristine Valo. Data Science Director, Liberty Mutual.
Learning about Data Science and Industry with real world data.

Share Data Through the Art of Visualization Certification, Coursera, February 10, 2022
Online non-credit course authorized by Google and offered through Coursera

Foundations: Data Certification, Coursera, February 10, 2022
Online non-credit course authorized by Google and offered through Coursera

Ask Questions to Make Data-Driven Decisions Certification, Coursera, February 10, 2022. Online non-credit course authorized by Google and offered through Coursera

Languages

Spanish: Native Language

English: Advanced

French: Intermediate Listener, Intermediate Speaker, Advanced Reading and Writing

May 31, 2023