Jacob E. Megarity

(972) 754-7492   ja.megarity@gmail.com   Coppell, Texas 75019

Education

B.S., Bioenvironmental Science, summa cum laude *May 2024*
Texas A&M University, College Station, TX, *GPA: 4.0*

Non-degree Seeking *Jan 2025 – Present*
The University of Texas at Dallas, Richardson, TX, *GPA: 4.0*

Research Experience

Research Assistant *January 2025 – Present*
Flow Dynamics and Turbulence Lab, The University of Texas at Dallas

- Studying the small-scale turbulent structures on both sides of the ocean-atmosphere interface through controlled wind-wave tunnel experiments using particle image velocimetry (PIV) and laser-induced fluorescence (LIF).
- Developed MATLAB code to process PIV images and compute water and air particle velocities from wind-wave tunnel experiments as part of research on air-sea flux exchange.
- Participating in weekly lab meetings to discuss current research objectives, relevant research papers, and professional development topics.

Research Assistant *January 2023 – May 2024*
Spatial Ecology and Conservation Biology Lab (Dr. Wu Lab), Texas A&M University

- Collected and analyzed field data for research pertaining to the impacts of climate change and various rangeland management practices on ecosystem health, livestock production, and biodiversity in the Edwards Plateau region of Texas.
- Utilized Python, MegaDetector AI model, and Microsoft Excel to process, extract, and organize the data of over 350,000 wildlife camera trap images to examine the relationship between climate change, frequent prescribed burns, and biodiversity within prairie ecosystems.
- Assisted Ph.D. students in advancing research projects and publishing scientific findings through the online, community-driven Zooniverse platform to gather valuable ecological data.

Teaching Experience

Undergraduate Teaching Assistant *August 2023 – December 2023*
Fundamentals of Ecology (ECCB 205), Texas A&M University

- Facilitated weekly study sessions to help students deepen their understanding of course material, prepare for exams, review coursework, and develop strong study habitats and techniques.

- Assisted the professors by providing instructional support in the classroom, answering student questions, and helping teach course material to ~300 undergraduate students.

Student Memberships and Organizations

Aggie Speleological Society, Texas A&M University *August 2021 – December 2022*

Community Engagement and Service

Dallas Sierra Club *June 2025 - Present*

St. Joseph Village Retirement Community – Coppell *October 2024 – Present*

St. Ann's Thanksgiving Baskets Drive *November 2021 – November 2023*

Relevant Coursework

Differential Calculus	Oceanography
Integral Calculus	Geology
Multivariable Calculus	Planet Earth
Differential Equations	Fundamentals of Ecology
Statistical Methods	Biology I & II (Zoology)
Introduction to Programming: MATLAB	General Chemistry I & II
Physics – Mechanics	Organic Chemistry I
Physics – Electromagnetism and Waves	Geographic Information Systems

Skills and Techniques

Computational: Python, MATLAB, Version Control with Git/Github, ESRI's ArcMap & ArcGIS Pro 10.x, Microsoft Office Suite

Technical: Image Processing and Analysis, Particle Image Velocimetry (PIV) and Laser-Induced Fluorescence (LIF), Data Acquisition using NI DAQ and LabVIEW, Spatial Data Analysis and Map Creation, Experimental Setup and Design